संस्कृत एवं प्राकृत विभाग
जैन विश्वभारती संस्थान, लाडनूं (राजस्थान)
पाठ्यक्रम समिति : 03 फरवरी, 2015

बैठक–वृत्त

आज दिनांक 03.02.2015 को संस्कृत एवं प्राकृत विभाग के अन्तर्गत प्राकृत पाठ्यक्रम समिति की बैठक आयोजित की गई। इस बैठक में निम्नलिखित सदस्य उपस्थित थे–

1. प्रो. दामोदर शास्त्री – अध्यक्ष
2. प्रो. ऋषभ चन्द जैन 'फौजदार' – बाह्य विषय विशेषज्ञ (प्राकृत)
3. प्रो. विश्वनाथ मिश्रा – प्रोफेसर
4. प्रो. समणी कुसुम प्रज्ञा – प्रोफेसर
5. डॉ. समणी ऋजु प्रज्ञा – सह–आचार्य
6. डॉ. समणी संगीत प्रज्ञा – सह–आचार्य
7. डॉ. सत्यनारायण भारद्वाज – सहायक आचार्य
8. समणी भास्कर प्रज्ञा – सहायक आचार्य
9. डॉ. सुनीता इन्दौरिया – सहायक आचार्य

इस बैठक के अन्तर्गत बाह्य एवं स्थानीय विद्वानों के द्वारा प्राकृत–संस्कृत का पाठ्यक्रम जो कि समन्वित (Intigrated) रूप में था और Semester पद्धति से संचालित था, उस पाठ्यक्रम को पृथक्–पृथक् करते हुए CBCS पद्धति के अनुसार किया गया है। सभी के सुझावों के आधार पर निम्नलिखित निर्णय लिये गये, जो इस प्रकार हैं–

- सेमेस्टर प्रणाली में एक से चार सेमेस्टर में कुल 16 पत्र थे, जो CBCS Pattern में बढकर 20 हो गये।
- CBCS Pattern में प्रत्येक पत्र को 4 इकायों में बांटा गया।
- सेमेस्टर प्रणाली में लिखित परीक्षा 75 अंकों की तथा CIA 25 अंकों का था, जो CBCS Pattern में 70 तथा 30 अंकों का किया गया।
- CBCS Pattern में विद्यार्थियों को ऐच्छिक पत्र के चुनाव के लिये अधिक पत्र दिये गये।

सभी के अमूल्य सुझावों के साथ प्राकृत के एम.ए. पाठ्यक्रम को निम्नलिखित रूप में स्वीकृत किया गया–

Semester I		
Sr. No.	**Name of Course (Old Syllabus)**	**Name of Course (New Syllabus)**
1.	Veda	प्राकृत भाषा एवं साहित्य का इतिहास
2.	Jain Canon	प्राकृत व्याकरण, छन्द एवं अलंकार शास्त्र
3.	Sanskrit Grammar and Sanskrit	अर्द्धमागधी आगम साहित्य

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	Philology	
4.	Jain Philosophical Literature	शौरसेनी साहित्य
5.	-	प्राकृत आचारपरक साहित्य
6.	-	आगमिक व्याख्या साहित्य
7.	-	संस्कृत साहित्य
8.	-	मूल्यपरक शिक्षा
Semester II		
9.	Logic and Philosophical Literature	प्राकृत साहित्य–प्रथम भाग
10.	Prakrit Grammar and Prakrit Philology	नाटक और सट्टक साहित्य
11.	Sanskrit Kāvya Literature	आगमिक दार्शनिक साहित्य
12.	Prakrit Kāvya Literature	शौरसेनी साहित्य
13.	-	प्राकृत आचारपरक साहित्य
14.	-	आगमिक व्याख्या साहित्य
15.	-	संस्कृत साहित्य
16.	-	कम्प्यूटर अनुप्रयोग
Semester III		
17.	Ardhamāgadhī Philosophical Literature	प्राकृत अभिलेख
18.	Śaurasenī Philosophical Literature	अपभ्रंश साहित्य
19.	Prakrit Dramas	प्राकृत कथा एवं चम्पू साहित्य
20.	Alaṅkāra, Deśīnāmamālā and Prosody	प्राकृत दार्शनिक साहित्य
21.	-	शौरसेनी साहित्य
22.	-	प्राकृत आचारपरक साहित्य
23.	-	आगमिक व्याख्या साहित्य
24.	-	संस्कृत साहित्य
Semester IV		
25.	Inscription	प्राकृत साहित्य–भाग 2
26.	Buddhist (Pali) Literature	शोध–प्रविधि एवं पाण्डुलिपि विज्ञान

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27.	Apabhraṃśa Language and Literature	लघुशोध प्रबन्ध अथवा पालि साहित्य
28.	History of Prakrit Literature and Unseen Essays OR Dissertation	भक्ति एवं मुक्तक साहित्य
29.	-	शौरसेनी साहित्य
30.	-	प्राकृत आचारपरक साहित्य
31.	-	आगमिक व्याख्या साहित्य
32.	-	संस्कृत साहित्य

(प्रो. दामोदर शास्त्री)
विभागाध्यक्ष

प्रतिलिपि –

1. वरिष्ठ निजी सहायक, कुलपति
2. निजी सहायक, कुलसचिव

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Semester – II Core Foundation Paper

Course Code – JVB 205 Preksha Meditation and Self Management

Marks 100 **[CIA- 20, UT- 15x4=60, TP- 20]** **Credit-4**

Paper V

Objectives

1. To understand historical development of Preksha Meditation.
2. To understand the components, spiritual-scientific basis, objectives and benefits of Preksha Meditation.
3. To introduce the practicals & process of Preksha Meditation.

Unit-I Preksha Meditation - I

Preksha Meditation: nature, *upsampada*, main, supportive and specific components.
Kayotsarga (Relaxation with self awareness): objectives, spiritual and scientific basis and benefits.
Internal Trip (*Antaryatra*): objectives, spiritual and scientific basis and benefits.

Unit-II Preksha Meditation – II

Perception of Breathing: objectives, spiritual and scientific basis, types and benefits.
Perception of Body: objectives, spiritual and scientific basis and benefits.

Unit-III Preksha Meditation - III

Perception of Psychic Centres: objectives, spiritual and scientific basis and benefits.
Psychic Colour Mediation (*Leshya Dhyan*): objectives, spiritual and scientific basis and benefits.
Contemplation (*Anupreksha*): objectives, spiritual and scientific basis and benefits.

Unit-IV Self Management through Preksha Meditation

Personality development and Preksha Meditation.
Health management and Preksha Meditation.
Stress Management and Preksha Meditation.
Memory and Preksha Meditation.
Time management and Preksha Meditation.
Emotional management and Preksha Meditation.

SUGGESTED READING

1 प्रेक्षा पुष्प – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं, 2003।
2 अपना दर्पण अपना बिम्ब – युवाचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, 1991।
3 प्रेक्षाध्यान : सिद्धात और प्रयोग – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
4 प्रेक्षाध्यान : व्यक्तिव विकास – मुनि धर्मेश, जैन विश्व भारती प्रकाशन, लाडनूं।
5 जीवन विज्ञान की रूपरेखा – मुनि धर्मेश, जैन विश्व भारती प्रकाशन, लाडनूं, 1996।
6 जीवन विज्ञान, प्रेक्षाध्यान एवं योग – संपा. समणी डॉ. मल्लीप्रज्ञा, जैन विश्वभारती विश्वविद्यालय, 2009।

7 Mirror of the Self – Acharya Mahaprajna, Jain Vishva Bharati Prakashan, Ladnun (Rajasthan), 1995.
8 Preksha Dhyana – Theory & Practice, Acharya Mahaprajna, Jain Vishva Bharati Prakashan, Ladnun (Rajasthan), 1994.

Semester – II Core Foundation Paper

Course Code – JVBI 206 Informational Technology and Computer Application

Marks 100 **[CIA- 20, UT- 15x4=60, TP- 20]** **Credit-4**

Paper V

The main objectives of this course are;

- It will expose the students to the fundamentals of the IT.
- Students will be having the introductory knowledge of the MS-Windows
- Practically students will be able to use MS-PowerPoint, MS-Word, MS-Excel and create their own blog.

Course Contents (Term End Theory Exam):

Unit I: Introduction to Computers and Windows

- Application of Computers
- Block Diagram of Computer
- Input and Output devices
- Types of software
- Introduction to Operating system: Windows
- Functions of operating system
- How you can Fast your Computer or Maintenance of computer

Unit II: Concept of MS Word and MS Excel and its application

- MS Word Window Layout
- Creating and Formatting Documents
- Editing Documents
- Working with Tables.
- Mail Merge, Macro Recording, Thesaurus, Printing Document (How to Use Page-Setup Before Printing)
- Introduction to Excel and its Applications
- Concept of workbook and worksheet
- Layout of Worksheets
- Use of basic formula and functions
- Sorting, Filtering and charts
- Report Generation (Pivot Table)

- Security or Protecting Worksheets

Unit III: Introduction & Application of MS-PowerPoint

- PowerPoint Slide Creation
- Slide Layout
- Views
- Adding content to slide- Text, Graphics, Sound, Video
- Applying Slide Transition
- Custom Animation
- Slide Show
- Working With Image or ClipArt (how you edit clipart image)

Unit IV: Internet

- Introduction to internet
- ISP (Internet Services Providers)
- About Modem, Type of Internet Connection
- Web browser – its functions
- Concept of search engine, What is surfing
- Social Networking site/How to pay online bill/How to book tickets online/How to use Paytm
- Website and its types
- Searching, downloading and uploading
- Basic concepts of sending and receiving E-mail
- Blog uses and creation of blog
- How to Create Simple web page (or Personal web page)

Course Contents (Practical) :

- Creating document in MS-Word like Advertisement, Letter, Tables, Charts etc.
- Creation of Simple Worksheet like Mark sheet, Pay slip using MS-Excel.
- Creation of Power Point Presentation on various themes.

Outcome:

- Students will apply the knowledge of IT practically in their day-to-day life.
- Students will be able to create well-formatted documents, attractive presentations and calculation part through excel.
- Students will be able to create their own blog.

SUGGESTED READING/Website

1. http://www.tutorialspoint.com/computer_fundamentals/index.htm
2. http://www.gcflearnfree.org/office
3. Fundamentals of computers (English) Ist Edition by Reema Thareja, Oxford University Press, 2014
4. Introduction to Computer by Peter Norton, Tata Mc Graw hill
5. Introduction to Computer by Gary B Shelly

Semester – II Core Foundation Paper

Course Code – JVB 208 The Use of English

Marks 100 **[CIA- 20, UT- 15x4=60, TP- 20]** **Credit-4**

Paper V

Course Description: The Use of English is a course designed to familiarize the students with basic tenants of English language comprising both grammar and composition.

Unit I: Basic Sentence Patterns and Transformation.

Unit II: Time, Tense and Concord.

Unit III: Voice, Narration and Modal Auxiliaries.

Unit IV: Writing Skills. (Letter, Application, Précis, Report and Essay Writing.)

SUGGESTED READING

- Green, David. ***Contemporary English Grammar Structure and Composition***. Laxmi Publications; Second edition (2015)
- Hornby, A.S. ***A guide to Patterns and Uses*****.** Oxford University Press, New Delhi.
- Swan, Michael**.** ***Practical English Grammar*****.** Oxford University Press, New Delhi.
- Harit, S.K. ***Communication Skills and English Grammar*****.** Associated Book Company, Jodhpur.
- Krishnaswamy, N. ***Modern English: A Book of Grammar, Usage and Composition*****.** Laxmi Publications.

प्राकृत

एम.ए. सेमेस्टर–तृतीय

अनिवार्य पत्र (CORE PAPER)

PAPER CODE - PKT 301

एकादश पत्र : प्राकृत अभिलेख

क्रेडिट–4

पूर्णांक : 100 (60 लिखित परीक्षा + 20 CIA, 20 Term Paper)

नोट : प्रत्येक इकाई 15 अंक की है।

इकाई–1:

ब्राह्मी एवं खरोष्ठी लिपि का विकास, प्राचीन अभिलेख साहित्य का क्रमिक विकास

इकाई–2:

प्राकृत अभिलेखों का अध्ययन

अशोक के पंचम शिलालेख (गिरनार, शहबाजगढ़ी और धौली)

इकाई–3:

अशोक के सप्तम स्तम्भलेख

इकाई–4:

हाथीगुम्फा अभिलेख

सहायक संदर्भ ग्रन्थ (Sugested Books) :

1. अशोक के अभिलेख– डॉ. राजबली पांडेय, ज्ञानमंडल लि. वाराणसी, सं. 2022

2. भारतीय प्राचीन लिपि माला– द्वितीय संस्करण, पंडित गौरीशंकर, हीराचन्द ओझा, स्कोटिस मिशन, इन्डस्ट्रीज प्रेस, अजमेर, 1918 ई.

3. प्राचीन भारत के प्रमुख अभिलेख– परमेश्वरी लाल गुप्त, चौखम्बा विद्या भवन, वाराणसी, 1970ई.

4. प्राचीन भारतीय अभिलेख संग्रह– श्रीराम गोयल, खण्ड 1, राजस्थान हिन्दी अकादमी, जयपुर, 1982ई.

प्राकृत

एम.ए. सेमेस्टर–तृतीय

ऐच्छिक पत्र (ELECTIVE PAPER)

PAPER CODE - PKT 311

(समूह–ल)

पंचदश पत्र : पाठ–सम्पादन, अनुवाद, वर्तनी–शुद्धि एवं पाण्डुलिपि पठन विधि

क्रेडिट–4

पूर्णांक : 100 (60लिखित परीक्षा + 20CIA+ 20 Term Paper)

नोट : प्रत्येक इकाई 15 अंक की है।

इकाई–1 पाठ–सम्पादन

परिचय, सिद्धान्त और अनुप्रयोग, विधियाँ, सावधानियाँ

इकाई–2 अनुवाद–कार्य (संस्कृत–प्राकृत के विशेष सन्दर्भ में)

परिचय, अनुवाद के प्रकार (शब्दानुवाद, भावानुवाद, छायानुवाद, रूपान्तरण, व्याख्यानुवाद) अनुवाद के सिद्धान्त समतुल्यता का सिद्धान्त, अर्थ सम्प्रेषण का सिद्धान्त, व्याख्या का सिद्धान्त), अनुवाद के साधन (अनुवादक, शब्दकोश, विषय–विशेषज्ञ, मशीनी उपकरण)।

इकाई–3 वर्तनी शुद्धि–

अशुद्धि संशोधन के चिन्हों का ज्ञान, सावधानियाँ, विषयवस्तु एवं भाषा का ज्ञान।

इकाई–4 लिपि–परिचय एवं पाण्डुलिपि का सामान्य परिचय

प्रमुख लिपियों का सामान्य परिचय (शारदा, ब्राह्मी, खरोष्ठी) पाण्डुलिपि का सामान्य परिचय, (पाण्डुलिपि का अर्थ एवं परिभाषाएँ, पाण्डुलिपि के भेद–गुहालेख या भित्तिचित्र, मृदा अभिलेख, पेपीरस अभिलेख, काष्ठ–पट्टी अभिलेख, चर्मपत्र या पार्चमेण्ट), पाण्डुलिपि के प्रकार–लिप्यासन के आधार पर, आकार के आधार पर, लेखन शैली के आधार पर, चित्र–सज्जा के आधार पर।

सन्दर्भ–ग्रन्थः–

1. अनुवाद : अवधारणा और आयाम, सत्यदेव मिश्र, रामाश्रय सविता, सुलभ प्रकाशन, लखनऊ, 1998
2. अनुवाद कला : सिद्धान्त और प्रयोग, डॉ. कैलाश चन्द्र भाटिया, तक्षशिला प्रकाशन, नई दिल्ली, 2000
3. Editing, Principles and Practices, Dr. Rabindranath, Regal Publication, New Delhi, 2014

4. सामान्य पाण्डुलिपिविज्ञान, डॉ. महावीरप्रसाद शर्मा, अपभ्रंश साहित्य अकादमी, राजस्थान, प्रथम संस्करण, 2003
5. सामचार सम्पादन और पृष्ठ–सज्जा, डॉ. रमेश जैन, राजस्थान प्रकाशन, जयपुर, द्वितीय संस्करण, 1997
6. भाषा–विज्ञान एवं भाषा–शास्त्र, डॉ. कपिलदेव द्विवेदी, विश्वविद्यालय प्रकाशन, वाराणसी, पंचदश संस्करण, 2016

प्राकृत

एम.ए. सेमेस्टर–चतुर्थ

अनिवार्य पत्र (CORE PAPER)

PAPER CODE - PKT 402

सप्तदश पत्र : शोध–प्रविधि एवं पाण्डुलिपि विज्ञान

क्रेडिट–4

पूर्णांक : 100 (60 लिखित परीक्षा + 20 CIA, 20 Term Paper)

नोट : प्रत्येक इकाई 15 अंक की है।

इकाई–1:

शोध : अर्थ, चरण, प्रकार (गुणात्मक एवं गणनात्मक)

इकाई–2:

शोध–प्रविधि, शोध–क्षेत्र, शोध–रूपरेखा, शोध समस्या, सामग्री संकलन, पाद–टिप्पण, डाइक्रिटिकल चिन्ह, उपसंहार, संदर्भ ग्रंथ–सूची एवं परिशिष्ट का निर्माण, प्रतिवेदन लेखन

इकाई–3:

पाण्डुलिपि विज्ञान – लक्षण, आधार–साम्रगी, लेखन–साम्रगी एवं पाण्डुलिपियों का रख–रखाव

इकाई–4:

भाषा और लिपि की पहचान, क्षेत्रगत–कालगत परिचय एवं पाण्डुलिपि–संपादन का ज्ञान

सहायक संदर्भ ग्रन्थ (Sugested Books) :

1. अनुसंधान विधियाँ– डॉ. डी.एन. श्रीवास्तव एवं डी..एन. श्रीवास्तव, प्रकाशक– साहित्य प्रकाशन, आगरा, 2010

2. अनुसंधान विधियाँ : व्यवहारपरक विज्ञानों में – एच. के. कपिल, एच.पी. भार्गव बुक हाउस, आगरा, 2015

साहित्य अनुसंधान का प्रतिमान– देवराज उपाध्याय, दिल्ली, 2007

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4. पाण्डुलिपि विज्ञान– डॉ. सत्येन्द्र, राजस्थान हिन्दी अकादमी, जयपुर, 1978

संस्कृत

एम.ए. सेमेस्टर–प्रथम

अनिवार्य पत्र (CORE PAPER)

Paper Code- SKT 102

द्वितीय पत्र : भाषा शास्त्र एवं भाषा विज्ञान

क्रेडिट–4

पूर्णांक : 100 (60 लिखित परीक्षा + 20 CIA + 20 Term Paper)

नोट : प्रत्येक इकाई 15 अंक की है।

इकाई–1: सामान्य भाषा शास्त्र

भाषा की परिभाषा एवं भाषा विज्ञान, स्वरूप, महत्त्व, व्याकरण का संबंध, भाषाओं का वर्गीकरण, प्राच्य भारतीय भाषाविज्ञानविद् (पाणिनि आदि मुनित्रय)

इकाई–2: सामान्य भाषा षास्त्र

भारोपीय भाषा परिवार का परिचय, वैदिक एवं लौकिक संस्कृत, भारत–ईरानी परिवार, आर्य परिवार के दो समूह–शतम् एवं केन्टुम् वर्ग, भाषा और वाक् में अन्तर, भाषा और बोली में अन्तर।

इकाई–3: ध्वनि एवं पद विज्ञान

संस्कृत ध्वनियों के विशेष संदर्भ में मानवीय ध्वनि यंत्र, ध्वनि परिवर्तन के कारण, ध्वनि–नियम (ग्रिम, ग्रासमान, वर्नर), पदविज्ञान, पद और वाक्य, पद और शब्द, पद और सम्बन्ध तत्व एवं पद विभाग

इकाई–4: वाक्यविज्ञान एवं अर्थविज्ञान

वाक्यविज्ञान– वाक्य का लक्षण तथा भेद, वाक्य में परिवर्तन की दिशाएं तथा कारण, वाक्य विज्ञान का स्वरूप, वाक्य और पदक्रम।

अर्थविज्ञान– अर्थ का लक्षण, शब्द और अर्थ का सम्बन्ध, अर्थ परिवर्तन की दिशाएं एवं अर्थ परिवर्तन के कारण

संदर्भ ग्रन्थ

1. भाषा विज्ञान एवं भाषा शास्त्र, कपिलदेव द्विवेदी, विश्वविद्यालय प्रकाशन, वाराणसी, 2018
2. संस्कृत भाषा विज्ञानम्, चक्रवर्तीश्री रामाधीन चतुर्वेदी, चौखम्बा विद्या भवन, वाराणसी, 1995
3. भाषाविज्ञान, डॉ. भोलानाथ तिवारी, किताब महल, इलाहाबाद, 2007
4. सामान्य भाषाविज्ञान, डॉ. बाबूराम सक्सेना, हिन्दी साहित्य सम्मेलन, प्रयाग (उ.प्र.)

संस्कृत

एम.ए. सेमेस्टर–द्वितीय

अनिवार्य पत्र (CORE PAPER)

Paper Code- SKT 203

अष्टम पत्र : संस्कृत नाटक व नाट्यशास्त्र

क्रेडिट–4

पूर्णांक : 100 (60 लिखित परीक्षा + 20 CIA + 20 Term Paper)

नोट : प्रत्येक इकाई 15 अंक की है।

इकाई–1:

दशरूपक (धनंजयकृत) : प्रथम प्रकाश

नाट्यलक्षण, रूप–रूपक, नृत्य–नृत्त, अवस्थापंचक, पंच अर्थ–प्रकृतियां, सन्धि, सन्धिभेद, सन्धि–अंग

इकाई–2:

दशरूपक (धनंजयकृत) : तृतीय प्रकाश

इकाई–3:

उत्तररामचरित (भवभूति कृत) : प्रथम एव द्वितीय अंक

इकाई–4:

नाट्यशास्त्र (भरत मुनि विरचित) (षष्ठ अध्याय)

संदर्भ ग्रन्थ

1. उत्तररामचरित, रमाशंकर त्रिपाठी, कृष्णदास अकादमी, वराणसी, 2000।
2. दशरूपकम्, व्याख्याकार–राजबली पाण्डेय, उर्मिला पब्लिकेशन्स, दिल्ली।
3. Natyashastra with Abhinavbharati-revised and critically edited by Prof. V.M. Kulkarni & Prof. Tapasvi Nandi Published by oriental institute, Vadodara.
4. Natyashastra Edited by R.S. Nagar, Parimal Publication, Delhi.
5. नाट्यशास्त्रम्, अभिनवभारतीसाहितम्।
6. दशरूपकम्, संपादन– डॉ. श्रीनिवास शास्त्री, साहित्य भण्डार, मेरठ
7. दशरूपकम्, व्याख्याकार– डॉ. भोलाशंकर व्यास, चौखम्बा विद्याभवन, वाराणसी
8. नाट्यशास्त्रम्–संपा. एवं व्या.– श्री बाबुलाल शुक्ल, चौखम्बा संस्कृत संस्थान, वाराणसी

Semester-I

(Elective Paper)

प्रश्न–पत्र–IV

MAH 105-विज्ञापन एवं जनसंपर्क

क्रेडिट–4

पूर्णांक : 100 (70 लिखित परीक्षा + 30 CIA)

इकाई–1:

- **विज्ञापन और जनसंपर्क**
  - पृष्ठभूमि और विकास
  - वर्तमान परिदृश्य

इकाई–2:

- **विज्ञापन और जनसंपर्क मीडिया बदलाव**
  - विज्ञापन का भाषा संसार
  - जनसंपर्क आधुनिक दृष्टि

इकाई–3:

- **विज्ञापन और जनसंपर्क रोजगार दृष्टि**
  - विविध स्वरूप और रोजगार के अवसर
  - विविध संभावनाएँ, ब्रांडिंग (छवि निर्माण)

इकाई–4:

- **व्यावहारिक पक्ष**
  - विज्ञापन तैयार करना, छायांकन, संपादन
  - कापी राइटिंग, डिजाइन, भाषा तथा सम्प्रेषण

संदर्भ ग्रन्थ

1.विज्ञापन व्यवसाय एवं कला–रामचंद्र तिवारी, आलेख प्रकाशन, दिल्ली

2.जनसंपर्क प्रबंधन–कुमुद शर्मा, ज्ञानगंगा प्रकाशन, दिल्ली

3.आधुनिक विज्ञापन–प्रेम पातंजलि, वाणी प्रकाशन

4. प्रयोजनमूलक हिन्दी–माधव सोनटक्के

Semester-II

(ELECTIVE PAPER)

प्रश्न–पत्र–IX

MAH-206- जनसंचार : मुद्रित माध्यम

क्रेडिट–4

पूर्णांक : 100 (70 लिखित परीक्षा + 30 CIA)

इकाई–1:पत्रकारिता का इतिहास

वैश्विक एवं भारतीय पत्रकारिता का विकास, समाचार की अवधारणा और उसके तत्त्व
समाचार लेखन और संकलन और समाचार एजेंसियां, समाचार संगठनों के ढांचे

इकाई–2:

संपादन

संपादक और उप संपादक के काम और दायित्व
शैली पुस्तिका, विभिन्न विधाएं और उनकी संरचना

इकाई–3:

रिपोर्टिंग

रिपोर्टिंग के क्षेत्र, रिपोर्टर के गुण, रिपोर्टिंग में सावधानियाँ
संपर्क, स्रोत, साक्षात्कार, पत्रकारों की भूमिका और दायित्व

इकाई–4:

पत्रकारिता के अन्य पक्ष

पत्रिकाएं और पत्रकारिता के प्रकार, टेब्युलाइड
फीचर लेखन, फिल्म, कला, रंगमंच और पुस्तक समीक्षा, स्तम्भ लेखन आदि

संदर्भ ग्रन्थ

1.पत्रकारिता का बृहद् इतिहास–डॉ. अर्जुन तिवारी, वाणी प्रकाशन, दिल्ली
2. हिन्दी पत्रकारिता एवं जनसंचार–आलोक दत्त ठाकुर, वाणी प्रकाशन, दिल्ली
3. पत्रकारिता :परिवेश एवं प्रवृत्तियां–डॉ. पृथ्वीनाथ पाण्डेय
4. हिन्दी पत्रकारिता संदर्भ एवं स्वरूप–विनय गोदरे, वाणी प्रकाशन, दिल्ली

Semester-III

(ELECTIVE PAPER)

प्रश्न–पत्र–XIII

MAH-305- पटकथा लेखन और फिल्म निर्माण

क्रेडिट–4

पूर्णांक : 100 (70 लिखित परीक्षा + 30 CIA)

इकाई–1:

पटकथा लेखन

पटकथा का स्वरूप, पटकथा के मूल तत्त्व

पटकथा के प्रकार्य एवं विषय वस्तु–पटकथा का द्वन्द्व

इकाई–2:

पटकथा प्रगत अध्ययन

कहानी (स्टोरी लाइन), संवाद लेखन

फिल्म रूपांतरण, शूटिंग स्क्रिप्ट

इकाई–3:

फिल्म निर्माण

कथा का फिल्मांकन और संपादन

कैमरा, उसका महत्त्व और सिनेमा

इकाई–4:

फिल्म पटकथा, साहित्य और संस्कृति

साहित्य और फिल्म का सौन्दर्य बोध

फिल्म में शिल्प एवं अन्य पक्ष

संदर्भ ग्रन्थ

1. पटकथा लेखन एक परिचय–मनोहरश्याम जोशी, राजमकल प्रकाशन, दिल्ली
2. कथा–पटकथा–मन्नु भंडारी, राजमकल प्रकाशन, दिल्ली
3. मीडिया लेखन–सुमित मोहन, वाणी प्रकाशन, दिल्ली

Semester-III

(ELECTIVE PAPER)

प्रश्न–पत्र–XIII

MAH-306- जनसंचार : रेडियो एवं टेलीविजन

क्रेडिट–4

पूर्णांक : 100 (70 लिखित परीक्षा + 30 CIA)

इकाई–1:

रेडियो का विकास

विश्व और भारत में रेडियो का विकास एवं उसकी विभिन्न प्रौद्योगिकियाँ

रेडियो कार्यक्रम निर्माण की पद्धतियाँ

इकाई–2:

रेडियो समाचार और अन्य कार्यक्रम

रेडियो की विभिन्न विधाएँ और उनका उपयोग

सामुदायिक रेडियो के लिए कार्यक्रम निर्माण

इकाई–3:

टेलीविजन का विकास

विश्व और भारत में टेलीविजन का विकास एवं उसकी विभिन्न प्रौद्योगिकियाँ

टेलीविजन कार्यक्रम निर्माण की पद्धतियाँ

इकाई–4:

टेलीविजन समाचार और अन्य कार्यक्रम

टेलीविजन के विभिन्न कार्यक्रम और उनका निर्माण

टेलीविजन समाचार के विभिन्न पक्षों की जानकारियाँ और समाचार सम्बन्धी अभ्यास

संदर्भ ग्रन्थ

1. टेलीविजन की कहानी–श्याम कश्यप एवं मुकेश कुमार
2. आकाशवाणी समाचार की दुनिया–संजय कुमार (सं.), प्रभात प्रकाशन

Semester-III

(ELECTIVE PAPER)

प्रश्न–पत्र–XIII

MAH-307- पत्रकारिता प्रशिक्षण

क्रेडिट–4

पूर्णांक : 100 (70 लिखित परीक्षा + 30 CIA)

इकाई प्रथम :

- पत्रकारिता का स्वरूप और प्रमुख प्रकार।
- विश्व पत्रकारिता का उदय। भारत में पत्रकारिता का आरंभ।
- हिन्दी पत्रकारिता का उद्‌भव और विकास।

इकाई द्वितीय :

- समाचार पत्रकारिता के मूल तत्त्व–समाचार संकलन तथा लेखन के मुख्य आयाम।
- संपादन कला के सामान्य सिद्धान्त– शीर्षकीकरण, पृष्ठ–विन्यास, आमुख और समाचारपत्र की प्रस्तुति–प्रक्रिया।
- समाचार पत्रों के विभिन्न स्तंभों की योजना।
- दृश्य सामग्री (कार्टून, रेखचित्र, ग्रैफिक्स) की व्यवस्था और फोटो पत्रकारिता।
- समाचार के विभिन्न स्रोत।

इकाई तृतीय :

- सवांददाता की अर्हता, श्रेणी एवं कार्यपद्धति।
- पत्रकारिता से संबंधित लेखन–संपादकीय, फीचर, रिपोर्ताज, साक्षात्कार, खोजी समाचार, अनुवर्तन (फालोअप) आदि की प्रविधि।
- इलैक्ट्रॉनिक मीडिया की पत्रकारिता–रेडियो, टी.वी. वीडियो, केबल, मल्टी मीडिया और इंटरनेट की पत्रकारिता।

इकाई चतुर्थ :

- प्रिंट पत्रकारिता और मुद्रणकला, प्रूफ शोधन, ले आउट तथा पृष्ठ–सज्जा।
- पत्रकारिता का प्रबंधन–प्रशासनिक व्यवस्था, विक्री तथा वितरण व्यवस्था।
- भारतीय संविधान में प्रदत्त मौलिक अधिकार, सूचनाधिकार एवं मानवाधिकार।
- मुक्त प्रेस की अवधारणा।

Semester-IV

(CORE COMPULSARY)

प्रश्न–पत्र–XV

MAH-402-अनुवाद विज्ञान

क्रेडिट–4

पूर्णांक : 100 (70 लिखित परीक्षा + 30 CIA)

इकाई प्रथम :

- अनुवाद : परिभाषा, क्षेत्र और सीमाएं।
- अनुवाद का स्वरूप : अनुवाद कला, विज्ञान अथवा शिल्प।
- अनुवाद की इकाई : शब्द, पदबंध, वाक्य, पाठ।

इकाई द्वितीय :

- अनुवाद की प्रक्रिया और प्रविधि : विश्लेषण, अंतरण, पुनर्गठन।
- अनुवाद–प्रक्रिया के विभिन्न चरण, स्रोतभाषा के पाठ का विश्लेषण एवं उसके अर्थ ग्रहण की प्रक्रिया, स्रोत भाषा और लक्ष्य भाषा की तुलना तथा अर्थान्तरण की प्रक्रिया। अनूदित पाठ का पुनर्गठन और अर्थ–संप्रेषण की प्रक्रिया। अनुवाद–प्रक्रिया की प्रकृति।
- अनुवाद तथा समतुल्यता का सिद्धान्त।

इकाई तृतीय :

- अनुवाद के क्षेत्र एवं प्रकार–
- कार्यालयी, वैज्ञानिक वं तकनीकी, साहित्यिक, मानविकी, संचारमाध्यम, विज्ञापन आदि।
- अनुवाद की समस्याएं : सृजनात्मक अथवा साहित्यिक अनुवाद की समस्याएं, कार्यालयी अनुवाद की समस्याएं, वैज्ञानिक एवं तकनीकी साहित्य के अनुवाद की समस्याएं,विधि–साहित्य के अनुवाद की समस्याएं, कोश एवं पारिभाषिक शब्दार्थ के निर्माण की समस्याएं, मीडिया क्षेत्र के अनुवाद की समस्याएं, विज्ञापन के अनुवाद की समस्याएं।

इकाई चतुर्थ :

- अनुवाद के उपकरण : कोश, पारिभाषिक शब्दावली, थिसारस, कम्प्यूटर आदि।
- अनुवाद : पुनरीक्षण, संपादन, मूल्यांकन।
- मशीनी अनुवाद।
- अनुवाद की सार्थकता, प्रासंगिकता एवं व्यावसायिक परिदृश्य।
- अनुवाद के गुण।
- पाठ की अवधारण और प्रकृति–
- पाठ–शब्द प्रति शब्द शाब्दिक अनुवाद
- भावानुवाद छायानुवाद
- पूर्ण और आंशिक अनुवादआशु अनुवाद
- व्यावहारिक अनुवाद (प्रश्नपत्र में दिये गए अंग्रेजी अवतरण का हिन्दी अनुवाद)

Semester-IV

(ELECTIVE PAPER)

प्रश्न–पत्र– XVII

MAH-407- इण्टरनेट और वेब पत्रकारिता

क्रेडिट–4

पूर्णांक : 100 (70 लिखित परीक्षा + 30 CIA)

इकाई–1:

नव माध्यम और वेब पत्रकारिता का परिचय

इंटरनेट एवं मोबाइल आधारित पत्रकारिता का परिचय एवं संभावनाएं

सोशल नेटवर्किंग, ट्वीट, मोबाइल समाचार और वाणिज्य

इकाई–2:

वेब पत्रकारिता के विभिन्न पहलू

ऑन लाइन पत्रकारिता और ई समाचार पत्र

ब्लॉग लेखन, ई प्रकाशन एवं ई संपादन

इकाई–3:

वेब पत्रकारिता का तकनीकी पक्ष

ऑन लाइन संपादन

वेब रेडियो और वेब टेलीविजन

इकाई–4:

साइबर मीडिया का प्रबन्ध और अर्थशास्त्र

वेब पोर्टल एवं अन्य मीडिया का प्रबन्ध

साइबर मीडिया के संचालन का आर्थिक पक्ष, आय एवं मानव संसाधन

संदर्भ ग्रन्थ

1. इंटरनेट पत्रकारिता–सुरेश कुमार, तक्षशिला प्रकाशन, दिल्ली
2. हाइपर टेक्स्ट, वर्चुएल रियेल्टी और इंटरनेट–जगदीश्वर चतुर्वेदी, अनामिका प्रकाशन, दिल्ली
3. सूचना प्रौद्योगिकी और समाचार पत्र–रवीन्द्र शुक्ला, राजकमल प्रकाशन, दिल्ली

Semester – I

MSY102: Basic Elements of Preksha Meditation (Core Compulsory)

M.M. 100(CIA-20+UT-60+TP-20)

Objectives

1. To understand historical development of Preksha Meditation.
2. To understand the main components, spiritual-scientific perspective, purpose and benefits of Preksha Meditation.
3. To introduce the practicals & process of Preksha Meditation.

Unit-I **Preksha Meditation - I**

Preksha Meditation: history, nature, *upsampada* and benefits.
Introduction of main, supportive and specific components of Preksha Meditation.
Kayotsarga (Relaxation with self awareness): purpose, spiritual and scientific perspective, technique and benefits.

Unit-II **Preksha Meditation - II**

Internal trip (*Antaryatra*): purpose, spiritual and scientific perspectives, technique and benefits.
Perception of Breathing: purpose, spiritual and scientific perspectives, types, techniques and benefits.

Unit-III **Preksha Meditation - III**

Perception of Body: purpose, spiritual and scientific perspectives, technique and benefits.
Perception of Psychic Centres: purpose, spiritual and scientific perspectives, technique and benefits.

Unit-IV **Preksha Meditation - IV**

Principle of psychic colour: feeling, psychic colour, aura and colour therapy.
Psychic Colour Mediation (*Leshya Dhyan*): purpose, spiritual and scientific perspectives, technique and benefits.
Contemplation (*Anupreksha*): purpose, spiritual and scientific perspectives, technique and benefits.

Reference Books

1 प्रेक्षा पुष्प – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं, 2003 ।
2 अपना दर्पण अपना बिम्ब – युवाचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, 1991।
3 जीवन विज्ञान की रूपरेखा – मुनि धर्मेश, जैन विश्व भारती प्रकाशन, लाडनूं, 1996।
4 जीवन विज्ञान, प्रेक्षाध्यान एवं योग – संपा. समणी डॉ. मल्लीप्रज्ञा, जैन विश्वभारती विश्वविद्यालय, 2009।
5 Mirror of the Self – Acharya Mahaprajna, Jain Vishva Bharati Prakashan, Ladnun (Rajasthan), 1995.
6 Preksha Dhyana – Theory & Practice, Acharya Mahaprajna, Jain Vishva Bharati Prakashan, Ladnun (Rajasthan), 1994.

Semester – I

Core Compulsory

MYS103 : Practice of Yoga and Preksha Meditation (Practical)

M.M. 75 (CIA-15+Practical and Viva-voce-60)

1. Yogic Exercises and Asanas:

i. Yogic exercises for whole body.

ii. **Asanas in Lying Position:** *Uttanpadasana, Pawan Muktasana, Makrasana, Shalabhasana, Urdhvamukhasvanasana.*

iii. **Asanas in Sitting Position:** *Vajrasana, Shashankasana, Supta-Vajrasana, Janushirasana, Padmasana, Vakrasana.*

iv. **Asanas in Standing Position:** *Tadasana, Padhastasana, Hastisundikasana*, Parsvakonasana

2. Surya Namaskar

3. Pranayam: *Anulom-vilom, Bhramari*

4. Mudra: *Viparit Karni Mudra and Maha Mudra.*

5. Preksha Meditation and Contemplation (Anupreksha) :

i. Meditation: Preparatory Process, Kayotsarga (Relaxation), Internal Trip, Perception of Breathing, Perception of Centre of Enlightenment, Closing Process and Sampurana Kayotsarga (Complete Relaxation).

ii. Contemplation: Forbearance, Modesty.

6. Shat Karma: *Jal Neti, Ruber Neti, Kapal Bhati*.

Reference Books

1 तुम स्वस्थ रह सकते हो – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।

2 प्रेक्षाध्यान : आसन–प्राणायाम – मुनि किशनलाल, जैन विश्व भारती प्रकाशन, लाडनूं।

3 प्रेक्षाध्यान : यौगिक क्रियाऐं – मुनि किशनलाल, बी. जैन पब्लिशर्स (प्रा. लि.), नई दिल्ली।

4 प्रेक्षाध्यान प्रयोग पद्वति – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।

5 अमूर्त चिन्तन – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।

6 आसन प्राणायाम मुद्रा बंध – स्वामी सत्यानन्द सरस्वती, योग पब्लिकेशन ट्रस्ट, मुंगेर, 2008।

7 Asana – Swami Kuvalayananda. Kaivalyadham SMYM samiti, Lonavala (India), .

8 Pranayam – Swami Kuvalayananda. Kaivalyadham SMYM samiti, Lonavala (India), 2005 (10ed.) .

9 Integrated Approach of Yoga Therapy for Positive Health – Nagarathna, R. & Nagendra, H.R. – Swami Vivekanand Yoga Prakashan, Bangalore, 2001.

10 Gherand Samhita – Swami Digambarji and Dr. M. L. Ghorote, Kaivalyadham S.M.Y.M. Samiti, Lonavla.

Hathpradipika by Svatmaram - Swami Digambarji and Ptambar Jha, Kaivalyadham S.M.Y.M. Samiti, Lonavla

Semester-I

MYS106 : Alternative Therapies (Core Elective)

M.M. 100(CIA-20+UT-60+TP-20)

Objectives

1. To understand the process of rehabilitation.
2. To understand the applications of Preksha Meditation & Yoga in different fields of applied psychology.

Unit-I **Acupressure**

Introduction and history.
Principles of acupressure.
Causes of disease and its treatment.
Reflex points.

Unit-II **Magnet Therapy**

History of magnet therapy, Types of magnet, Properties of magnet.
Principles of magnet therapy.
Magnetized water, Magnetized oil.
Method of application, duration, time and precautions for application of magnet and
Benefits of magnet therapy.

Unit-III **Reiki**

History and Introduction, principles of Reiki treatment.
Seven laws of Reiki healing and three degrees.
Treatment guidelines, precautions and hand positions.

Unit-IV **Aroma Therapy**

History and Introduction of Aroma therapy.
Principles of application- absorption through skin and lungs, sense of smell and mind.
Property of oils, types of essential oils, methods of extraction and blending.

Reference Books

1 Aroma Therapy-Massage with essential oils-Christine Wildwood; Element Books Ltd., 1991.
2 Complete Aromatherapy Handbook-Susanne & Fischer-Rizzi; Health Harmony Publication, 1998.
3 Magnet Dowsing or The Magnet Study of Life- B. Bhattacharyya, Firma KLM Pvt. Ltd. Calcullta, 1997.
4 Reiki for first aid – Walter Lubeck, Health and Harmony an imprint of B. Jain Publishers, Pvt. Ltd., New Delhi, 1998
5 एक्युप्रेशर : प्राकृतिक उपचार – अत्तर सिंह, एक्युप्रेशर हेल्थ सेन्टर, चण्डीगढ़, 2005।
6 अरोमा थेरेपी (सुवासित–तैलीय चिकित्सा प्रणाली) – गरिमा संजय, बी.जैन प्रकाशन, नई दिल्ली, 1998।
7 रैकी (कर–स्पर्श द्वारा स्वास्थ्य) – जीयस जे. मॉरीश एवं विलियम आर. मॉरीश, बी.जैन प्रकाशन, नई दिल्ली, 1997।
8 रेकी (उपचारकारी स्पर्श) – बोडो जे. बाग्निसकी एवं शलीला शरामोन, बी.जैन प्रकाशन, नई दिल्ली, 1999।
9 चुम्बक चिकित्सा का सरल अध्ययन – एन.टी. सन्तवानी, अनुवादक – प्रताप सिंह रावत, बी.जैन प्रकाशन, नई दिल्ली, 2000।
10 चुम्बक चिकित्सा – हीरा लाल बंसल एवं रघुनाथ शरण बंसल, बी.जैन प्रकाशन, नई दिल्ली, 1994।

Semester – II
Core Compulsory
MYS203 : Practice of Yoga and Preksha Meditation (Practical)

M.M. 75 (CIA-15+ Practical and Viva-Voce-60)

1. Revision of all practices undertaken in semester-I.

2. Yogic Exercises and Asana:

i. Yogic exercises for abdomen and respiration.

ii. Asana in Lying Position: *Sarvangasana, Halasana, Matsyasana, Bhujangasana, Dhanurasana.*

iii. Asana in Sitting Position: *Paschimottanasana, Ushtrasana, Yoga Mudra, Ardha-Matsyendrasana, Marichasana, Malasana.*

iv. Asana in Standing Position: *Vrikshasana, Vatayanasana, Trikonasana, Veerasana.*

1. **Pranayam**: *Chandra Bhedi, Surya Bhedi*
2. **Mudra:** Shanmukhi Mudra, Tadagi Mudra.

5. Preksha Meditation and Contemplation (Anupreksha):

i. Meditation: Four steps and Perception of Body.

ii. Contemplation (Anupreksha): Adjustment, Fearlessness.

6. Shat Karma: *Sutra neti, Kunjal.*

Reference Books

1 तुम स्वस्थ रह सकते हो – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
2 प्रेक्षाध्यान : आसन–प्राणायाम – मुनि किशनलाल, जैन विश्व भारती प्रकाशन, लाडनूं।
3 प्रेक्षाध्यान : यौगिक क्रियाऐं – मुनि किशनलाल, बी. जैन पब्लिशर्स (प्रा. लि.), नई दिल्ली।
4 प्रेक्षाध्यान प्रयोग पद्वति – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
5 अमूर्त चिन्तन – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
6 आसन प्राणायाम मुद्रा बंध – स्वामी सत्यानन्द सरस्वती, योग पब्लिकेशन ट्रस्ट, मुंगेर, 2008।
7 Gherand Samhita – Swami Digambarji and Dr. M. L. Ghorote, Kaivalyadham S.M.Y.M. Samiti, Lonavla.
8 Hathpradipika by Svatmaram - Swami Digambarji and Ptambar Jha, Kaivalyadham S.M.Y.M. Samiti, Lonavla.
9 Shiv Samhita – Swami Maheshananda and Dr. B. R. Sharma, Kaivalyadham S.M.Y.M. Samiti, Lonavla.
10 Asana – Swami Kuvalayananda. Kaivalyadham SMYM samiti, Lonavala (India), .
11 Pranayam – Swami Kuvalayananda. Kaivalyadham SMYM samiti, Lonavala (India), 2005 (10ed.) .
12 Integrated Approach of Yoga Therapy for Positive Health – Nagarathna, R. & Nagendra, H.R. – Swami Vivekanand Yoga Prakashan, Bangalore, 2001.

Semester – II

Core Compulsory

MYS204 : Psychological Assessments (Practical)

M.M. 25 (CIA-05+ Practical and Viva-Voce-20)

1. Measurement of Neurosis
2. Assessment of Personality
3. Assessment of Physical & Mental Health
4. Assessment of Cognitive Style
5. Measurement of Forgiveness
6. Measurement of Ego
7. Measurement of Emotional Maturity
8. Assessment of Intelligence
9. Measurement of Frustration
10. Measurement of Fear

* Awards for practical viva-voce

** Awards for file records

Reference Books

1. परीक्षण एवं परीक्षण – राणा प्रताप सिंहा, मोतीलाल बनारसीदास, दिल्ली।
2. आधुनिक प्रयोगात्मक मनोविज्ञान – प्रीति वर्मा एवं डी.एन. श्रीवास्तव, विनोद पुस्तक मन्दिर, आगरा।

Post Graduation
Semester II
Foundation Course (Compulsory)

JVB-202 Information Technology and Computer Application

Objective:

The main objectives of this course are;

- It will expose the students to the fundamentals of the IT.
- Students will be having the introductory knowledge of the MS-Windows
- Practically students will be able to use MS-PowerPoint, MS-Word, MS-Excel and create their own blog.
-

Course Contents (Term End Theory Exam) :

Unt I: Introduction to Computers and Windows

- Application of Computers
- Block Diagram of Computer
- Input and Output devices
- Types of software
- Introduction to Operating system: Windows
- Functions of operating system
- How you can Fast your Computer or Maintenance of computer

Unt II: Concept of MS Word and MS Excel and its application

- MS Word Window Layout
- Creating and Formatting Documents
- Editing Documents
- Working with Tables.
- Mail Merge, Macro Recording, Thesaurus, Printing Document (How to Use Page-Setup Before Printing)
- Introduction to Excel and its Applications
- Concept of workbook and worksheet
- Layout of Worksheets
- Use of basic formula and functions
- Sorting, Filtering and charts
- Report Generation (Pivot Table)
- Security or Protecting Worksheets

Unt III: Introduction & Application of MS-PowerPoint

- PowerPoint Slide Creation
- Slide Layout
- Views
- Adding content to slide- Text, Graphics, Sound, Video
- Applying Slide Transition
- Custom Animation
- Slide Show

- Working With Image or ClipArt (how you edit clipart image)

Unt IV: Internet

- Introduction to internet
- ISP (Internet Services Providers)
- About Modem, Type of Internet Connection
- Web browser – its functions
- Concept of search engine, What is surfing
- Social Networking site/How to pay online bill/How to book tickets online/How to use Paytm
- Website and its types
- Searching, downloading and uploading
- Basic concepts of sending and receiving E-mail
- Blog uses and creation of blog
- How to Create Simple web page (or Personal web page)

Course Contents (Practical) :

- Creating document in MS-Word like Advertisement, Letter, Tables, Charts etc.
- Creation of Simple Worksheet like Mark sheet, Pay slip using MS-Excel.
- Creation of Power Point Presentation on various themes.

Outcome:

- Students will apply the knowledge of IT practically in their day-to-day life.
- Students will be able to create well-formatted documents, attractive presentations and calculation part through excel.
- Students will be able to create their own blog.

Reference Books/Website

1. http://www.tutorialspoint.com/computer_fundamentals/index.htm
2. http://www.gcflearnfree.org/office
3. Fundamentals of computers (English) Ist Edition by Reema Thareja, Oxford University Press, 2014
4. Introduction to Computer by Peter Norton, Tata Mc Graw hill
5. Introduction to Computer by Gary B Shelly

Semester – III

Core Compulsory

MYS302 : Self Management and Preksha Meditation

M.M. 100(CIA-20+UT-60+TP-20)

Objectives

1. To understand the basic concepts of Self-Management.
2. To understand the role of Preksha Meditation-Yoga in improving human abilities.

Unit-I Self Management

Self-Management: concept, meaning, basis, need and key points for Self-Management. Technique of Self-Management (Mapping the Life), Self-Management and Preksha Meditation.

Goal setting and its achievement: meaning, need, types, characteristics, reasons for lack of goal orientation, process of goal achievement through Preksha Meditation-Yoga.

Unit-II Emotion, Time and Stress Management

Feeling and Emotion: Feeling- Definition and nature, types of feeling, distinction between feeling and sensation; Emotion- Meaning nature and types bodily changes in emotion, theories of emotion (James-Lange theory, Cannon-Bard theory, Schachter-Singer theory, Cognitive-Appraisal theory and Lindsley Activation Theory), management of emotions through Preksha Meditation-Yoga.

Time Management: meaning, timewasters, time analysis & time management by Preksha Meditation-Yoga.

Stress Management: meaning, definitions, approaches, types, causative factors of stress & stress management through Preksha Meditation-Yoga.

Unit-III Promoting Individual Capabilities - I

Memory: meaning, definition, types, elements, process & training of memory; memory development and Preksha Meditation-Yoga.

Self-confidence: meaning, nature, method of analysis of self confidence, sources of self confidence. Development of self confidence through Preksha Meditation-Yoga.

Unit-IV Promoting Individual Capabilities - II

Will power and Imagination power: meaning, importance, types & development of will power and imagination power through Preksha Meditation-Yoga.

Communication Skill: meaning, objectives, elements, factors, principle of communications process, types, basic elements & development of communication skill through Preksha Meditation-Yoga.

Reference Books

1 प्रेक्षाध्यान : व्यक्तित्व विकास – मुनि धर्मेश, जैन विश्व भारती प्रकाशन, लाडनूं, 2005।

2 Development Thy Self - Bajrang Jain and Kavita Saraogi, B. Jain Publishers (P.) Ltd., New Delhi-55.

3 जीत आपकी – शिव खेड़ा, मैकमिलन एण्ड कम्पनी, दिल्ली, 1988।

4 स्व प्रबन्धन में जीवन विज्ञान – मुनि धर्मेश एवं डॉ. बी.पी. गौड़, दूरस्थ शिक्षा निदेशालय, जैन विश्वभारती संस्थान, लाडनूं, 2001।

5 सरल सामान्य मनोविज्ञान – अरूण कुमार सिंह एवं आशीष कुमार सिंह, मोतीलाल बनारसी दास, दिल्ली 2002 (तृतीय संस्करण)।

6 आधुनिक सामान्य मनोविज्ञान – अरूण कुमार सिंह एवं आशीष कुमार सिंह, मोतीलाल बनारसी दास, दिल्ली 2003 (तृतीय संस्करण)।

7 आधुनिक सामान्य मनोविज्ञान – डॉ. आर.एन. सिंह, विनोद पुस्तक मन्दिर, आगरा, 2007 (तृतीय संस्करण)।

Semester – III
Core Compulsory
MYS303 : Practice of Yoga and Preksha Meditation (Practical)

M.M. 75 (CIA-15+ Practical and Viva-Voce-60)

1. Revision of all practices undertaken in previous semesters.

2. Yogic Exercises and Asana:

i. Yogic exercises for vertebral column.
ii. Asanas in Lying Position: *Hridyastambhasana, Naukasana*.
iii. Asanas in Sitting Position: *Swastikasana, Sidhasana*, Badhakanasana.
iv. Asanas in Standing Position: *Garudasana, Madhyapadshirasana*.
v. Advance Asanas: Hansasana, *Hanuman Asana, Titibhasana, Shirshasana*.

3. Surya Namaskar with Mantra

4. Pranayam: *Shitali, Ujjai*.

5. Mudra: Vajroli Mudra & Mahabhedh Mudra

6. Bandh: *Moolbandh, Jalandharbandh, Uddiyanbandh*, Jivhabandh, Mahabandh.

7. Preksha Meditation and Contemplation (Anupreksha):

i. Meditation: Four Steps and Perception of Psychic Centers.
ii. Contemplation (Anupreksha) : Honesty, Self-discipline.

8. Mantras:

Arham, Om, Om aing Om namah, Om hansah, Om hrim namo loe savva sahunam, Ram, Hoom.

9. Shat Karma: *Dand Dhauti, Shankh Prakshalan*.

Reference Books

1 तुम स्वस्थ रह सकते हो – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
2 प्रेक्षाध्यान : आसन–प्राणायाम – मुनि किशनलाल, जैन विश्व भारती प्रकाशन, लाडनूं।
3 प्रेक्षाध्यान : यौगिक क्रियाऐं – मुनि किशनलाल, बी. जैन पब्लिशर्स (प्रा. लि.), नई दिल्ली।
4 प्रेक्षाध्यान प्रयोग पद्धति – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
5 अमूर्त चिन्तन – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
6 मंत्र एक समाधान – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं,, 2004 (तृतीय सं.)।
7 आसन प्राणायाम मुद्रा बंध – स्वामी सत्यानन्द सरस्वती, योग पब्लिकेशन ट्रस्ट, मुंगेर, 2008।
8 Gherand Samhita – Swami Digambarji and Dr. M. L. Ghorote, Kaivalyadham S.M.Y.M. Samiti, Lonavla.
9 Hathpradipika by Svatmaram - Swami Digambarji and Ptambar Jha, Kaivalyadham S.M.Y.M. Samiti, Lonavla.
10 Shiv Samhita – Swami Maheshananda and Dr. B. R. Sharma, Kaivalyadham S.M.Y.M. Samiti, Lonavla.
11 Asana – Swami Kuvalayananda. Kaivalyadham SMYM samiti, Lonavala (India), .
12 Pranayam – Swami Kuvalayananda. Kaivalyadham SMYM samiti, Lonavala (India), 2005 (10ed.) .
13 Integrated Approach of Yoga Therapy for Positive Health – Nagarathna, R. & Nagendra, H.R. – Swami Vivekanand Yoga Prakashan, Bangalore, 2001.

Semester – III
Core Compulsory
MYS304 : Practice of Naturopathy (Practical)

M.M. 25 (CIA-05+ Practical and Viva-Voce-20)

Part B: Alternative Therapies

Practic of Panch Mahabhuta Introduction of tools and their application.

Reference Books

1 Aahar aur Poshaahar - Arya, S.D., Rajasthan Hindi Academy, Jaipur, 1986 (2nd edition).
2 Scientific Nature Cure – Hiralal, Gandhi Samarak Prakritik Chikitsa Parishad, New Delhi.
3 Yogic & Naturopathic Treatment for Common Aliments , Central Council for Research in Yoga & Naturopathy, New Delhi.
4 Science of Natural Life – Ganga Prasad Gaur and Rakesh Jindal, Arogya Sewa Prakashan, ModiNagar.
5 प्राकृतिक आयुर्विज्ञान – जिन्दल, राकेश; आरोग्य सेवा प्रकाशन, 1993।

Semester – III

Core Elective

MYS305 : Abnormal Psychology

M.M. 100(CIA-20+UT-60+TP-20)

Objectives

1. To understand the concept of abnormal behaviour and mental disorders.
2. To understand the nature, symptoms and etiology neuroses and psychoses.
3. To understand the management of abnormal behaviour through Preksha Meditation and Yoga.

Unit-I

Nature and criteria to abnormal behaviour.
Characteristics of abnormal behaviour.
Approaches of abnormal behaviour.
Determinants of abnormal behaviour: Biological and Psycho-social.

Unit-II Neuroses

Nature of neuroses.
Introduction of neurotic patterns: anxiety, phobia, obsession–compulsion, Hysteria and depression.
Treatment of neuroses through Preksha Meditation- Yoga

Unit-III Neurological Disorders

Headaches- Migraine, Tension Headache; Cerebro Vascular accidents: epilepsy; Pain; Artonomic dysfunctions; Parkinson disease. Management of Neurological disorders through Preksha Meditation- Yoga.

Unit-IV Schizophrenia and Paranoid Disorder

Clinical symptoms of Schizophrenia
Types of Schizophrenia
Nature of Paranoid Disorder
Types of Paranoid Disorder

Reference Books

1 Abnormal Psychology: James D. Page; Tata McGraw Hill Publishing Com., New Delhi.
2 Abnormal Psychology- The problem of maladaptive behaviour: Irwin G. Sarason & Barbara R. Sarason; Pearson Education Inc. & Dorling Kindersley Publishing Inc. South Asia.
3 Abnormal Psychology and Modern Life- James C. Coleman; Taraporevala Sons, Mumbai.
4 Abnormal Psychology- Jafar Mahmud; A.P.H. Publishing Corporation, New Delhi.
5 Abnormal Psychology: An Integrative Approach- David H. Barlow & V. Mark Durand; Cengage Learning India Pvt., New Delhi.
6 असामान्य व्यवहार – पी.डी. मिश्रा एवं बीना मिश्रा, उत्तरप्रदेश, हिन्दी संस्थान, लखनऊ।
7 आधुनिक असामान्य मनोविज्ञान – अरूण कुमार सिंह, मोतीलाल बनारसीदास, दिल्ली।
8 असामान्य मनोविज्ञान – आर.के. ओझा, हरप्रसाद भार्गव प्रकाशन, आगरा।

Semester – III
Core Elective
MYS306 : Naturopathy
M.M. 100(CIA-20+UT-60+TP-20)

Objectives

1 To understand basic principles of Naturopathy.
2 To understand modes of Naturopathy treatements.

Unit-I Introduction of Naturopathy

Definition
History of naturopathy
Introduction of panchmahabhuta (five elements)
Basis Principles of Naturopathy

Unit-II Water element and Hydrotherapy

Types of water
Application of water for treatment in diffrent ways
Types of bath – Hip, tub, spine, steam, stiz and hand foot bath.
Types of bandages
Anima

Unit-III Air and Eather element & Their Therappy

Elements of air and soil
Treatment by air and eather element: walk, air bath, swar vigyan
Massage and types of massage
Different types of exercise (walking and Breathing)
Treatment by ether element: relaxation and sleep
Fasting: definition, scientific fasting, methods of fasting and crisis management in fasting; Difference between fasting & starvation

Unit-IV Sun and Earth Element & Their Therapy

Introduction of solar system & Light
Types of Sun Bath; Preparation of Oil, Water and Food
Types of Hot water Baths
Qualities & types of earth
Applications of mud therapy

Reference Books

6 Aahar aur Poshaahar - Arya, S.D., Rajasthan Hindi Academy, Jaipur, 1986 (2nd edition).
7 Scientific Nature Cure – Hiralal, Gandhi Samarak Prakritik Chikitsa Parishad, New Delhi.
8 Yogic & Naturopathic Treatment for Common Aliments , Central Council for Research in Yoga & Naturopathy, New Delhi.
9 Science of Natural Life – Ganga Prasad Gaur and Rakesh Jindal, Arogya Sewa Prakashan, ModiNagar.
10 प्राकृतिक आयुर्विज्ञान – जिन्दल, राकेश; आरोग्य सेवा प्रकाशन, 1993।

Semester – III
Core Elective
MYS307 : Dietetics and Nutrition
M.M. 100(CIA-20+UT-60+TP-20)

Objectives

1 To understand the concepts of nutrition.
2 To understand about nutrients and their role in maintaining health.

Unit-I **Introduction of Nutrition**

Basics Concept and Dimensions of Food & Nutrition
Nutrients: types and characteristics
Sources and functions of nutrients (Macro & Micro Nutrients)
Water and electrolyte balance

Unit-II **Nutrition and Health**

Protein energy mal nutrition.
Health and nutritional care.
Yogic Concepts of diet and its relevance in lifestyle management.
Mitahara.

Unit-III **Nutritional Requirements**

Nutrition in normal infants.
Nutrition in children.
Nutrition in adults.
Nutrition in old age.
Nutrition in pregnant and lactating worker

Unit-IV **Nutrition and Diet**

Nutrient intake and diet planning.
Diet and therapeutic nutrition.
Vegetarian vs. Non vegetarian diet.
Energy Requirement & Expenditure
Factors affecting BMR.

Reference Books

1 A Text book of Nutrition- Chintapalli Vidya; Discovery Publishing House, New Delhi.
2 Nutrition and Health Promotion- Bhavana Sabarwal; Commonwealth Publisher, New Delhi.
3 Teaching Health and Nutrition- R.I. Reddy; Commonwealth Publisher, New Delhi.
4 Advanced Text Book of Food and Nutrition (vol. I & II) - M. Swaminathan; Bangalore Printing & Publishing Co. Ltd., Bangalore.

Semester – IV
Core Compulsory
MYS402 : Health Management and Preksha Meditation-Yoga
M.M. 100(CIA-20+UT-60+TP-20)

Objectives

1. To understand the role of Preksha Meditation-Yoga in the promotion of physical, mental and emotional health.
2. To understand the models of Preksha Meditation-Yoga therapy in managing various psychosomatic diseases.

Unit-I **Concept of Health**

Definition; determinants of health; environment and health; Individual and social hygiene; Role of Preksha Meditation-Yoga in promotion of health, Yogic Concept of Health and Disease: Concept of Adhi, Vyadhi, Upadhi

Unit-II **Preksha Meditation-Yoga Management of Physical Diseases**

Principles of causative factors, symptoms and Preksha Meditation-Yoga management of cervical Spondilitis, Gastritis, Back Pain, Insomnia, Psytica and Arthritis.

Unit-III **Preksha Meditation-Yoga Management of Life style disorders**

Causative factors, symptoms and Preksha Meditation-Yoga management of Coronary Artery Disease, Hypertension, Obesity and Asthma.

Unit-IV **Symptoms, causative factors and Preksha Meditation-Yoga Management of critical diseases**

Diabetes, Cancer and AIDS; Fatal effects of alcoholism, Smoking & Drugs and their prevention through Preksha Meditation-Yoga.

Reference Books

1 Preksha Yoga for Common Elements - Mishra J.P.N.; B. Jain Publishers, New Delhi, 2003 (3rd ed.).

2 Yoga for Common Elements - Nagrathna, R.; Nagendra, H.R. and Monro, R.; Gaia Books Ltd. London, 1994 (1st ed.).

3 Preksha Dhyan: Theory and Practice - Acharya Mahapragya, Jain Vishva Bharati Publication, Ladnun, 1994 (3rd ed.).

4 प्राकृतिक आयुर्विज्ञान – जिन्दल, राकेश; आरोग्य सेवा प्रकाशन, 1993।

5 एक्यूप्रेशर–प्राकृतिक चिकित्सा – सिंह, अत्तर; बी. जैन पब्लिशर्स प्रा.लि., 1990, नई दिल्ली।

6 अमृतपिटक – युवाचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं, 2002 (द्वितीय सं.)।

Semester – IV

Core Compulsory

MYS403 : Practice of Yoga and Preksha Meditation (Practical)

M.M. 75 (CIA-15+ Practical and Viva-Voce-60)

1. Revision of all practices undertaken in previous semesters.

2. Asana

i. Asanas in Lying Position: *Setubandhasana, Chakrasana*.

ii. Asanas in Sitting Position: *Brahmacharyasana, Baddha-Padmasana*, Merudandasana, Akarna Dhanurasana

iii. Asanas in Standing Position: *Mahavirasana, Surya Namaskar*.

iv. Advance Asana: *Mayurasana, Chakrasana (Standing), Vrishchikasana, Natrajasana.*

3. Pranayam

Bhastrika, Shitkari, Sadanta

4. Mudra: *Khechari Mudra & Nabho Mudra*

5. Preksha Meditation and Contemplation (Anupreksha)

i. Meditation: Four Steps and Perception of psychic colours.

ii. Contemplation (Anupreksha): Mental balance, Patience.

iii. Jeevan vigyan in prayer assembly.

6. Mantras

Lam lam lam lam, Lrim lrim, Hram, Hrim, Hraum, Kshaip om swaha, Om shante prashante sarwa krodhopshamani swaha.

7. Hast Mudras

Vayu mudra, Aakash mudra, Soonya mudra, Prithvi mudra, Surya mudra, Varun mudra, Pran mudra, Apan-vayu mudra, Shankh Mudra, Shivling Mudra, Apan Mudra, Surbhi Mudra, Mrigi Mudra.

8. Shat Karma

Dand dhauti, Shankh prakshalan.

Refrences

1 तुम स्वस्थ रह सकते हो – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
2 प्रेक्षाध्यान : आसन–प्राणायाम – मुनि किशनलाल, जैन विश्व भारती प्रकाशन, लाडनूं।
3 प्रेक्षाध्यान : यौगिक क्रियाऐं – मुनि किशनलाल, बी. जैन पब्लिशर्स (प्रा. लि.), नई दिल्ली।
4 प्रेक्षाध्यान प्रयोग पद्वति – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
5 अमूर्त चिन्तन – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं।
6 मंत्र एक समाधान – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूं, 2004 (तृतीय सं.)।
7 आसन प्राणायाम मुद्रा बंध – स्वामी सत्यानन्द सरस्वती, योग पब्लिकेशन ट्रस्ट, मुंगेर, 2008।
8 Gherand Samhita – Swami Digambarji and Dr. M. L. Ghorote, Kaivalyadham S.M.Y.M. Samiti, Lonavla.
9 Hathpradipika by Svatmaram - Swami Digambarji and Ptambar Jha, Kaivalyadham S.M.Y.M. Samiti, Lonavla.
10 Shiv Samhita – Swami Maheshananda and Dr. B. R. Sharma, Kaivalyadham S.M.Y.M. Samiti, Lonavla.
11 प्राकृतिक आयुर्विज्ञान – जिन्दल, राकेश; आरोग्य सेवा प्रकाशन, 1993।

Focus on Employble & SkillDevelopment course ki Syllabus

MSW 106: Life Skill Education

Objectives **MM: 70**

1. Provide knowledge about life skills
2. Impart knowledge about basic life skill for day to day living.
3. Knowing about life skill psychology.
4. Knowledge about health and life skill education.

Contents

Unit-1: Introduction to Life Skills

Definition and Importance of Life Skills,

Nature of Life Skill: Genetic, Problem Specific and Area Specific Livelihood Skills, Survival Skills and Life Skills, Life Skills Training.

Unit-2: Life Skill Psychology

Social Psychology and life Skills Education the self: Self-Presentationand

Introspection Social Perception and Attitudes

Group Dynamics and Social influence, Social Relations

Unit-3: Core Life Skills

Social Skills and Negotiation Skills: Self-Awareness, Empathy, Communication and Interpersonal Relations.

Thinking Skills: Creative, Critical Thinking, Problem Solving, Decision Making.

Coping Skills: Coping with Emotions and Stress.

Unit-4: Health and Life Skill Education

Health: Concept, Types and Components of Physical Fitness.

Health Benefits Effect of Exercise of Body Systems.

Concept of Food and Nutrition: Balanced Diet, Vitamins, Malnutrition, Life Style Diseases, Safety Education.

Outcome:

Knowledge about Life Skills, Their Affliction and Health Education.

Suggested Readings:

1. Nair, V. Rajasenan, (2010). Life Skills, Personality and Leadership, Rajiv Gandhi National Institute of Youth Development, Tamil Nadu.
2. WHO (1999). Partners in Life Skills Education: Conclusions froma United Nations Inter-Agency Meeting WHO, Geneva.
3. YUVA School Life Skills Programme: Handbook for Teachers, Vol. I-IV, (2008), Department of Education and State Council of Educational Research and Training, Delhi.
4. Singh Madhu, (2003). Understanding Life Skills, Background paper prepared for Education for All: The Leap to Equality.
5. Morgan and King (1993). Introduction to Psychology, Tata McGraw-Hill Publishing Company Ltd., New Delhi.
6. Myers G. David, (2006). Exploring Social Psychology,, (3rd Edn.), Tata Mc-Graw Hill, New Delhi.
7. Kuppuswamy B., (2004). Introduction to Social Psychology, Media Promoters & Publications Pvt. Ltd. India.
8. Hogg A. Michael and Cooper Joel, (2007). Social Psychology, Sage Publications India Pvt. Ltd., New Delhi.
9. Hurlock, B. Elizabeth (2007). Personality Development, Tata Mc Graw Hill Publishing Company Ltd., New Delhi.

MSW 206: Management of Development Organization

Objectives **MM: 70**

1. Provide an understanding about development organization.
2. Knowledge about information of development Organization.
3. Impart Knowledge about resource mobilization.
4. Know about project and reporting

Contents

Unit-I Introduction to development Organisation

Development Organisation : concept importance and definition

Types of Development Organization: Civic Society, Organization, Community-based Organization, People's Organization, Voluntary Organization, Non-profit Organizations, Changing context of Development Organization.

Unit-II Formation of Development Organization:

Organizational planning, Development of Vision, Mission, Goals, Objective and Structure, legislative Framework. Societies Registration Act 1860, Public Trust Act 1882, Non-profit Organization under Companies Act 2013, Income Tax Act (12A, 80G), 2012

Unit-III Resource Modulation for Development organization

Fund Raising: Principles, Sources, Methods and Implications, Foreign Funding of Development Organizations Transparency, Accountability and Legitimacy of Development Organization

Unit-IV Project and Reporting

Project: Importance, Meaning and Concept,

Phases of Project: Conceptualization, Formulation, Operation, and Termination,

Concepts of Project Monitoring and Evaluation,

Confronts of the Project Report.

Outcome:

Development of Knowledge about Structure and Functioning of Development Organization.

Suggested Readings:

1. Geol, S.L. (2010): Social Welfare Administration Deep & Deep Publications.
2. Kaushik, A. (2010): Welfare and Development Administration in India Academic Foundation.
3. Kochhar (2012): Policy Making Academic Foundation.
4. Rao, M.F.T. (2000): Office Organisation and Management Atlantic Publishers.
5. Banerjee, G. (2001): Laws Relating to Foreign Contribution in India Commercial Law Publishers.
6. Eade, D. (2005): Development, NGOs and Civil Society Rawat Publications.
7. Sooryamoorthy, R. & Gangarade, K.D. (1989): NGOs in India Rawat Publications.
8. Verma, R.B.S. (2014): Introduction to Social Administration on Shipra Publications, New Delhi.

Course Code – JVBI 205 Computer Applications

MM: 70

The main objectives of this course are;

- It will expose the students to the fundamentals of the IT.
- Students will be having the introductory knowledge of the MS-Windows
- Practically students will be able to use MS-PowerPoint, MS-Word, MS-Excel and create their own blog.

Course Contents (Term End Theory Exam):

Unit I: Introduction to Computers and Windows

- Application of Computers
- Block Diagram of Computer
- Input and Output devices
- Types of software
- Introduction to Operating system: Windows
- Functions of operating system
- How you can Fast your Computer or Maintenance of computer

Unit II: Concept of MS Word and MS Excel and its application

- MS Word Window Layout
- Creating and Formatting Documents
- Editing Documents
- Working with Tables.
- Mail Merge, Macro Recording, Thesaurus, Printing Document (How to Use Page-Setup Before Printing)
- Introduction to Excel and its Applications
- Concept of workbook and worksheet
- Layout of Worksheets
- Use of basic formula and functions
- Sorting, Filtering and charts
- Report Generation (Pivot Table)
- Security or Protecting Worksheets

Unit III: Introduction & Application of MS-PowerPoint

- PowerPoint Slide Creation
- Slide Layout
- Views

- Adding content to slide- Text, Graphics, Sound, Video
- Applying Slide Transition
- Custom Animation
- Slide Show
- Working With Image or ClipArt (how you edit clipart image)

Unit IV: Internet

- Introduction to internet
- ISP (Internet Services Providers)
- About Modem, Type of Internet Connection
- Web browser – its functions
- Concept of search engine, What is surfing
- Social Networking site/How to pay online bill/How to book tickets online/How to use Paytm
- Website and its types
- Searching, downloading and uploading
- Basic concepts of sending and receiving E-mail
- Blog uses and creation of blog
- How to Create Simple web page (or Personal web page)

Course Contents (Practical) :

- Creating document in MS-Word like Advertisement, Letter, Tables, Charts etc.
- Creation of Simple Worksheet like Mark sheet, Pay slip using MS-Excel.
- Creation of Power Point Presentation on various themes.

Outcome:

- Students will apply the knowledge of IT practically in their day-to-day life.
- Students will be able to create well-formatted documents, attractive presentations and calculation part through excel.
- Students will be able to create their own blog.

SUGGESTED READING/Website

1. http://www.tutorialspoint.com/computer_fundamentals/index.htm
2. http://www.gcflearnfree.org/office
3. Fundamentals of computers (English) Ist Edition by Reema Thareja, Oxford University Press, 2014
4. Introduction to Computer by Peter Norton, Tata Mc Graw hill
5. Introduction to Computer by Gary B Shelly

DEPARTMENT OF SOCIAL WORK

Jain Vishva Bharati Institute

(Declared as deemed-to-be University Under section 3 of the UGC act, 1956)

Ladnun- 341306 (Rajasthan), India

Meeting of Board of Studies

A Meeting of Board of Studies of Department of Social Work was held today i.e. 2001-2015 at 10.30 A.M. in the Department of Social Work. The following were present:

1. Prof. R.B.S. Verma (Chairman)
2. Prof. Sanjai Bhatt (External Expert)
3. Dr. B. Pradhan (Member)
4. Mr. Jitendra Verma (Member)
5. Mr. Jyoti Swami (Member)

The following resolutions and ordinances were passed:

1. The course structure of courses M.S.W., P.G. Diplomas in Corporate Social Responsibility, Human Resource Management, Counselling and Communication and Gender Empowerment based of Choice Based Credit System were approved and will be taught from the session 2015-16. (Course Structure and Syllabus is attached as Annexure I, II, III, IV and V)
2. The General Ordinances of Choice-Based Credit System and Comprehensive Continuous Assessment were also approved.
3. The course structure and ordinance of UG Programme based of Choice Based Credit System were also approved. (Annexure VI)
4. It was also resolved that PG Diploma Course namely PG Diploma in Corporate Social Responsibilities (CSR), PG Diploma in Human Resource Management (HRM), PG Diploma in Counselling and Communication (PGDCC) and PG Diploma in Gender Empowerment (GE) may be run through Distance mode, provided it must be conducted and monitored by Department of Social Work, since these are practice-based courses.
5. It was also resolved that MSW Course namely Life Skill Education, Management of Development Organisation, Trade Union and Industrial Relations may be run in MSW Course.

The meeting ended with a vote of thanks to members.

Chairman, Board of Studies

MSW 304: Labour Welfare and Social Security

Objectives: **MM: 70**

1. Knowledge about concept and importance of Labour Welfare.
2. Acquaint to various agencies of labour welfare.
3. Give Working Knowledge about Social Security Laws.
4. Explain the importance and concept of Social Security.

Course Contents:

Unit –1: Labour Welfare

Concept, Importance, objectives, Scope, Philosophy and Principles. Approaches to Labour Welfare.

Historical Development of Labour Welfare in India.

Status and Duties of Labour Welfare Officer in India.

Unit –2: Constitution and Legal Framework Regarding Labour Welfare

Legal Framework Regarding Labour Welfare: Constitutional Provisions, Labour Welfare Provisions in Factories, Mines and Plantations.

Agencies of Labour Welfare: Role of State, Employer and Trade Union in Promotion of Labour Welfare.

Programmes and Policies of Labour Welfare in India.

Unit –3: Social Security

Concept, Importance and Forms, Policies, Programmes and Perspectives of Social Security and concept of safety net in India

Unit-4: Social Security Laws

The Employees State Insurance Act, 1948, the Employees Provident Fund and Miscellaneous Provisions Act, 1952.The Maternity Benefit Act, 1961, the Unorganized Workers Social Security Act, 2008. The Workmen Compensation Act, 1923

Outcome:

Gaining knowledge about Employee Welfare and Social Security Concepts and Systems in India.

Suggested Readings:

1. Vaid, K.N. (1970): Labour Welfare in India.
2. Sharma, A.M. (1991): Aspects of Labour Welfare and Social Security.
3. Morrthy, M.V.(1968): Principles of Labour Welfare.
4. Malik, P.K. (2006): Industrial Laws Vol. I and Vol. II
5. Concerned Base Acts.
6. सुरेन्द्रसिंह : स्वदेश एवं विदेश में सामाजिक सुरक्षा (वॉल्यूम–1 एवं वॉल्यूम–2)
7. वर्मा, आर.बी.एस. एवं अतुल प्रतापसिंहः श्रम कल्याण एवं सामाजिक सुरक्षा

MSW 305: Trade Union and Industrial Relations

Objectives: **MM: 70**

1. Know about the concept trade union and its role in industrial organization.
2. Acquaint to trade union leadership.
3. Give knowledge about concept and importance of industrial relations.
4. Provide knowledge about collective bargaining and redressal of industrial conflict.

Course Contents:

Unit –1: Trade Union: Conceptual Introduction

Concept, Objectives, Functions. History of Trade Union Movement in India, Trade Union Leadership.Theories, Legal Provisions and Organization.

Unit –2: Industrial Relations

Concept, Objectives, Scope, Approaches, Determinants and Reflectors.

The Industrial Disputes Act, 1947.

Unit –3: Collective Bargaining

Definition, Objectives, Principles, Forms, Methods and Theories.

Legal Framework of Collective Bargaining.

Unit –4: Industrial Conflict

Meaning, Approaches and Style of Managing Industrial Conflict. Grievance: Meaning, Grievance Procedure. Workers, Participation: Concept and Practices. Trusteeship: Concept and its Influence on Industrial Relations in India Changing Socio-economic Scenario and Industrial Relations in India.

Outcome:

Acquaintance with trade unions, industrial relations, collective bargaining and industrial conflict.

Suggested Readings:

1. Promod Verma : Trade Union in India
2. Mukerjee, S,Khare, H.P. : Current Trends in Indian Trade Union Movement.
3. Punekar : Labour Welfare, Trade Union and Industrial Relations
4. Venkata, Satnam, C.S. : Industrial Relations
5. Tripathi, P.C. : Personnel Management and Industrial Relations
6. Malik, P.K. : Industrial Laws. Vol-I and Vol. 2
7. Goswami, V.G. : Labour and Industrial Laws
8. Singh, B.P. and Chhabra, T.N.:Personnel Management and Industrial Relations.
9. I.C.B. Memoria and S.Memoria (1989): Dynamics of Industrial Relations an India.
10. वर्मा, आर.बी.एस. एवं अतुल प्रताप सिंहः उद्योगों में अनुशासनात्मक प्रक्रिया

MSW 306: Livelihood and Development

Objectives: **MM: 70**

1. Overview of the concept of livelihood and related issues.
2. Understand policy initiatives and their implication for/impact on livelihoods of vulnerable populations.
3. Understand the role of professional for sustainable livelihoods.
4. Inculcate attitudes and skills appropriate to meet the challenge and secure livelihood to poor Populations.

Course Contents:

Unit-1: Livelihood

Concept,Meaning and Indicators Livelihood Resources; Right and Entitlementsof Livelihoods: Conditions, Opportunities, Problems and Prospects.

Unit-2: Grass-Root Initiatives

Micro-Finance, Micro-Credit, Micro-Enterprise, Self Help Group,Livelihood and Gender Mainstreaming, Impact of Globalization and Climate Change on Livelihood.

Unit-3: Livelihood Mapping

Tools, Techniques and Analysis.

Livelihood Analysis: Portfolio, Sustainability, Stakeholder analysis, Market linkages and Social Entrepreneurship.

Livelihoods Promotion by Different Agencies, livelihood Programs in India.Challenges in Livelihood Promotion.

Unit-4: Governance Issues

Planning and Implementation of Programs and Projects.

Social Audit, Micro Level Development Planning, Social Work Practice &Sustainable Livelihood.

Outcome:

Development of knowledge about livelihood conception, processes and governance.

Suggested Readings:

1. Acharya, S. S. Sustainable Agriculture and Rural Livelihoods, New Delhi: Indian Council of Social Science Research, 2006.
2. Ashley, Carolina, Daniel Start, and Rachel Slater. Understanding Livelihoods in Rural India: Diversity, Change and Exclusion. [London, England]: Overseas Development Institute, 2003.
3. Bandyopadhyay, Sanjoy K., and B. R. Das. Decentralised Planning for Drought Proofing and Sustainable Livelihoods. Bhubaneswar: UNDP Orissa Hub, 2000.
4. Basile, Elisabetta, and Ishita Mukhopadhyay. The Changing Identity of Rural India A Socio-Historic Analysis. New Delhi, India: Anthem Press, 2009.
5. Baumann, Pari, and Subir Sinha. Linking Development with Democratic Processes in India: Political Capital and Sustainable Livelihoods Analysis. London: Overseas Development Institute, 2001.
6. Baumann, Pari. Sustainable Livelihoods and Political Capital: Arguments and Evidence from Decentralisation and Natural Resource Management in India. London: Overseas Development Institute, 2000.
7. Krishna Raj, Maithreyi. Gender, Food Security, and Rural Livelihoods. Kolkata: Stree, 2007.
8. Behar, Amitabh. Assuring Livelihoods and Empowering Poor: A Case for National Rural Employment Guarantee Act. Pune: National Centre for Advocacy Studies, 2005.
9. Bhargava, Pradeep, and Radhey Shyam Sharma. Countering Uncertainties, Strategies for Sustainable Livelihoods: An Assessment of Impact of Poverty Reduction Programmes on the Poor in Rajasthan. Jaipur: Institute of Development Studies, 2002.
10. Chopra, Kanchan Ratna, Gopal K. Kadekodi, and M. N. Murty. Participatory Development: People and Common Property Resources. New Delhi: Sage Publications, 1989.
11. Das, S. K. Watershed Development and Livelihoods: People's Action in India. New Delhi: Routledge, 2008.
12. Datta, Sankar, and Vipin Sharma. State of India's Livelihood: The 4 P Report. Thousand Oaks, Calif: SAGE, 2010.
13. Deshingkar, Priya, and Daniel Start. Seasonal Migration for Livelihoods in India: Coping, Accumulation and Exclusion. London: Overseas Development Institute, 2003.
14. Dichter, Thomas W., and Malcolm Harper. What's Wrong with Microfinance? Rugby, Warwickshire, UK: Practical Action Pub, 2007.
15. Ellis, Frank. Rural Livelihoods and Diversity in Developing Countries. Oxford: Oxford University Press, 2000.
16. Farrington, John, Tamsin Ramasut, and Julian Walker. Sustainable Livelihoods Approaches in Urban Areas: General Lessons, with Illustrations from Indian Cases. London: Overseas Development Institute, 2002.
17. Deshingkar, Priya, and John Farrington. Circular Migration and Multilocational Livelihood Strategies in Rural India. New Delhi: Oxford University Press, 2009.
18. Farrington, John. Policy Windows and Livelihood Futures: Prospects for Poverty Reduction in Rural India. New Delhi: Oxford University Press, 2006.
19. Fehr, Garry Allan. Globalisation and Informal Regulation Changes in Non Timber Forest Product Livelihoods in Madhya Pradesh, India. Ottawa: Library and Archives Canada = Bibliothèque et Archives Canada, 2008.
20. Fernando, Jude L. Microfinance: Perils and Prospects. London: Routledge, 2006.

MSW 307: Rural Society & Panchayati Raj Institution.

Objectives: **MM: 70**

1. Develop an understanding about rural Communities.
2. Gain Knowledge about Panchayati Raj Institutions.
3. Know about the Involvement of People in rural reconstruction.
4. Develop an understanding to relate the role of Panchayati Raj Institutions with Rural Reconstruction.

Course Contents:

Unit -1: Rural Community and Institutions

Indian Rural Community: Concept, Characteristics, Nature and Significance.

Rural Social Institutions: Joint Family and Caste Problems and Challenges faced by Rajasthan Rural Community, Emerging Rural Elite in Indian Village Community.

Unit –2: Panchayat Raj Institutions

Pachayati Raj Institutions: Evolutions, Concept and Significance (73rd and 74th amendment of PRI)

Functional Aspect of Panchayati Raj Institutions: Financial, Political and Administrative.

Problems faced by Panchayati Raj Institutions in Rajasthan.

Unit –3: Panchayat Raj Systems

Gram Sabha: Concept, Significance, Structure, functions and powers of Gram Sabha,

Village Panchayat: Kshetra Panchayat and Zilla Panchayat

Unit –4: Social Work Intervention and Community Participation.

Social Work Intervention and Panchayati Raj Institutions. Role of Social Worker in Mobilizing People Participation for Strengthening Functional aspect of Panchayati Raj Institution:

Community Participation: Meaning and Importance.

Community Awareness: Importance, Objectives and Means.

Outcome:

Knowledge about structure and functioning Panchayati Raj Institutions and their contributions to rural reconstruction

Suggested Readings:

2. Institute of Social Sciences, Status of Panchayat Raj in the States and Unio Territories in India, Concept Publishing, New Delhi, 2001.
3. Maheshwari, S., Rural Development in India : A Public Policy Approach, Sage, Delhi, 1995.
4. Bandyopadhya, D " People's Participation in Planning : Kerala Experiment " Economics and Political Weekely , Sept 24, 1997
5. Desai, V. Rural Development (VOL.I), Himalaya Publishing House , Mumbai, 1988
6. Jacob, K.K. Social Development Parpectives ,
7. Rao, V, and Mandor, H, An Agenda for Caring : Interventa for Marginalised , VHAI, New Delhi,
8. Kulkarni, P.D. Social Policy and Social Development in India, Association of Schools of Social in India, Madras, 1973
9. UNDP, Human Development Reports , Qxford University Press,

Group-C

MSW 308: Gender, Family and Social Work

Objectives: **MM: 70**

1. Understand gender as a social construct and its application to understand various Social Phenomena.
2. Develop familiarity with Social problem related to gender.
3. Acquaint with the policies, programmes and services related to Gender and family.
4. Develop Social Work practice skills of working with family and gender related problems.

Course Contents:

Unit –1: Gender Related Concepts

Basic Concepts:Sex, Gender, Gender Stereotypes, Gender Bias, Feminism.

Patriarchy:Meaning, Concept and Social Structure.

Unit –2: Expression of Gender Disparity & Violence

Gender Disparity:Education, Health, Property, Employment and Livelihood.

Gender Based Violence: Domestic Violence, Female Foeticide and infanticide and sexual exploitation. Gender Based Crime: Women Trafficking, Rape, Child Marriage, Dowry Death.

Unit –3: Family Types & Problems

Family:Meaning, Concept, Nature, Types, Functions and Patterns.

Family Problems: Concept, Types, Causes and Consequences.

Family as a Client System and Family Counseling.

Family Court Act.

Unit –4: Intervention and Social Work Practice

Intervention: Legal Measures, Social Welfare Services, Government and Non-Government initiatives.

Family in Social Work Practice.Relevance of Gender Studies in Social Work.

Outcomes:

Gaining of knowledge about gender related concepts, gender disparity and violence, family problems, and Social Work interventions.

Suggested Readings:

1. Vidyut, Bhagwat (2004): Feminist Social Thought.
2. D. Collins and others (1999): A Introduction to Family Social Work.
3. Murli, Desai (1994): Family and Intervention: A Course Compendium.
4. Neela Kabeer (2003): Gender Mainstreaming in Poverty Eradication and the Millennium, Development Goals; A Handbook for Policy Makers and other stake holders.
5. S. Krishna (2004): Livelihood and Gender.
6. K. Mathur (2004): Countering Gender Violence.
7. Anthony N. Maluccio and others: Social Work Practice with Families and Children.
8. J.L. Parpart and others (2000): Theoritical Perspectives on Gender and Development.
9. J.Pilechor and I. Whelehan (2004): 50 key concepts in Gender Studies.
10. TISS (1994): Enhancing the Role of Family as an Agency for Social and Economic Development.

MSW 310: Health and Medical Social Work

Course Objectives: **MM: 70**

1. Understand Concept of health as important aspect of social and human development
2. Develop understanding of health care services and programmes in the country.
3. Gain knowledge about community health interventions.
4. Familiarize about relevance, domain and nature of social work practice in different health settings.

Course Contents:

Unit-1: Health and Diseases

Health: Concept, components, dimensions and determinants, indicators of health status of people, Diseases: communicable and non-communicable diseases: symptoms, causes and prevention. Epidemiology of communicable diseases.

Unit-2: Programme and Health Care Services

Health Care Services in India : Structure and functions, primary healthcare: concept, issues of availability, affordability and accessibility to health care services in india. Health planning and policy, National Health Policy and health planning in five year plans. National Rural Health Mission (NRHM)& Janani Suraksha Yojna, Health care services in Rajasthan.

Unit-3: Health and Administration

Reproductive and Child Health: Concept, components and strategies. Occupational health and diseases, Public health: meaning, scope and approaches, public health administration at central level and in Rajasthan.Health and Sustainable Development Goals.

Unit-4: Community Health & Medical Social Work

Community Health: Concept, scope, philosophy and programmes. Community needs assessment, developing mechanism for people's participation. School health services, health insurance system. Role of medical social worker

Outcome:

Gaining of knowledge about concept of health, health care services and programmes, community health interventions and nature of social work practice in different health settings.

References:

1. Stephen, 1991Rehabilitation and Community Care.
2. Dhooper, 1997 S. Social Work in Health Care in the 21st Century.
3. Park, K., 1995Textbook of Preventive and Social Medicine,.
4. Bhasin, U., 1994 People Health and Diseases: The Indian Scenario,
5. German, C.B., 1993 Social Work Practice in Health Care: An Ecological Perspective.
6. Mclead, E. and Bywaless, P, 2000 Social Work, Health and Equity.
9. Singh, Surendra and Misra, P.D., 2001 Health and Disease: Dynamics and Dimensions.
10. Pathak, S. H., 1968 Medical Social Work, Chapter 25 in Vadia, AR, (ed.), History and Philosophy of Social Work in India.
11. Bajpai, P. K. (ed.), 1998 Social Work Perspectives on Health.
12. Mshine, Judith (ed.), 1980 Psychotherapy and Training in Clinical Social Work.
13. Jordon, William, 1972theSocial Worker in Family Situation.
14. Humble, Stephen and Unell Judith (ed.), 1989 Self Help in Health and Social Welfare.
15. Butrym, Zofia and Horder, John, 1981 Health, Doctors and Social Workers.

MSW 311: Psycho–Somatic Factors of Health

Course Objectives: **MM: 70**

1. Develop understanding about psycho-somatic factors of health
2. Gain knowledge about psycho-somatic diagnosis and medicines
3. Know about importance of national health programs
4. Familiarize about overall health care system in India.

Course Contents:

Unit-1: Psycho –Somatic Factors of Health

Psycho –Somatic Factors of Illness: Concept and meaning, Psycho-Somatic diagnosis : meaning and importance, steps in psycho-Somatic diagnosis. Diagnosis aids Psycho somatic medicines: importance, types, methods of application, common physical diseases and role of medical social worker.Mental Health Act 2016.

Unit-2: Reform and Health Programme

Various Health Related Committee: Bhore committee, Mudaliar committee, Chadda committee, Mukherjee committee, Kartar Singh committee, Srivastava committee, National Health Programmes in India: Malaria Eradication Progamme, T.B, STD, HIV/AIDS and Immunization programme.

Unit-3: Health and Extension Services

Health Extension Services: Concept and principles, health education. Relationship of yoga and health. Application of yoga in the treatment of physical diseases like highblood pressure, diabetes, HIV/AIDS , T.B. etc.

Unit-4: Medical Social Work

Importance of social work in medicine and public health, Role of social workers in institutional health care team : Principles and functions. Family interventions, psycho – educational and supportive intervention. Social skills training: activities of daily living and vocational skills training, Theraputic community,.Psychiatric rehabitation.

Outcome:

Understanding about concept of psycho-somatic factors of health and gain knowledge about diagnosis and medicines, importance of national health programmes and over health care system of India.

References:

1. Philips, Dr and Verghes, 1994: Y., Health and Development.
2. Hiraman, A.B., 1996: Health Education an Indian Perspective.
4. Oak, T.M (ed.), 1991: Sociology of Health in India.
5. Jordan, William, 1972: Social Worker Family Situations.
6. Park, K., 1997: Park's Text Book of Preventive and Social Medicines.
7. Lathem, W. and Newbary, 1970: A., Community Medicine-Teaching, Research and Health Care.
8. Hilleboe, HE and Lorimore, 1966: G.W., Preventive Medicine.
10. Mechanic, David, 1985: Medical Sociology - A selective View.
11. Mathur, J.S., 1971: Introduction to Social and Preventive Medicine.
13. Singh, Surendra and Mishra, 2000: P.D., Health and Diseases: Dynamics and Dimensions.
14. Annual Reports of Ministry of Health and Family Welfare, Government of India, New Delhi.

MSW 405: Human Resource Management

Objectives: **MM: 70**

1. Impart knowledge about concept, principles and functions of HRM.
2. Develop Competence among students regarding Human Resource Management Issues.
3. Providing knowledge regarding wage and salary administration.
4. Impart knowledge about the disciplinary procedure of organization.

Course Contents:

Unit –1: Human Resource Management

Definition, Significance, Evolution, Philosophy, Objectives, Scope, Principles and Functions, Qualities of HRM Functionary.

Unit –2: Human Resource Planning and Development

Forecasting Requirement, Sources of Manpower Supply, Recruitment and Selection, Induction and Placement, Transfer, Promotion, Training and Development.

Unit –3: Job Analysis and Performance Appraisal

Job Evaluation, Performance appraisal: Objectives, Methods, Performance Counseling and Potential Appraisal, Wage and Salary Administration.

Unit –4: Discipline: Concept and Purpose

Employee Discipline and Disciplinary Procedure, Industrial Social Work, Emerging Perspective on Human Resource Management.

Outcome:

Knowledge about concept and functions of human resource management and discipline in organization.

Reference

1. Flippo : Personnel Management.
2. Memoria, C.P. : Personnel Management.
3. Storey, John : Managing Human Resource.
4. Tripathi, P.C. : Human Resource Management.
5. Monappa and Saiyadan: Personnel Management
6. Ashwathapa K: Human Resource and Personnel.
7. वर्मा, आर.बी.एस. एवं अतुल प्रताप सिंहः मानव संसाधन विज्ञान एवं प्रबन्ध की रुपरेखा
8. नौमा, बी.पी.: औद्योगिक सम्बन्ध एवं सामाजिक सुरक्षा।

MSW 406: Labour Legislations in India.

Objectives: **MM: 70**

1. Providing working knowledge of Labour Laws
2. Explain Concept and need for labour legislation.
3. Discuss Main Provisions of important Acts related to labour legislation.
4. Know about International Labour Organization.

Course Content:

Unit –1: Labour Legislation

Need, Concept and Sources, International Labour Organization: Structure and Functioning.

Impact of ILO on Indian Labour Legislation.

Unit –2: Labour Legislation in Factories, Mines and Plantations Factories Act, 1948

Mines Act: 1952, Plantations Labour Act: 1951, Industrial Employment Standing Orders Act:, 1946.

Unit –3: Legislation Dealing with Wages, Bonus, Migrant and Child Labour

Payment of Wages Act: 1936, Minimum Wages Act: 1948, Payment of Bonus Act: 1965.

Inter-State Migrant Workmen (Regulation of Employment and Conditions of Services) Act: 1979. Child Labour (Prohibition and Regulation) Act: 1986.

Unit –4: Other Important Labour Legislations

Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act: 1996, Equal Remuneration Act: 1948.

Contract Labour (Regulation and Abolition) Act: 1970.

Outcome:

Learning of Different Legislations Regarding workers.

References

1. Goswami, V.G. –Labour and Industrial Laws.
2. Malik, P.K. –Industrial Laws, Vol 1 & 2.
3. Parulekar, N.W.–Model Manual on Labour Laws.
4. Punekar, et.al. –Labour Welfare, Trade Unionism and Industrial Relations.
5. Bhagoliwal, T.N. –Shram Arthshastra Evam Audhyogik Sambandh.
6. Saxena, R.C.–Shram Samasyaen Evam Samaj Kalyan.
7. Singh, Surendra –Bhartiya Audhyogik Shram.
8. Concerned Bare Acts.

Group-B

MSW 407: Urbanization and Community Development

Course Objectives: **MM: 70**

1. Know about issues related to urbanization
2. Understand about concept, objectives and approaches to community development
3. Acquaint with urban growth, management and urban poor
4. Acquire knowledge of local self-governance.

Course Contents:

Unit-1: Urbanization

Concept, Causes and Consequences of Urban Poverty and Livelihood Issues. Migration: Concept and Issues, Slums and Housing, Natural Resource Management in Communities.

Unit-2: Urban Growth Management

Meaning, Approaches, Strategies of Local Economic Development, Core Areas of Urban Development: Informal Economy, Self-Employment, Unorganized Sector and Entrepreneurial Development, Issues of Urban Space, Housing and Right to Shelter.

Unit-3: Community Development and Urban Local Self Governance

Definition, Objectives, Approaches, Historical Development, Types of Community Development: Urban, Rural and Tribal.

Local Self Governance (74th Amendment): Concept and Significance, Constitutional and Legal Status, Structure and Functions of Nagar Nigam, Nagar Palika, Nagar Mahapalika, Town Area and Cantonment Board.

Unit 4: Urban Poor and Social Work Intervention

Urban Poor: Present status and characteristics, challenges for the urban poor: food security, housing, health, education and social security, Impact of globalization and urbanization on the urban poor. Role of social workers & Social Work Intervention

Outcome:

Gain Knowledge and understand about issues related urbanization, community development and local self –governance.

References:

1. Kasambi, M, (1994): Urbanization and Urban Development in India.
2. Roy, P and Das Gupta, S, 1995: Urbanization and Slums.
3. Thakur, B (ed.), 2005: Urban and Regional Development in India , Vol-1.
4. Kundu, A, 1993: In the Name of Urban Poor.
5. Misra, G.K. and Narain, K (ed.), 1989: Development Programmes for Urban Poor, Indian Institute of Public Administration.
6. Srivastva, A.K.,1989: Urbanisation; Concept and Growth.
7. Maurya, S.D. (ed), 1989: Urbanisation and Envirenment Problems.
8. Prakasa, Rao, V.L.S., 1983: Urbanisation in India; Spatial Dimensions.
9. Ramcharan, R, 1989: Urbanisation and Urban Systems in India.
10 Rao, M.S.A, Bhatt, Chandra Shekar and Kadekar, Laxmi Narayan, 1991:a Reader in Urban Sociology.
11. Aziz, Abdul,1994: Poverty Alleviation in India.
12. Turner, Roy (ed.), 1962: India's Urban Future.
13. Verma, S.S., 1994: Urhanisation and Regional Development in India.
14. Diddee, Jaymala and Rainaswami, Vamla (ed.), 1993:Urbanization; Trends, Perspectives and Challenges.
15. Dessai, A.R. and Pellia, S.D. (ed) 1979: Slums and urbanization.

MSW 408: Urban Planning and Development

Course objectives: **MM: 70**

1. Gain Knowledge about urban planning
2. Develop an understanding of urban development in India
3. Enhance sincerity and commitment towards development of urban poor
4. Develop necessary skills for urban community development

Course Contents:

Unit-1: Urban Planning

Concept, Need, Historical Background, Approaches and Problems, Master Plan: Contents, Methods and Techniques.

Unit-2: Urban Development

Concept, Features, Objectives, Historical Background and Process. National Urban Renewal Mission: Vision, Scope and Status.

Unit-3: Policies and Programmes and Social Work Practice

Structure and Functions, District Urban Development Authority (DUDA): Structure and Functions Programmes of Urban Development in Rajasthan

Unit-4: People's Participation

People's Participation in Urban Development, Role of Social Action and Advocacy in Urban Development, (For Public Distribution System, Right to Information, Right to Education and Acceptability), Initiatives of Civic Society Organization for Urban Community Development.

Outcome:

Gain Knowledge and understand about urban planning, urban development and necessary skill development.

References:

1. Kusambi, M, 1994: Urbanization and Urban development in India.
2. Thakur, B (ed.), 2005: Urban and Regional Development in India, Vol-I.
3. Narain, K, (ed.), Development Programms for Urban Poor, Indian Institute of Public Administration, New Delhi.
4. Aziz, Abdul, 1984: Urban Poor and Urban Informal Sector.
5. Bharadwaj, R.K., 1962: Urban Development in India.
6. Kundu, Amitabh, 1987: Urban Community Development in Encyclopaedia of Social Work in India, Vol-III, Ministry of Welfare .
7. Karamer, R.M., and Specht, 1983: H, Readings in Community Organisation Practice, Prentice hall.
8. Rani Singh, Sundra, 1979: Urban Planning in India, Ashish Publishing House.
10. D'souza, Victor S, 1987: Urban Development in India, in Encyclopaedia of Social Work in India, Ministry of Welfare.
11. Ganpathy, R.S. and others, 1985: Public Policy and Policy Analysis in India.

12 Ghosh, 1992: A, Planning in India: The Challenge for the Nineties.

13 Lindblom, C.E., 1980: The Policy Making Process.

14 Yadav, C.S. (ed), 1986: Urban Planning and Policies- Part A.

15. Upadhyay, S.B., 1992: Urban Planning.

Group-C

MSW 409: Child Welfare and Development

Objectives: **MM: 70**

1. Understand the significance of child development and right of children.
2. Gain knowledge about legal safeguards related to children.
3. Familiarize with policies, programmes and services related to children.
4. Develop skills of working with children.

Course Contents:

Unit –1: Child Welfare

Child Welfare: Concept, Need, Significance, Philosophy and Issues. Needs of Children: Physical, Psychological, Social and Emotional Problems in the Fulfillment of Different Needs.

Unit –2: Child Development and Problems

Child Development: Meaning and Significance, Child Care: Concept, Philosophy and Services. Children in Vulnerable Situation: Children with Disabilities, Trafficking of children, Street and Working Children and Child Prostitution.

Unit-3: Legislative FrameworkRights of the Children

United Nations Convention on the Rights of Children.

Constitutional Provisions Regarding Children.

Juvenile Justice Act, Child Labour Act (Prohibition and Regulation) Act, POSCO Act, Child Development and Protection Policies and Programmes in India.

Unit-4: Children and Social Work Practice

Social Work Intervention in the Field of Child Welfare Development and Protection Role of Social Worker in Different Settings of Child Welfare Development and Protection.

Outcomes:

Gaining Knowledge about Child Welfare, Development and Protection as well as Social Work Intervention in these areas.

References

1. Juliet, Berry (1972): Social Work With Children.
2. L.E. Berk (1999): Child Development.
3. Ramkumar (ed.) (1988): Child Development in India (Vol. I and II).
4. Goonesekere Savitri (1998): Children Law and Justice.
5. A. Bajpai (2003): Child Rights in India Law, Policy and Practice.
6. G.G. Peter (2004): Social Work with Children and Their Families.
7. A.N. Maluccio and others (2002): Social Work Practice with Families and Children.
8. V.Kumari and others (2004): Creative Child Advocacy Global Perspective.

MSW 410: Youth Development and Welfare of the Aged

Objectives: **MM: 70**

1. Develop an understanding of youth and aged.
2. Sanitization about issues related to youth and aged.
3. Develop concern and Interest in working with youth and aged.
4. Enhancement of skills for identification of needs and intervention for welfare and development of youth and aged.

Course Contents:

Unit – 1: Youth

Youth: Concept, Characteristics, Needs and Problems of Urban and Rural youth. Emerging Pattern of youth, Culture in Contemporary Indian Society and Inter Generation Conflicts.

Unit –2: Programmes and Policies

National Youth Policy, National Commission on youth, Institutional Interventions: Nehru Yuva Kendra (NYK), NCC, NSS, Employment and Guidance. Youth Welfare Programmes.

Unit -3: Aged and Policies

Aged: Concept and Meaning, Problems of the Aged: Social, Emotional, Physical and Adjustment.New Perspectives on the Care of the Aged. National Policy and Legislative Provisions for the Aged and Maintenance and Welfare of Parents and Senior Citizens Act: 2007.

Unit-4: Welfare Services and Aged

Services for the Aged: Agencies and Institutional, Government and Non-Government, Counseling for Aged, Home and Family Based Services, Information and Referral Services, Mobile Health Services, Senior Citizens Clubs, Day Care Center, Helpline, Role of Social Worker for the Welfare of Aged.

Outcomes:

Understanding of concepts, problems, policies, programmes etc. related to youth and aged.

Reference

1. J.Jiffs Anthony (1979): Young People and Youth Services
2. R.R. Baten: Human Factors in Youth Work.
3. R.R. Greene (2000): Social Work with Aged and Their Families.
4. Hary R. Moody (2006): Aging: Concept and Controversies.
5. Robin and others (1985): The Development of Welfare Services for Elderly People.
6. Andrew Well (2006): Healthy Aging: Ali belong Guide to your wellbeing.

Group-D

MSW 411: Mental Health and Psychiatric Social Work

Course Objectives: **MM: 70**

1. Understand concept and dimensions of mental health.
2. Develop an understanding of psychiatry.
3. Understand the relevance, nature and types of social work inventers in psychiatric settings.
4. Develop skills and attitudes required for the practice of Psychiatric Social Work.

Course Content:

Unit-1: Normal & Abnormal Behavior

Normal Behavior: Meaning and characteristics, Abnormal Behavior: Meaning, Characteristics and diagnosis. Classification of abnormal behavior, theories and models of abnormal behavior: psycho-social, behavior, humanistic and psycho-analytic.

Unit-2: Metal Health

Mental Health: Meaning and characteristics, Community Mental Health, Biological, Psychological and sociological approaches to mental illness, Mental health services in India and Rajasthan, Law and mental Health.

Unit-3: Concept of Psychiatry

Psychiatry: Meaning, nature, scope and importance, social psychiatry and community psychiatry. Development of psychiatry.Psychiatry and social work.

Unit-4: Psychiatric Social Work

Psychiatric Social Work: Concept and historical development. Social work intervention as psychiatric social work. Practice of psychiatric social work: role and functions.

Outcome:

Understanding of concepts dimensions of mental health, psychiatry and relevance, nature and types of social work inventers in psychiatric settings.

Suggested Readings:

1. Dube,S 1983: Mental Health Problems of Social Disadvantaged.
2. Coleman, James, C, 1981: Abnormal Psychology and Modern Life.
3. Sarson, Irwin, G. Sarson, Barbar, R, Abnormal Psychology: 2007: The problems of Maladaptive Behavior.
4. Horwitz A.M and Scheilt, T.L.(eds), 1999: A Handbook for the Study of Mental Health Social Contexts Theories and Systems.
5. Sadock, B.J and Sadock , V.A. (eds), 2005: Comprehensive Textbook of Psychiatry.
6. Gottlieb, B.H., 1983: Social Support Strategies, Guidelines for Mental Health Practice.
7. Sahni, A., 1999: Mental Health Care in India. Diagnosis, Treatment and Rehabilitation.
8. Mane, P. and Gandevia, K.Y., (eds), 1993: Mental Health in India: Issues and Concerns.
9. Callicut, J.W. and Lecca, P.J. (eds), 1983: Social Work and Mental Health.
10. French , L.M 1940: Psychiatric Social Work.
11. Patel, V and Thara, R., 2002: Meeting the Mental Health Needs of Developing Countries NGO institutions in India.
12. Mguire, l, 2002: Clinical Social Work: Beyond Generalist Practice with Individuals, Groups and Families.
13. Gelder, M. Mauyou, R. and cowen P, 2004: Oxford Textbook of Psychiatry
14. Verma, Ratna, 1991: Psychiatric social work in India.
15. National Mental Health Programme of India.

MSW 412: Mental and Personality Disorders

Course Objectives: **MM: 70**

1. Gain Knowledge about different types of psychotic and psycho-neurotic disorders.
2. Know about personality disorders.
3. Understand the relevance of social work interventions in mental health.
4. Develop an integrated approach to social work practice in the field of mental health.

Course Content:

Unit-1: Psychotic Disorders

Psychotic Disorders: Classification and symptoms of psychosis, Schizophrenic reaction, paranoid reaction, manic–defensive reaction, affective psychotic reaction and other psychotic reactions, Epilepsy: symtoms, diagnosis, treatment and prevention. Treatment of Psychotic disorders and role of psychiatric social worker.

Unit-2: Psychoneurotic Disorders

Psychoneurotic Disorders: Anxiety, neurosis, fatigue syndromes, hysterical reactions, phobia reaction, obsessive-complulsive reaction and neurotic depression, treatment of psychoneurotic disorders and role of psychiatric social worker.

Unit-3: Personality Disorders

Personality Disorders: Meaning and nature of personality disorder, problems in diagnosis of personality disorders.

Unit-4: Types of Personality Disorders

Types of Personality Disorders: Schizoid, schioztypal, narcissistic, anti-social, borderline, avoidance, dependent, obsessive and compulsive Social work applications in mental health.

Outcome:

Gain knowledge and understand about different types of psychotic and psycho-neurotic disorders, personality disorders and relevance of social work interventions in mental health.

Suggested Readings :

1. Puri, Madhumita, Sen, Arun K, 198: Mentelly Retarted Children in India.
2. Rebbinc, Arthur J, 1957: Mental Hospital in India and Social Work Services.
3. World Heald Organisation, 1992: The ICD-10 Classification of Mental and Behavioral: Clinical Descriptions and Diagnostic Guidelines.
4. Coleman, J.C., 1976: Abnormal Psychology in Modern Life.
5. Dickerson, Martha U. Ford, 1967: Social Work Practice with Mentally Retarted.
6. Friedlander, W.A., 1967: Introduction to Social Welfare (Chapter 12: Social Work in Medical and Psychiatric Settings).
7. Corson, R.C., Butcher J. N. and Mineka S., 2000: Abnormal Psychology and Modern Life.
8. Stroup, H. H., SocialWork :1960: An Introduction to the Field (Chapter 9 : Psychiatric Social Work).
9. Todd, F., Joan, 1967: Social Work with Mentally Subnormal.
10. Mishne, Judith, 1980: Psychotherapy and Training in Clinical Social Work.
11. Stream, Herber, S., 1979: Psychoanalyytic Theory and Social W0000000000000ork Practice.
12. Golan, Naomi, 1962: Treatment in Crises Situations.
13. Maner, Joshuao, 1971: The Therapeutic Community with Chronic Mental Patients.
14. Towle, Chorlotte, 1941: Social Case Records form Psychiatric Clinics with discussion notes.
15. Varma, R.B.S. (Ed.) 2010: Teaching Material in Social Work.

B.Com

Semester-IV

Tally

B.Com-16

M.M.-55

Unit-I

Starting Tally – gateway of Tally, Product info, Tally Menu, Button Bar, Tally Calculator, Company creation, select a company, shut a company, Alter a company, delete company.

Unit-II

Account Information – main function of master menu – Group, ledgers, Voucher Types.

Closing stock valuation, Accounting and Non-Accounting (Provisional) Vouchers.

Voucher Alteration, deletion, cancellation.

Unit-III

Inventory Master- unit measure, Stock group, Stock item alteration & deletion of Masters.

Inventory vouchers- invoice entry. Inventory reports, Inventory vouchers list, Stock group summary.

Unit-IV

Display of Tally – Balance sheet, Ratio analysis, cash flow, Funds flow Statement.

Accounting Reports-Day book Summaries, Trial Balance P&L Statement, Balance Sheet, Day book, Report Printing, Above all Reports Configuration.

Unit-V

Order- Purchase order entry, Sale order entry Enquires & quotation.

Export of Data

Import of Data

Book Recommended:

1. Implementing Tally- A.K. Nadhani, K.K. Nadhani, B.P.B publication , B-14, Connaught place New Delhi (Hindi)
2. Tally-9- Ram Naresh Parikh, Publication- Anushika Accdamy Mahalaxmi Market, Ratangarh (Hindi)
3. Tally-9- Vishnu Priya Singh

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory & Practical	Total
BOA 111	Information Technology (FUNDANMENTALS OF IT & APPLICATION SOFTWARE– I)	C	Core Course (CC)	4	30	50+20	100

Semester I

Objective:

1. This paper is intended to be the first basic course for the students of Information Technology. The main objectives of this course are;
2. It will expose the students to the fundamentals of the IT
3. Students will be having the introductory knowledge of the MS-Windows
4. Practically students will be able to use MS-PowerPoint and MS-Word.

Course Contents:

Unit I: Introduction to Computers

Introduction

- Application of Computers
- Block diagram of computer
- Types of computers and features
- Mini Computers
- Micro Computers
- Mainframe Computers
- Super Computers

Data Organization

- Drives
- Files
- Directories/Folder

Types of Memory (Primary And Secondary)

- RAM
- ROM
- PROM

- EPROM
- Secondary Storage Devices (FD, CD,DVD, HD,Pen drive)

Unit II

Devices

- Input Devices – Keyboard, Mouse, Joystick, Trackball, Light Pen, Touch Screen, Scanner, Digitizer, OMR, OCR ,MICR, Bar Code Reader
- Output Devices - Monitor, Printers, Plotter

Types of Software- Application & System Software

Language Processors- Assembler, Compiler & Interpreter

Types of Programming Languages

- Machine Languages
- Assembly Languages
- High Level Languages

Operating System

- Functions of Operating System
- Types of Operating System

Unit III

Introduction to MS-Windows

- Features of Windows
- Basic Components of Windows operating system-Start button, Desk Top
- My Computer, Recycle bin, Task Bar, Icons & System Tray
- Control Panel
- File and Folder Management

Concept of Word processor and its application

Ms-Word

- Ms-Word Window Layout
- Creating and Formatting Documents

- Editing Documents
- Creating and Editing Tables
- Mail Merge
- Printing Documents

Unit IV

Introduction & Application of MS-Powerpoint

- Power Point Slide Creation
- Slide Layout
- Views
- Adding content to slide- Text, Graphics, Sound, Video
- Applying Slide Transition
- Custom Animation
- Slide Show

Outcome:

- Students will apply the knowledge of IT practically in their day to day life.
- Students will be able to work on computers comfortably.
- Students will be able to create well formatted documents and attractive presentations.

Reference Books/Website

1. http://www.tutorialspoint.com/computer_fundamentals/index.htm
2. http://www.gcflearnfree.org/office
3. Rapidex computer course by Pustak Mahal Editorial Board, Unicorn Books,2012
4. Fundamentals of computers (English) Ist Edition by Reema Thareja, Oxford University Press, 2014

Practical:

- General use of Windows Operating System
- Creating document in MS-Word like Advertisement, Letter, Tables, Mail Merge etc
- Creating presentations in power point.

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory & Practical	Total
BOA 211	Information Technology (FUNDANMENTALS OF IT & APPLICATION SOFTWARE – II)	C	Core Course (CC)	4	30	50+20	100

Semester II

Objective:

This paper is intended to be the first basic course for the students of Information Technology. The main objectives of this course are;

- Students will be exposed to networking concepts including internet.
- Students will be exposed to work on numbers including formulas using MS-Excel.
- Students will be able to create and edit videos using Windows movie maker.

UNIT I

Computer & Communications

Need of data transmission/ communications

Networking Concepts

- Types of Networks – LAN, WAN, MAN & PAN - Need
- Topologies- Star, Ring, Bus, Tree ,Hybrid
- Advantages and Limitations

Internet

- Internet: Introduction
- Server and Client
- Web Browsers-Its functions
- Concept of Search Engines,
- Search engines types
- Websites – Types (Dynamic & Static)

• Internet Vs Intranet

Unit II

Types of Internet Services

• World Wide Web

• Telnet

• Electronic Mail

• Chat

• Newsgroups

E-Mail:

• Concepts

• Basics of Sending & Receiving

Unit III

Windows Movie Maker 7

• Introduction and Features of Windows Movie Maker 7

• Design, create and edit a movie using Movie Maker

• Video Editing skills - adjust sound, clip out parts & music to your video.

• Add still photos, animations, title and transitions

Unit IV

MS-Excel

• Introduction to MS-Excel

• Applications of MS- Excel

• Concept of workbook and worksheet

• Layout of Worksheets

• Various Data Types

• Inserting, Removing & Resizing of Columns & Rows;

• Working with Data & Ranges;

- Different Views of Worksheets;
- Column Freezing, Labels, Hiding, Splitting, Merging
- Formula
- Functions
  - o Mathematical & Statistical(Abs, Int, Mod, Power, Round, Sqrt, Sum, Sumif, Trunc, Average, Count ,CountA, Countblank, Countif, Max, Min,)
  - o Date & Time (Date, Day, Hour, Minute, Now, Second, Time, Today, WeekdayYear)
  - o Logical(And,Or,Not,True,False,If)
  - o Text(Char,Concatenate,Left,Len,Lower,Mid, Rept,Right,Trim,Upper)
- Auto fill Facilities
  - o Filling numbers, month names, days of week
- Sorting data in a spreadsheet
- Filtering Data
  - o Auto Filter
  - o Advanced Filter
- Charts –Creating line ,Column and Pie Chart

Outcome:

Students will use the Internet in their day to day life, use MS-Excel to create spreadsheets and learn to create the dynamic videos using movie maker.

Reference Books/Website

1. http://www.gcflearnfree.org/office
2. http://www.lynda.com/Windows-Live-Movie-Maker-training-tutorials/259-0.html
3. http://www.tutorialspoint.com/computer_fundamentals/index.htm
4. Rapidex computer course by Pustak Mahal Editorial Board, Unicorn Books,2012
5. Fundamentals of computers (English) Ist Edition by Reema Thareja, Oxford University Press, 2014

Practical:

- Creation of Simple Worksheet like Mark sheet , Pay slip using MS-Excel
- Craating movies in movie maker.
- General use of internet

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory+ Practical	Total
BOA 311	Information Technology(Web Technologies)	C	Core Course (CC)	4	30	50+20	100

Semester III

Objective:

1. To make the students aware of various tags of HTML and CSS.
2. To give the hands on experience on Adobe Dreamweaver.

Unit I

- Introduction to Web Designing & HTML
- HTML Element/Tags
- HTML Attributes
- HTML Heading
- HTML Paragraph
- HTML Formatting

Unit II

- HTML Links
- HTML Images
- HTML Marquee
- HTML Lists
- HTML Tables

Unit III

- HTML Forms
- HTML CSS Styles
- Style sheet basics
- Inline, Internal and External

Unit IV

- Introducing Dreamweaver
- Learning the interface
- Creating a website

Outcome:

After completing the course, the students will be able to create website using HTML tags and Adobe DreamWeaver

Reference Books

1. http://www.w3schools.com/html/

2. http://www.tutorialspoint.com/html/

3. http://www.adobe.com/devnet/dreamweaver.html

4. HTML 5 : The Missing Manual, II Edition, Mathew Donald, O' Reilly Media, December, 2013

5. Learn HTML & CSS with W3 Schools, Wiley Publishing Inc, 2010

Practical:

- Create webpage using HTML/Adobe Dreamweaver

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory+ practical	Total
BOA411	Information Technology (Advanced Web Technologies)	C	Core Course (CC)	4	30	50+20	100

Semester IV

Objective:

This paper will familiarize the students with client side scripting language and will expose the students to create dynamic WebPages.

Unit I

- Introduction to JavaScript
- Data Types
- Java Script Variables
- Java Script Operator
- Java script Statements
- Java Script Comments

Unit II

- JavaScript Decision making Statements-
  - o If… Else,
  - o Switch
- Java Script Loops
  - o For Loop
  - o While
  - o Do..While

Unit III

- Java Script Array
- Java Script Functions

- Javascript - HTML DOM
- Event handling

Unit IV

- Introduction to Javascript - Objects
- Javascript - Number
- Javascript - Boolean
- Javascript - Strings
- Javascript - Arrays
- Javascript - Date
- Javascript - Math
- Cookies

Outcome:

Students will be able to create dynamic WebPages using JavaScript.

Reference Books

1. Learn Java Script and Ajax with W3 Schools, Wiley Publishing Inc, December, 2010
2. The Complete Refernce Java Script III Edition, 2013, Thomas A. Powell Fraitz Sehneider, Mc Graw Hill
3. http://www.w3schools.com/js/default.asp

Practical:

Writing program using Java script

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory+ Practical	Total
BOA 511	Information Technology (Business Data Processing& Programming in Visual Basic- I)	C	Core Course (CC)	4	30	50+20	100

Semester V

Objective:

- Students will be exposed to the concepts of DBMS design.
- Students will be introduced to the GUI based programming using Visual Basic 6.0.

UNIT I

- Introduction to database
- Need of Database
- Characteristics of Database
- Need of Relational Database
- View of Data
- Data Abstraction
- Instances and Schemas
- Data Independence
- Data Models
- Data Definition Language
- Data Manipulation Language

UNIT II

- Overview of database design
- Data Normalization(Determining tables, Determining Fields, Determining Relationships)
- Integrity Rules(Primary/Foreign Key, One-to-Many, Many-to-Many, One-to-One)
- Introduction to MS Access
- Create a Table in MS Access
- Data Types, Field Properties , Fields: names, types, properties—default values, format, caption, validation rules
- Data Entry
    - Add/Delete records
- Sort, find/replace, filter/select, re-arrange columns, freeze columns
- Edit a Tables- copy, delete, import, modify table structure

UNIT III

- Setting up Relationships
- Define relationships
- add a relationship

- set a rule for Referential Integrity,
- change the join type, delete a relationship
- Queries & Filter
- Difference between queries and filter ,
- Filter using multiple fields AND, OR & NOT
- Advance filter
- Create Query with one table
- Find record with select query
- Find duplicate record with query
- Find unmatched record with query,
- Run query
- Save and change query.

UNIT IV

- Introduction to Visual Basic
- Introduction Graphical User Interface (GUI)
- The Visual Basic Environment, How to use VB complier to compile / debug and run the programs.
- VB Controls & and it's properties : Label, Text Box, Frame, Command Button, Image, Option Button & Check Box
- Data type, Variables and Constants
- Operators (Arithmetical, Relational and Logical)
- Decision Making Statements : If Statement, If then-else Statement, Nested If & Case Structure
- Displaying Message in Message Box
- Menus, Sub-Procedures and Sub-functions
- Defining / Creating and Modifying a Menu
- Creating a new sub-procedure, Passing Variables to Procedures, Passing Argument ByVal or ByRef, Writing a Function Procedure

Outcome:

- Students will be able to create, edit database using MS-Access including filtering and query of records.
- Students will be able to create small applications using Visual Basic.

Practical:

Database Using MS-Access &Programming in Visual Basic

Reference Books

1. Bipin C.Desai,Introduction to Database Concepts,Galgotia, Publications, 1990
2. RameshBangia,Learning MS Accsss,Khanna Publications,Delhi, 2008
3. Introduction to Database System by C.J. Date, Wiley Publication. 2002
4. Database Concept System by Henery F.Korth, Mc Grawhill Publication, 2009
5. Visual Basic 6 Programming new black book, Steven Holzner, Wiley publication 2000
6. Visual Basic 6 Complete, Steve Brown, Sybex Publication 1999

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory+ Practical	Total
BOA611	**Information Technology** (Business Data Processing& Programming in Visual Basic II)	**C**	**Core Course (CC)**	**4**	**30**	**50+20**	**100**

Semester VI

Objective: Students will get exposure to the concept of database connectivity using MS-Access and will be introduced to the advance concept of Visual basic programming.

UNIT I

VB Controls and It's Main Properties

- Combo Box
- List Box
  - Filling the List using Property window / Add Item Method
  - Clear Method,
  - Removing an item from a list
  - Sorting A List Box
  - Making List Boxes Scroll Horizontally
  - Checkmarks In A List Box
- Picture Box
- Scrollbars
- Timer
- Drive List Box
- File List Box
- Dir List Box
- Shape
- Line and OLE

UNIT II

Data Environment and Data Reports

- Introduction

- Types of creating Reports
- Preview report print report

MDI Forms

- Features Of an MDI forms
- Loading MDI forms & child forms
- Creating an simple MDI forms
- Accessing MDI forms

UNIT III

- **Loops :**

  Do—Loop, For—Next & While-Wend
- Arrays Single and Two Dimension Arrays
- Using List Boxes with Array

UNIT IV

- Accessing Database File with DAO
- Using the Data Control ,setting its property
- Using Data Control with forms
- Navigating the database in code

Outcome:

Students will be able to create small applications using MS-Access and Visual Basic 6.0.

Practical:

Database and Report Design Using MS-Access

Programming In Visual Basic 6.0

Reference Books

1. Visual Basic 6 Programming new black book, Steven Holzner, Wiley publication 2000
2. Visual Basic 6 Complete, Steve Brown, Sybex Publication 1999
3. RameshBangia,Learning MS Accsss,Khanna Publications,Delhi, 2008

Course Code	Course Title	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory+ Prcatical	Total
JVB501	Basics of Computer (Compulsory Paper)	Core Foundation(CF)	4	30	50+20	100

Semester - V

Objective :

To enable students to be aware of using MS Word, MS PowerPoint, Excel and Internet. Students will be able to do daily work using these tools and able to surf internet, download and send emails easily.

Unit I : MS Word

1. An overview of the basics of word processing.
2. How to use spell check, grammar check, and the thesaurus
3. Gain proficiency in editing
4. Formatting a document
5. How to use the undo and redo commands
6. Moving and copying text within a document
7. Typography, paragraph formatting and column formatting
8. How to enhance a document, wizards and templates, and tables

Unit II : MS Excel

1. Creating an excel worksheet
2. Saving an excel worksheet
3. Opening an existing workbook
4. Using formula and functions
5. Printing a worksheet
6. Creating a simple expense worksheet.

Unit III : 1. **MS PowerPoint presentation**

2. Saving a PowerPoint presentation,

3. Working with an existing PowerPoint presentation,

Unit IV : Internet

1. Basics of Internet

2. Site Surfing

3. Search Engines

4. Email Accounts - Receiving Mails, Composing Mails, Spam, Calendar

5. Download

6. Creating blogs

7. Online conversion

Outcome :

1. Students will be able to apply word, excel and powerpoint in their daily work.
2. Students will be able to make use of internet for their study purpose and will be able to create blog to exhibit their talent.

Practical :

1. Create documents using ms word , marksheet using ms excel and presentationsusing power point.
2. Create an email account, blog and download files

Websites/ Refrence Book :

1. http://www.tutorialspoint.com/computer_fundamentals/index.htm
2. http://office.microsoft.com/en-us/training/.
3. http://www.gcflearnfree.org/office2007
4. Rapidex computer course by Pustak Mahal Editorial Board, Unicorn Books,2012
5. Fundamentals of computers (English) Ist Edition by Reema Thareja, Oxford University Press, 2014

Semester I

Course code	Course title	Course category	Credit	CIA	Theory +Practical	Total
BOC 101	Financial Accounting	**Core Course**	4	30	70	100

Objectives -

1. To give primary knowledge of accountancy.

2. Knowledge of principles of accountancy.

3. To tell concepts of accountancy.

4. Checking of accountancy.

Unit-I

History and development of accounting in India since kautilya, Accounting principles, conversions and concepts, general Introduction of accounting standards.

Unit-II

Double Entry system; preparation of journal, subsidiary Book Including cash book, Ledger, Trial Balance, Preparation of final account.

Unit III

Partnership account, admission retirement and death. Dissolution of partnership including Garner Vs Murray rule.

Unit-IV

Accounting including accounting standard-6, (Revised) and methods of Depreciation.

Departmental accounts and Branch accounts (excluding foreign Branch)

Outcome-

1. To receive knowledge of fundamental of accounts.

2. Increase in knowledge of auditing.

3. Students let experience of all type of accounts information.

Text Books:

1. Advanced Accounting-M.C.Shukla, T.S. Grewal, S.C. Gupta, Sultan Chand & Sons, New Delhi.

Suggested Readings:

1. Book Keeping & Accounting (English/Hindi) – Jain, Khandelwal, Preek, Ajmera Book Co,Jaipur.

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 301	Corporate Accounting	**Core Course**	4	30	70	100

Semester-III

Objectives -

1. To give knowledge of company accounts
2. Create a company & data base
3. To give knowledge of Auditing & checking.

Unit-I

Study of Issue, forfeiture and re-issue of Share, redemption of preference shares, Issue and redemption debentures. Purchases of Business, Profit prior to incorporation, Under writing.

Unit-II

Final accounts, including computation of managerial remuneration.

Unit-III

Brief study of accounting standards, Valuation of goodwill and Shares.

Unit-IV

Accounts of holding and subsidiary companies in India, Consolidated Balance Sheet and profit & Loss Account.

Outcomes-

1. Fundamental knowledge of Accounting.
2. Apply different methods of Company A/C
3. Tax & Rebates in corporate sector

Text Books :

1. Corporate Accounting, Agarwal, Shah, Sharma, Agarwal, Agarwal (Hindi & English) RBD Jaipur

Suggested Readings :

1. Advanced Accounts. Shukla M.C., Grewal R.S. and Gupta S.C., Sultan chand & Co., New Delhi
2. Company Accounts, Jain, Khandelwal & Pareekh,. Ajmera Book Co. Jaipur
3. Company Accounts, Agarwal, Jain, Mangal, Shah, Sharma- Nigam Lekhankan, Ramesh Book Depo. Jaipur

Semester-IV

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 401	Income Tax	**Core Course**	4	30	70	100

Objectives -

1. To give knowledge of Income tax.

2. To give knowledge of rates of tax individual HUF & Firm.

3. Apply different heads as salary, House property Business & Profession. Capital gain others sources.

Unit-I

Income tax 1961 and Income tax Rules 1962: Basic Concepts of Income, Assesses, Assessment year, previous year, Person and their Residential Status, Incidence of tax on the basis of residence. Exempted Income.

Unit-II

Income from Salary. Income from House Property.

Unit-III

Income from Business and Profession. Income from capital gain.

Unit-IV

Income from Other Sources. Set off and carry Forward of losses. Deduction from in G.T.I. and assessment of individual.

Outcomes -

1. Fundamental Knowledge of Income Tax.

2. Knowledge of direct tax impact on individual.

3. Knowledge of principal of income tax.

Text Books :

1. Income tax- Patel Choudhary , Choudhary Prakshan, Jaipur (Hindi)

Suggested Readings :

1. Income Tax (Hindi/English) – Sharma, Jain, Shah, Agarwal, Mangal, Ramesh Book Depo. Jaipur.

2. Income Tax (Hindi/English) – Choudhary, Bardiya, Mantri, Ramesh Book Depo., Jaipur.

3. Income Tax (Hindi/English) – Goyal, Khatri, Gupta, Ramesh Book Depo., Jaipur.

Syllabus

DEPARTMENT OF EDUCATION

Master of Education (M.Ed.)

Two Year Regular Programme

"A" Grade by NAAC&"A" Category by MHRD

Jain Vishva Bharati Institute

(Deemed to be University under section 3 of UGC Act, 1956)

Ladnun-341306 (Raj.)

2017

Master of Education(M.Ed.)

Two Years Regular Programme

Jain Vishva Bharati Institute has launched a Bachelor of Education programme recognized by NCTE. The first session started from July 2005. The programme places specific emphasis on meditation as a tool to enhance learning skills and I.Q. This programme is also the first national teachers training programme to offer study in Education for Sustainable Development. Innovative syllabus and enthusiastic faculty work towards not only training the teachers but also assisting them with campus recruitment. Jain Vishva Bharati Institute is looking forward to train a new class of future generation teachers.

1. Introduction :

Enlightened, emancipated and empowered teachers lead communities and nation towards better and higher quality of life. Teachers are expected to create social cohesion, national integration and learning society. They disseminate knowledge and also generate new knowledge therefore, it becomes essential for any nation to give necessary professional inputs to its teachers. Jain Vishva Bharti Institute pursues the curriculum for its pre-service teacher training programme for women candidates who are far behind but can lead the whole nation. This will is a special programme focussed with a strong foundation in Science of Living. The candidates are encouraged to flourish an environment that promotes value and technology based society.

The purpose of M.Ed. is prepare learners for higher level functions in education including teacher education who would develop understanding of all contemporary concerns of education like : curriculum planning and development, educational planning and management, research in education, evaluation, guidance, educational technology, science of living, yoga and preksha meditation, ICT, Inclusive Education and Gender Education.

Duration:

The M.Ed. programme is full time two years programme.

Eligibility:

A candidate who has passed B.Ed. degree from any recognized university and qualified PMET conducted by the Rajasthan Government for that year as per guideline of State Government.

Objectives:

- To develop professionalism in teacher Education Programme.
- To motivate creative thinking and work among teacher trainees.
- To foster moral, social character and spiritual values of trainees.
- To develop Inter-relationship among Department, School and Society.
- To develop cognitive, Affective and Psycho-motor domain of the teacher trainees
- To promote for future Prospective, Employability and Skill based Teacher Training
- To develop Self Evaluation, Positive Attitude and self confidence
- To apply educational innovation and new strategies of the Teacher Education and trainees.

1. Title and Commencement

These regulations shall be called the Jain Vishva Bharati Institute (Deemed-to-be) University, Ladnun Regulations for Choice Based Credit System (CBCS) and Continuous Assessment Grading Patterm (CAGP) for Post-Graduate and Under-Graduate Programmes. These regulations were adopted from academic year 2015-2016.

2. Definitions

2.1 "Programme" is used for a fixed educational programme in place of Degree. A Post-Graduate Programme shall be of four semester's duration and a normal under-graduate programme shall be of four semester's period.

2.2 "An Academic Year" consists of two semester's. Each semester consists of different papers of four units. Each unit with have 6 weeks for academic work.

2.3 "Course" is a component of programme i.e. in CBCS, papers will be referred to as courses. Each course is identified by a unique course code. Every course may not be of equal weightage. Each course, in addition of having a curriculum will have learning objectives and learning outcome.

A Course may be designed to involve Lectures/Tutorials/Laboratory Work/Field Work/Project Work/Vocational Training/Viva-voce etc or combination of some of these.

Every course offered will have three components associated with the teaching learning process of the Course. Namely (I) Lecture – L (II) Tutorial-T (III) Practical's –P. Where

L- Stands for Lecture session.

T- Stands for Tutorial session consisting of participatory discussion/self study/desk work/brief seminar presentations by students and such other novel methods that make a student to absorb and assimilate more effectively the contents delivered in Lecture classes.

P- Stands for practice session and it consists of hands on experience/laboratory experiments/ field experiments/case studies that equip students to acquire much required skill component.

In terms of credit, every one hour session of L (per week) amounts to I credit per semester and minimum of two hour session of T or P (per week) amounts to I credit per unit over a period of one course of 24 weeks for teaching-learning process (inclusive of teaching and examination).

A course shall have one, two or all three components. That means a course may have only lecture component or only practical component or combination of any two or all the three components.

The total credit earned by a student at the end of the semester upon successfully completing the course is L+T+P. The credit pattern of the course is indicated as L:T:P

Different categories of courses are as follows:

- **Core Course**

  A Course which should compulsorily be studied by candidate as a core requirement is termed as core course.

  (a) Core-Compulsory is a course which has to be studied compulsorily as a part of core requirement so as to get degree in concerned discipline.

  (b) Core Elective or Core allied is a course that supports / strengthens the core compulsory.

- **Elective Course**

  It is a course which can be chosen from pool of courses. The course may be specific / specialized / supportive or advanced to the discipline of study.

  (a) Generic Elective Course add generic proficiency to the students and they are for the said discipline of study

  (b) Open Elective courses are from the pool of courses that are interdisciplinary and or multidisciplinary.

- **Foundation Course**

  It is a course that aims to improve proficiency and skill of the student.

  (a) Compulsory Foundation Course and generic proficiency to the students belonging to all disciplines of study.

  (b) Elective Foundation Courses are value based and aimed at man making education.

2.4 A module means a course having independent entity.

2.5 'Unit' means a course having independent part in a course.

2.6 "Credit" means the unit by which the course work is measured. It defines the quantum of contents/syllabus prescribed for the course. It also determines the number of hours of instructions required per week. In these regulations one credit means one hour of direct teaching work or two hours of practical work/field work per week for 20 weeks in a semester.

2.7 "Grade Letter" is an index to indicate the performance of student in a particular course. It is arrived at by transformation of actual marks secured by a student in a said course. Grade letters are O,A,B,C,D,E,F.

2.8 "Grade Point" is the weight age allotted to each grade letter depending on the range of marks awarded in a course.

2.9 "Credit Points" refers to the product of "Number of credit assigned to the course" and the grade point secured for the same course.

2.10 "Semester Grade Point Average" (SGPA) is an index of a student's performance in a given semester. It is the ratio of the "Total credit points earned by students in all courses at the semester" and the "Total number of credit assigned to the courses" in the semester.

2.11 "Cumulative Grade Point Average" (CGPA) refers to the cumulative grade point average of SGPA and is computed based on the following formula.

$$\text{CGPA} = \frac{\text{Sum of all Credit Points of Entire Programme}}{\text{Sum of Credits up to the end of Programme.}}$$

3. Credit Framework for Normal Post Graduate Level Course

3.1 The normal Post Graduate Programme have 20 credits per each course and per semester making total credits for whole programme as 88. The distribution of credits or weightage of core, elective and Foundation courses may be as follows:

Distribution of Credits for Semester is as follows:				
Semester	I	II	III	IV
Credits	22	22	22	22

4. Credit and Teaching Hours.

1 Credit = 1 hour Teaching

1 Credit = 2 hour of Practical / Fieldwork

4 Credit Course needs four hour Student Teacher contact in a week.

5. Units and Course :A theory course shall have Four units.

6. Credits and Marks

1 Credit = 25 marks

7. Grading

Grade Points	Description	% of Marks	Division	Grade
10	Outstanding	90% - 99%	First	O
9	Excellent	80% - 89%	First	A
8	Very Good	70% - 79%	First	B
7	Good	60% – 69%	First	C
6	Fair	50% - 59%	Second	D
5	Average	36% - 49%	Pass	E
4	Dropped	Below36%	Fail	F

8. Performance Evaluation (Calculation)

SGPA = ECG/EC for a Semester

G is grade and C is Credit of Course.

Cummulative Grade Point Average (CGPA) for entire course

CGPA = ECG/EC for all semester taken together.

The total credits cover the core, elective, field work or extension activities, soft skills etc.

GPA is calculated at the end of each term after grades have been processed and after any grade has been updated or changed.

Some criteria are to be followed for individual assignment / Quizzes/Test/Unit Test/ Tutorials/ Practical/ Projects/ Seminar.

The teacher should convert his/her marking in to the quality points and letter grade.

Scheme of Examination

- Hindi/English shall be medium of instruction of examination.
- Total internal examination will be conducted. In case of practical/field work/dissertation external expert for viva-voce may be called.
- There will be four units in each course.
  a. Each course will have four units of 15 marks each.
  b. CIA will be of 20 marks for each course
  c. There will be a term paper of 20 marks for each course.
  d. Practical/field work evaluation will be conducted at semester end. This consists of 20% marks of CIA and 80% marks for viva-voce/demonstration/file work/field report/field work.

- Distribution of Marks-
  A. Unit End Test - 60 Marks
  B. Term paper - 20 Marks
  C. Continuous Internal Assessment - 20 Marks

A. Unit End Test-

After completion of 2 units the subject teacher will conduct an exam from those units. Maximum marks for each unit test will be 15 and the unit paper will be of 30 marks.Time given for the examination will be 2 hours.

Paper

Type of Questions	Number of Questions	Marks of Each Question	Maximum Marks
Objective type questions	10	01 mark for each question	10
Short answer type questions	4	2.5 marks for each question	10
Essay type questions	2	5 marks	10
		Total Marks Total sum	30 30X2 unit test = 60

B. TermB. Term Paper

The term paper includes project work or field report or other type of report or interview or any other type of practical work. The topic for this must receive the approval of faculty member under whom the student work before submission. For this candidate will write a detail report in proper format (for UG more than 3000 words and for PG more than 5000 words). This paper is formal and must be typed or hand written. According to the style of choice, the student is advised to include footnotes or endnotes with essential Suggested Readingand bibliography.

Plagiarism: The deliberate use and appropriation of another's work without any indication of the source and the representation of such work as the students own. Any student who fails to give credit for ideas, expressions or materials taken from another source, including internet source, is guilty of plagiarism.

C. Continuous Internal Assessment-

The CIA comprises of attendance, participation in co-curriculum activities and group discussion etc. The marks distribution will be as follows-

(1) Attendance - 5 marks
(2) Participation in co-curriculum activities, Prayer, Behaviour of candidate, etc.) - 5 marks
(3) Group discussion/Presentation/desk work - 10 marks

- For PG students to pass a semester, a student has to secure a minimum of 40% marks in aggregate and minimum of 36% marks in individual theory papers. A student has to pass in written examination.

Master of Education (M. Ed.)

Semester I

Distribution of Papers, Marks and Credit

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 101	Psychology of Learning and Development	CC	4	20	60	20	100
MED 102	History and Political Economy	CC	4	20	60	20	100
MED 103	Education Studies	CC	4	20	60	20	100
MED 104	Introduction to Research Method	CC	4	20	60	20	100
MED 105	Communication and Expository Writing & Self Development (ISB)	CC	2	50 Practical & Viva-Voce			50
JVB 101	Introduction to Jainism	FC	4	20	60	20	100
Total			**22**	**100**	**350**	**100**	**550**

M.ED

Semester II

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 201	Philosophy of Education	CC	4	20	60	20	100
MED 202	Sociology of Education	CC	4	20	60	20	100
MED 203	Teacher Education - I	CC	4	20	60	20	100
MED 204	Dissertation (ISB)	CC	2	50 Practical & Viva-Voce			50
MED 205	Internship in T E I	CC	4	Internship 100			100
JVB 201	Value Education and Spirituality	FC Any one	4	20	60	20	100
JVB 202	Informational Technology and Computer Application						
JVB 203	Preksha Meditation and Self Management						
JVB 204	The Use of English						
JVB 205	Non-Violence and Peace						
JVB 206	Social Work :Themes & Practice						
JVB 207	Introduction to Prakrit						
Total			**22**	**80**	**390**	**80**	**550**

M. Ed.

Semester III

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 301	Research Methods and Advanced Statistics	CC	4	20	60	20	100
MED 302	Curriculum Studies	CC	4	20	60	20	100
MED 303	Dissertation **(ISB)**	CC	2	50 Practical & Viva-Voce			50
MED 304	Internship	CC	4	100 Internship			100
MED 305	**Specialization on course I** **Area A** Elementary Education - I	(Any one) CE	4	20	60	20	100
MED 306	**Area B** Secondary & Senior Secondary Education - I						
MED 307	**Specialization on course II** **Area A** Elementary Education - II	(Any one) CE	4	20	60	20	100
MED 308	**Area B** Secondary & Senior Secondary Education -II						
		Total	**22**	**80**	**390**	**80**	**550**

M. Ed.

Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 401	Teacher Education - II	CC	4	20	60	20	100
MED 402	Academic Writing (ISB)	CC	2	50 Practical & Viva-Voce			50
MED 403	Dissertation	CC	4	100 **(Dissertation-60+Viva-Voce-40)**			100
MED 404	**Specialization on courses - I** **Area (a) : Educational Administration and Managements** Principles of Educational Administration and Management	Choose any one area which will comprise of three papers CE	4	20	60	20	100
MED 405	**Area (b) Educational Technology** Principles of Educational Technology						
MED 406	**Area (c) Measurement and Evaluation** Principles of Measurement and Evaluation						
MED 407	**Specialization on courses - II** **Area (a) :Educational Administration and Managements** Educational Administration and Management Practice	Choose any one area which will comprise of three papers CE	4	20	60	20	100
MED 408	**Area (b) Education Technology** Innovative Methods and Techniques in Educational Technology						
MED 409	**Area (c) Measurement and Evaluation** ToolsandTechniquesof Evaluation in Education						
MED 410	**Specialization on courses - III** **Area (a) :Educational Administration and Management** Modern Trends in Educational Administration and Management	Choose any one area which will comprise of three papers CE	4	20	60	20	100
MED 411	**Area (b) Education Technology** Educational Technology and Computer Application						
MED 412	**Area (c) Measurement and evaluation** New Trends in Educational Assessment and Statistics						
		Total	**22**	**80**	**390**	**80**	**550**

Note:

I S B (Inter Semester Break),

C I A (Continuous Internal Assessment),

C C (Core Compulsory)

CE (Core Elective)

Semester - I

Course Code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
MED 101	Psychology of Learning and Development	**CC**	4	20	60	20	100

Objectives:

- To understand the concept and process of Educational Psychology.
- To understand relationship between Education and Psychology.
- To understand the teaching learning process, cognitive process and intelligence.
- To understand and asses personality, learning and classroom implications and management.
- To acquaint the learner with the process and assessment of creativity, adjustment and mental problems.

Course Contents:

Unit -I Educational Psychology and Development of Learning

a) Educational Psychology : Concept, Nature, characteristics and methods
b) Process of Growth and Development : Physical, Intellectual, Emotional and Social
c) Development of Concept formation, Logical Reasoning, Problem solving and creative thinking, Language development
d) Individual differences – determinants, role of heredity and environment, Implications of Individual differences for organizing educational programmes

Unit -II Learning

a) Concept, factors and theories of Learing : E.L. Thorndike, Pavlov, B.F. Skinner, Kohler
b) Constructivism & Learning
c) Cognition and Learning : Tolman, Hull, Lewin
d) Transfer of Learning and its theories

Unit -III Intelligence, Creativity and Motivation

a) Concept, theories, types and assessment of Intelligence
b) Concept, components to fostering creativity and creative thinking
c) Motivation: Concept and theories
d) Cognitive Development : Piaget, Bruner, Gagne, Ausubel
e) Psychology for Gifted and Slow Learners

Unit -IV Personality, Adjustment and Mental Problems

a) Personality-Type and Trait theories & its measurement
b) Mental Health and hygiene-process of adjustment, conflicts and defence mechanism
c) Sex education

Term Paper: (Any one)

- Administer any one standardized Psychological Test
- Prepare any two term paper based on the Psychological content in the syllabus
- Prepare a psychological test
- Prepare a report on contribution of any two psychologists

Learning Outcomes: After completion of this course students would able to:

- Describe the concept and process of Educational Psychology.
- Understand Cognition and Learning.
- Explain the concept, components to fostering creativity and creative thinking.
- Understand about the mental health and hygiene-process of adjustment, conflicts and defence mechanism.

Suggested Reading:

1. यादव, सियाराम, (2008), अधिगमकर्ता का विकास एवं शिक्षण–अधिगम प्रक्रिया, शारदा पुस्तक भवन, इलाहाबाद

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Semester - I

Course Code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
MED 102	History and Political Economy	**CC**	4	20	60	20	100

Objectives:

- ❖ To deliver the Knowledge of the Indian Education System - past and today
- ❖ To help the student to acquire the basic understanding in the field of Economy
- ❖ To develop an ability to Conduct Various sureys in Economies and organize Field trips
- ❖ To understand the Concept,Scope & nature of Political Science

Course Contents:

Unit- I Historical prospective of Education

a) Ancient Period - (2500BC-1200AD)
b) Maderial period - (1200-1757)
c) British period - (1757-1947)
d) Contributation of Indian Educational thinkers (Vivekananda, Mahatma Gandhi)

Unit- II Political Ideology and Education

a) Democracy – Meaning, Values, Main Features of Democratic Education
b) World Problems and Terrorism – Cause, Impact on Society and Remedies through Education
c) Relationship between Politics & Education in India
d) Education for Protection of Human Rights

Unit- III Economics of Education

a) Meaning, Scope, Importance of Economies of Education
b) Role of education in economic development
c) Education as an investment and consumption
d) Education policies for SC/ST/OBC/Minority/Women's/ Tribes,/Disabled.

Unit- IV Impact of Economic Political Ideology on Education

a) Impact of individualism
b) Impact of Socialism, Secularism
c) Impact of Vocationalism
d) Significance of Educational Economic Development.

Term Paper: (Any one)

- Prepare a Structure of Education Since an Ancient Period to the Present Time.
- Classification of moral Duties and fundamental rights (Prepare a Structure).
- Prepare one term paper on topic.
- Case Study Of Economically under developed Student.
- Report on fund to education in present fiveyear plan.

Learning Outcomes: After completion of this course students would able to:

- ❖ Explain the Prospective Teacher of the Indian Education System.
- ❖ Understand Indian Economy.
- ❖ Conduct Various sureys in Economies and organize Field trips
- ❖ Describe the Concept , Scope & nature of Political Science

Suggested Reading:

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Semester I

Course Code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
MED 103	Education Studies	**CC**	4	20	60	20	100

Objectives:

- To enable the students to understands the meaning concepts, aims and objectives of education
- To acquaint the learners with the role of family , society and school
- To acquaint the learners with the current problems of Indian education
- To enable the learners to understand the role of NCERT, NCTE, UGC , NIEPA etc.
- To acquaint the students with the objectives, curriculum and examination system of pre-primary, secondary stages of education

Course Contents:

Unit- I Meaning, Concept and Function of Education

a) Meaning, Concept of Education.
b) Aims and Objectives of Education.
c) Function of Education.
d) Role of family, Society and school in Education.

Unit- II Education development in India

a) Radha Krishnan commission (1948-49).
b) Secondary education Mudaliar Commission (1952-1953).
c) Kothari education commission (1964-1966).
d) National Education policy (1986).
e) Modification of New Education policy (1992).

Unit- III Agencies of education

a) National council for Teacher Education (NCTE).
b) National Council of Educational Research and Training (NCERT).
c) University Grants Commission (UGC).
d) College teacher for Education (CTE).

Unit- IV Current Problems

a) Women Empowerment.
b) Human Rights in Education.
c) Peace education.
d) Values Education.

Term Paper : (Any one)

- Three abstract of Educational articles published in some standard journals.
- Make a presentaiton based on any one topic of the course.
- Any one education studies through survey method in the society.

Learning Outcomes: After completion of this course students would able to:

- Explain Education Meaning and its Concept
- Understand various commission and education policies.
- Acquaint the learners with the current problems of Indian education
- Acquent to various agencies of education in India.
- Understand current problem of society.

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3. शर्मा, ओ. पी., गुप्ता, शोभा (2006), उभरते हुए भारतीय समाज में शिक्षा, विनोद पुस्तक मंदिर, आगरा।
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5. पाठक, एवं त्यागी (2005), शिक्षा के सामान्य सिद्धान्त, विनोद पुस्तक मंदिर, आगरा।
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7. Pandey, R. S. (2005), Principle of Education, Vinod Pustak Mandir, Agra.

Semester I

Course code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
MED 104	Introduction to Research Method	**CC**	4	20	60	20	100

Objectives:

- To develop and understanding about the concept of research in Education and its relevancy.
- To develop skill in preparing a good research proposal and research design.
- To include the idea of different bases of research in the field of Education.
- To impart the sense of scientific attitude in research.
- To understand about the use of different types of research tools and techniques.
- To develop skill in analyzing quantitative and qualitative research .
- To appraise critically about research work in Education field.

Course Contents:

Unit-I Concept of Education at Research

a) Meaning ,Nature ,Scope, Needs & Purpose of Educational Research
b) Types of Research : Fundamental/ Basic, Applied and Action Research
c) Formulation of Research Problems and questions
d) Area for identify Research Problems(Philosophical, Sociological, Psychological and new Trends)
e) Framing Hypothesis

Unit- II Research Method in Education

a) Scientific Inquiry and Experimental method
b) Descriptive Research Method
c) Historical Research Method
d) Field Survey and Field Notes
e) Ex- post- Facto Research/ Causal - Comparative Research
f) Ethnography Research Methods
g) Pilot Study

Unit-III Literature Study

a) Concept ,Needs and objectives of Literature Study
b) Sources of Literature
c) Types of Literature (Indian & Abroad)
d) Rationale of the Literature of Study
e) Research Variables

Unit-IV Sample and Data Collection

a) Concept of Sample, Statistics, Population and Parameter
b) Characteristics a good sample
c) Types of Sampling (Random, Stratified, Cluster, Purposive, Quota. Snow-ball, Multi - stages sampling.
d) Tools and Techniques of Data Collection : Questionaire, Observation, Rating Scale. Check-List , Interview Schedule, Task- Analysis, Focus-Group Design, Socio-Metric- Techniques
e) Research Report writing and bibiography Reference/ style of writing

Term paper: (Any one)

- Write one term paper.
- Prepare a Research based Article of any problems of Education.
- Prepare a Research Design / Research proposal with Reference to Current Educational problems.
- Construct a Literature Review/ book Review of any reference.

Learning Outcomes: After completion of this course students would able to:

- Understand various types of research and formulation of research problems.
- Explain scientific inquiry and various research methods.

- ❖ Understand the concept, source and types of literature.
- ❖ Understand the quality of sample data and its uses with different techniques

Suggested Reading:

1. गुप्ता एस.पी. (2011), अनुसंधान संदर्शिका, सम्प्रत्यय, कार्यविधि एवं प्रविधि, शारदा पुस्तक भवन, इलाहाबाद।
2. गुप्ता, अलका (2011), शैक्षिक संतुष्टि, प्रथम संस्ककरण, शारदा पुस्तक भवन, इलाहाबाद।
3. गुप्ता एस.पी. एवं अलका गुप्ता (2010), आधुनिक मापन एवं मूल्यांकन, परिवर्धित संस्करण, शारदा पुस्तक भवन, इलाहाबाद।
4. यादव, राकेश चन्द (2009), राजर्षि पुरूषोत्तम दास दण्डन के शैक्षिक विचार, प्रथम संस्करण, उत्तरप्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद।
5. कौल, लौकेश, (2009), शैक्षिक अनुसंधान की कार्य प्रणाली, तृतीय पुर्नमुद्रण, विकास पब्लिशिंग हाउस प्रा. लि., नई दिल्ली।
6. गुप्ता एस.पी. एवं अलका गुप्ता (2008), व्यवहारपरक विज्ञानों में सांक्ष्यिकी विधियां, चतुर्थ संस्करण, शारदा पुस्तक भवन, इलाहाबाद।
7. पाण्डेय, के.पी. (2008), शैक्षिक अनुसंधान, तृतीय संस्करण, विश्वविद्यालय प्रकाशन, वाराणसी।
8. राय, पासर नाथ (2007), अनुसंधान परिचय, द्वादशम संस्करण, लक्ष्मी नारायण अग्रवाल, आगरा।
9. मुहम्मद सुलेमान (2006), मनोविज्ञान, समाजशास्त्र तथा शिक्षा में शोध विधियां, तृतीय संशोधित संस्करण, जेनरल बुक ऐजेन्सी, पटना।
10. त्रिवेदी, आर. एन. डी. पी., शुक्ला (2004), रिसर्च मैथोडॉलोजी, कॉलेज बुक डिपो, नई दिल्ली।
11. त्रिपाठी, लाल बचन (2002), मनोवैज्ञानिक अनुसंधान पद्धतियां, तृतीय संस्करण, एच. पी. भार्गव बुक हाउस, आगरा।
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13. गैरिट, हेनरी ई. (1989), शिक्षा और मनोविज्ञान में सांख्यिकीय, ग्यारहवां हिन्दी संस्करण, कल्याणी पब्लिशर्स, लुधियाना।
14. सिन्हा, एच. सी. (1979), शैक्षिक अनुसंधान, विकास पब्लिशिंग हाउस प्रा. लि., नई दिल्ली।
15. बघेल, डी. एस. एवं के.सी. पाण्डेय (1976) सामाजिक अनुसंधान, द्वितीय संस्करण, पुष्पराज प्रकाशन, रीवा।
16. आर्य, एस.पी. (1971), सामाजिक सर्वेक्षण की विधियाँ, प्रथम संस्करण, साहित्य भवन, आगरा।
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19. Mangal, S.K. (2008), Statistical in Psychology and Education, New Delhi: Prentice Hall of India Private Limited.
20. Ravid, Ruth. (2000), Practical Statistics for Education. New York: University Press of America
21. McCall, R. (1993), Fundamental Statistics for the Behavioural Science. New York: Harcourt Brace.
22. Sharma, R.A. (1993), Fundamental of Educational Research (Page 453) International Publishing House, Meerut,
23. Seigel, S. & Castel Ian N.J. (1988), Non-parametric statistics for the Behavioural Science. Singapore: Graw-Hill Book Co.
24. Guilford, J.P. & Fruchter, B. (1981), Fundamental Statistical in Psychology and Education, New York: McGraw-Hill.
25. Ferguson, G.A. (1971), Statistical Analysis in Psychology and Education, Kogakusna, Tokyo : McGraw-Hill.
26. Garrett, H.E. (1971), Statistical in Psychology and Education, New Delhi: Paragon International Publisher.
27. Garrett, H.E. (1966), Statistical in Psychology and Education (Page 491) Vokels Feffers and Simons Ltd., Bombay
28. Kerlinger, Fredan N. (1964), Foundations of Behavioral Research (Page 741) Holt Rinhert and Winston, New Yourk
29. Anderson, R.I., and T.A. Banerot (1952), Statistical Theory of Research, New York, Mc Graw Hill Book Company.

Semester I

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 105	Communication and Expository Writing & Self Development (ISB)	CC	2	50 Practical & Viva-Voce			50

Objectives:

- To develop effective communication
- To develop expository writing
- To develop self development and confidence
- To devlop self values

UNIT-I Communication and Expository writing

1. Concept and process of communication
2. Effective communication
3. Barrier in communication
4. Precise writing of three article
5. Writing article on current problem

UNIT II : Self Development

1. Identification of self values developed in your life.
2. Inculcate humanitarian values through yoga and Preksha dhyan.
3. Self introspection and extrospection.
4. Enlist good conduct of any five great personalities and compare them with your conduct.
5. Prepare self appraisal report.
6. Write cognitive, affective and psycho motor behavioral changes through self appraisal report.

Learning Outcomes: After completion of this course students would able to:

- Understand about the communication and writing methods
- Identify self development, introspection and extrospection
- Prepare their self appraisal report

Term Paper: (Any one)

1. Writing in communication
2. Style of writing
3. Mode of Communication
4. Concept, characteristics and needs of self.
5. Self mental ability (Memory, imagination and Reflection) practice for fostering these activities.

SemesterI

Course code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
JVB 101	Introducti on to Jainism	FC	4	20	60	20	100

Objectives:

- To understand the Jain History and Literature
- To understand the Jain Metaphysics and Jain Life Cycle
- To understand the Nn-violence and Jain Karmavda

Unit I: Jain History

1. Antiquity of Jainism (*Risabha and Mahavira*)
2. Time cycle
3. Jain religious Schools, Orders, and Sects
4. Jain Festival
5. Jain Literature

Unit II: Jain Metaphysics

6. Concept of Reality
7. Cosmology: Jain Perspective
8. The Nine Truths of Classical Jainism
9. Jain life style
10. Salvation and way of it

Unit III: Jain Principal

11. Non-violence
12. Non-possession
13. Non-absolutism

Unit IV: Jain Principal

14. Syadvada
15. Karmavada
16. Jain Meditation

Learning Outcomes: After completion of this course students would able to:

- Understanding about Jainisim and its ethics & conduct.
- Acquire knowledge of Jain way of life.

Reference Books

- Acharya Mahaprajna. Jaina Darsana: Manana Aura Mimamsa, Adarsh Sahitya Sangh, Churu,
- Jain Dharma, By Pt. Kailash Chand Jain
- Jain Darshan, By Pt. Kailash Chand Jain
- Shastri Nemichandra, Tirthankara Mahaveer aura Unki Acharya Parampara, Vol.-I., Prachya Shramana Bharati, Mujaffar Nagar, U.P.
- Jain itihas aura sanskriti,By Dr Samani Riju Prajna, JVBU, Ladnun
- Jain Tattva mimansa aura Achara Mimansa, By Dr Samani Riju Prajna, JVBU, Ladnun

Semester II

Course code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED201	Philosophy of Education	**CC**	4	20	60	20	100

Objectives

- To enable the student to understand the nature and functions of philosophy of education
- To acquaint the learner with the logical analysis, interpretation and synthesis of various concepts and philosophical assumptions about educational phenomena.
- To develop the ability to make comparison between different philosophies and their educational implications.
- To stimulate the students to have their own independent and consistent view point of a philosophy of education and issues.

Course Contents:

Unit- I Philosophical Foundation of Education

a) Meaning and Nature of Philosophy.
b) Relationship of Education and Philosophy.
c) Branches of Philosophy - Metaphysics, Epistemology, Axiology and their implication for Education.
d) National Values as enshrined in the Indian Constitution and their educational implication.

Unit- II Indian Schools of Philosophy

a) Sankhya educational philosophy.
b) Vedanta educational philosophy.
c) Geeta and Upnishad educational philosophy.
d) Buddhism and Jainism educational philosophy.

Unit- III Philosophical Contribution of Indian Educational thinkers

a) Swami Vivekanand
b) Ravindra Nath Tagore
c) Mahatma Gandhi
d) Maharshi Arvind
e) Acharya Tulsi, Acharya Mahapragya & Acharya Mahasraman

Unit- IV Western Philosophical Foundation of Education

a) Idealism
b) Naturalism
c) Pragmatism
d) Realism
e) Existentialism

Term Paper : (Any one)

- Preparation of one term paper with PPT.
- Three abstracts of Philosophical article published in some standard journals.
- Make a presentation based on any one topic of the course.

Learning Outcomes: After completion of this course students would able to:

- Understand the nature and functions of philosophy of education
- Acquaint the learner with the logical analysis, interpretation and synthesis of various concepts and philosophical assumptions about educational phenomena.
- Critical appraisal of contributions made to education by prominent educational thinkers- Indian and western.
- Develop the ability to make comparison between different philosophies and their educational implications.
- Do independent thinking and a deeper insight into the philosophical roots of educational problems.
- Stimulate the students to have their own independent and consistent view point of a philosophy of education and issues.

Refereences:

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2. पाण्डेय, रामशक्ल (2008), शिक्षा दर्शन, अग्रवाल पब्लिकेशन्स, निर्भय नगर, गैलाना रोड, आगरा
3. पाण्डेय, रामशक्ल, कपूर बीना (2007), शिक्षा के दार्शनिक आधार, प्रकाशन विनोद पुस्तक मंदिर, आगरा
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7. Brigge, Morris-L. Educational Philosophies for Teachers, Charles E Merril Publishing Co., Columbus
8. Brubacher, John S, Moderh Philosophies of Education, Mc Grawkill Book company Inc, New York
9. Butler J. Donald, Four Philosophies and their practices in Education and religion Harper

Semester II

Course code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
MED202	Sociology of Education	**CC**	4	20	60	20	100

Objectives:

- To develop on global perspective and help in solving the prevailing problems of education in India.
- To understand concept and process of Educational Sociology, Social Organization and Social Sub-system
- To understand relationship between education and social sub-system and education and social change.
- To know issues of equality, excellence and inequalities in education.
- To know the constraints of society in India.

Course Contents:

Unit: I Sociology and Education.

a) Education and Sociology
b) Meaning and Nature of Educational Sociology
c) Sociology of education
d) Education as a social subsystem
e) Education in present Emerging Indian Society

Unit: II Sociological Impact/Agencies of Education.

a) Education and the family
b) Education and the Community
c) Education and modernization
d) Education and Culture
e) Education and Democracy

Unit: III Social Change and Mobility

a) Socialization of the child
b) Social change - Meaning and nature
c) Social stratification
d) Social mobility
e) Social Control

Unit: IV Issue Related to Socialization of Education

a) Education as related to social equity and equality of educational opportunities
b) Education of socially and economically disadvantaged section of the society with special reference to scheduled castes and scheduled tribes, women and rural population
c) Solutions of social problems in modern India (Unemployment cultural pollution and indiscipline through survey method)

Term Paper : (Any one)

- Preparation of one Sociological term paper.
- Three abstracts of Sociological article published in some standard journals.
- Make a presentation based on any one topic of the course.
- Prepare a report on any social problem through survey method in the society.

Learning Outcomes: After completion of this course students would able to:

- ❖ Develop on global perspective and help in solving the prevailing problems of education in India.
- ❖ Understand concept and process of Educational Sociology, Social Organization and Social Sub-system
- ❖ Establish relationship between education and social sub-system and education and social change.
- ❖ Identify the issues of equality, excellence and inequalities in education.
- ❖ Know the constraints of society in India.

References:

1. पाण्डेय रामशक्ल, (2008), उभरते हुए भारतीय समाज में शिक्षा, प्रकाशन विनोद पुस्तक मंदिर, आगरा
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4. पाठक पी.डी. (2008), भारतीय शिक्षा और उसकी समस्याएं, विनोद पुस्तक मंदिर, आगरा
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10. त्यागी जी.एस. डी. (2007), षिक्षा के दार्षनिक एवं सामाजिक आधार, विनोद पुस्तक मंदिर, आगरा
11. सरयू चौबे (2005), शिक्षा के समाज शास्त्रीय आधार, विनोद पुस्तक मंदिर, आगरा
12. Gore, M.S. et al. (1967), Papers in the Sociology of Education in India, NCERT, New Delhi,
13. Hanseu, D.A. et. Al, (1967), On Education : Sociological Perspective, John Wiley and Sons., New York.
14. Kneller , G. F. (1965), Education Anthropology, John Wiley and Sons, New York.
15. Durkheim, E. (1965), Education and Sociology of Education, The Free Press of Glenoce, New York.

Semester II

Course code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
MED203	Teacher Education - I	**CC**	4	20	60	20	100

Objectives:

- To acquaint the concept, objectives and principles of Teacher education with its historical perspectives.
- To acquaint the problems and issues related to the Teacher Education.
- To acquaint essentials of Teacher Education.
- To understand about the development of teacher education curriculum in India, various organizational, patterns in India.
- To understand about the various aspects of supervision and feed back.

Course Content:

Unit- I Concept and Structure of Teacher Education.

a) Meaning, Nature and Scope of the Teacher Education.
b) Aims and Objectives of Teacher education at different level.
c) Need and Importance of Teacher education.
d) Type of Teacher education institution.
e) Research in Teacher education.
f) Issues and Problems of Teacher education.

Unit- II Historical development of teacher education in India.

a) Vedic period
b) Buddha period
c) Muslim period
d) British period
e) After Independence

Unit- III Teacher Education as a profession.

a) Teaching as a profession
b) Professional growth of teacher education
c) Quality of teacher education institute.
d) Teacher's professional organizations.
e) Curriculum at the different stages of teacher education.

Unit- IV Pre Service and In Service teacher education

a) Need of Pre-service Teacher education different level
b) Need of In-service Teacher education different level.
c) Various programmes of in-service teacher education (Orientation and refresher course for teachers).
d) Role of different institutions for pre-service and in service teacher education.
e) Role of distance education pre-service and in-service teacher education programme.

Term paper :(Any one)

- One term paper on any topic related with the about unit.
- A review of a research Article in teacher Education and write Implication for Practitioner.
- Supervision of B. Ed. practice lesson at least ten lesson of students and prepare a report.
- Make a presentation based on any one topic of the above course.

Learning Outcomes: After completion of this course students would able to:

- ❖ Acquaint with the concept, objectives and principles of Teacher education with its historical perspectives.
- ❖ Understand problems and issues related to the Teacher Education.
- ❖ Acquaint with essentials of Teacher Education.
- ❖ Development of teacher education curriculum in India, various organizational, patterns in India.
- ❖ Explain the various aspects of supervision and feed back.

References:

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Semester II

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 204	Dissertation (ISB)	CC	2	50 Practical & Viva-Voce			50

Objectives:

- To develop the research design
- To develop various research steps
- To understand the various research methods and techniques

Research design (Quantitative)

1. Selection of research problem
2. Review of related literature
3. Definition of related concepts
4. Objectives of research
5. Formation of hypothesis
6. Limitation of research
7. Research methodology and design
   - 7.1 Selection of Research method
   - 7.2 Population, sample and sampling
   - 7.3 Variable
   - 7.4 Selection of tools and techniques
   - 7.5 Statistical methods
8. Procedure of Data collection, classification and tabulation
9. Importance of the study

Learning Outcomes: After completion of this course students would able to:

- Develop the research design
- Understand various research steps
- Explain the various research methods and techniques

References

- Classification of chapter.

Semester II

Course code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
MED205	Internship in T E I	**CC**	4	100 Internship			100

Objectives:

- To understand the function of college
- To develop research steps

Internship in Teacher Education Institute

1. Understanding the Admission Process
2. Analysis of Time table
3. Morning Assembly
4. Class Management
5. Various Co-curriculum Activities.
6. Study departmental Meeting
7. Study the Library Process of the Institute Education.
8. Prepare an Action Research on any New Educational Problems
9. Regulation 2014 (B.Ed, M.Ed, B.Sc-B.Ed and B.A- B.Ed) Any One Report

Learning Outcomes: After completion of this course students would able to:

- Understand the function of school.
- Develop various research steps
- Explain the various research methods and techniques

Semester III

Course code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
MED301	Research Methods and Advanced Statistics	**CC**	4	20	60	20	100

Objectives:

- To convey the essential characteristics of a set data by representing in tabular and graphical forms.
- To compute relevant measures of average and measures of variation.
- To spell out the characteristics of normal probability of distribution.
- To examine relationship between and among different types of variables of a research study.
- To calculate the Significant between two sets of independent and correlated samples.
- To test the hypotheses based on sample Statistics.

Course Contents:

Unit -I Introduction to Educational Statistics

a) Concept of Statistics (Meaning , Needs and Importance.)
b) Data- types, Sources of Educational Data.
c) Scales of measurement –Nominal, Ordinal, Interval and Ratio.

Unit-II Descriptive Statistics

a) Measure of Central Tendency :
   - Mean
   - Median
   - Mode
b) Measure of Variability
   - Range
   - Average Deviation (AD)
   - Quartile Deviation (QD)
   - Standard Deviation (SD)
c) Measure of Relative Positions
   - Percentile & Percentile Rank
   - Quartile
   - Decile's
   - Standard Score (Z) and T- Score

Unit- III Test Construction and Data Analysis

a) Research Tool : Teacher Made and Standardized
b) Standardization Procedures of Test.
   - Reliability
   - Validity
c) Graphical representation of Data
   - Histogram
   - Frequency Polygon
   - Ogive
   - Pie-chart
d) NPC (Normal Probability Curve)
e) Skewness and Kurtosis
f) SPSS in Research

Unit- IV Inferential Statistics

a) Sampling Error, Level of Significance and Null Hypothesis.
b) Type –I Error, and Type-II Error
c) Testing of Hypothesis(one-tail and Two- tail)

d) Parametric- Test
   - T-test
   - F/ANOVA test (One way, Two way ANOVA)
   - ANCOVA (Analysis of Co-Variance)

e) Non- Parametric test
   - Chi – Square(x^2) Test and its uses
   - U- Test
   - Sign test, Rank test and Median Test

f) Correlation : Concept and Type
   - Rank- order Correlation
   - Product- Movement Correlation

Term Paper : (Any One)

- Write any one term paper with examples and soluation.
- Calculate Reliability and Validity of any Teacher made test.
- Prepare a calculation sheet on SPSS Package.

NOTE- Calculator allowed in Examination

Learning Outcomes: After completion of this course students would able to:

- ❖ Convey the essential characteristics of a set data by representing in tabular and graphical forms.
- ❖ Compute relevant measures of average and measures of variation.
- ❖ Spell out the characteristics of normal probability of distribution.
- ❖ Examine relationship between and among different types of variables of a research study.
- ❖ Calculate the Significant between two sets of independent and correlated samples.
- ❖ Test the hypotheses based on sample Statistics.

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Semester III

Course code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED302	Curriculum Studies	**CC**	4	20	60	20	100

Objectives:

- To define Curriculum and its concept
- To identity the components of Curriculum
- To describe the various Principles of Curriculum Construction
- To describe various approaches to curriculum construction
- To explain and compare various types of curriculum
- To describe various guiding principles for selection and organization of Learning Experiences
- To differentiate Formative and Summative Evaluation
- To explain various tools used in Curriculum Evaluation

Course Contents :

Unit -I Meaning and Concept of Knowledge and Curriculum Development :-

a) Define Knowledge and Curriculum
b) Concept of Curriculum : Official Curriculum and Hidden Curriculum.
c) Components of Curriculum : Objectives, Content, Learning Experiences and Evaluation.
d) Bases of Curriculum Development : Philosophical, Sociological and Psychological.
e) New Trends in Curriculum Development : -
    - NCF 2005 for School Education.
    - NCFTE 2009 for Teacher Education.

Unit-IICurriculum Development and Design

a) Basic principles of curriculum development
b) Models of curriculum development : -
    - Scientific technical models and non - scientific non - technical models, system analysis
    - Sylor, Alexander and Lewis: administrative model (Deductive model)
    - Taba model (Inductive model/ Grassroots model)
    - Tyler model
c) Types of Curriculum Design :
    - Child Centered /Learner Centered
    - Activity Centered
    - Community Centered
    - Experience Centered
    - Problem Centered and Core curriculum
    - Spiral Curriculum
    - Designing with Local Specific need Curriculum

Unit -III Curriculum Implementation

a) Rationale of Curriculum Development
b) Role of State for Making Curriculum
c) Curriculum as Process and Practice
d) Relation Ship between Power, Ideology and Curriculum
e) Differentiate between Curriculum and Syllabus

Unit-IV Curriculum Evaluation

a) Concept and purpose
b) Types of curriculum Evaluation:
    - Formative
    - Summative
c) Assessment criterion of curriculum:
    - Time
    - Local need
    - Relevancy
    - Cost and design of tools

Term Paper : (Any one)

- Prepare one term paper with related to content.
- Construct any one curriculum model with in the content.

Learning Outcomes: After completion of this course students would able to:

- ❖ Define Curriculum and its concept
- ❖ Identity the components of Curriculum
- ❖ Describe the various Principles of Curriculum Construction
- ❖ Apply various approaches to curriculum construction
- ❖ Explain and compare various types of curriculum
- ❖ Describe various guiding principles for selection and organization of Learning Experiences
- ❖ Differentiate Formative and Summative Evaluation
- ❖ Explain various tools used in Curriculum Evaluation

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Semester III

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 303	Dissertation **(ISB) Research design (Quantitative)**	CC	2	50 Practical & Viva-Voce			50

Objectives:

- To understand the Research Desing and its quantitative
- To understand various Research Method

Selection of research problem

1. Background and rationale
2. Review of related literature
3. Definition of related concepts
4. Objective of research
5. Importance of research
6. Limitation of research
7. Research method
8. Sources of data
9. Collection of data
10. Criticism of Data
11. Interpretation of data

Learning Outcomes: After completion of this course students would able to:

- Understand various research design
- Describe the quantitative methods

References -

Classification of chapter.

Semester III

Course code	Course Title	Course Categery	Credit	CIA	Unit End Test	Term Paper	Total
MED304	Internship	**CC**	4	100 Internship			100

Internship Work (4 Week)

Objective:

- To know various teaching methods and their use in classes
- To prepare innovative lesson on different methods

- Class Teaching in B.Ed./B.A.-B.Ed./B.Sc.-B.Ed./B.A./B.Sc. College
- Class Supervision
- Morning Assembly

Prepare Innovate lesson (any four methods)

Learning Outcomes: After completion of this course students would able to:

- Understand various teaching methods used in class
- Prepare the innovative lesson on different methods

Semester III

Course code	Course Title	Course Categery	Credit	CI A	Unit End Test	Term Paper	Total
MED305	**Any one Area Specialization on course I** Area A Elementary education I	**CE**	4	20	60	20	100

Objectives:

- To understand the concept and History of Primary Education.
- To understand the problems of Primary Education.
- To understand the curriculum, evaluation pattern and different activities of Primary Education.
- To understand the recent plans or scheme of central and state govt. for Primary Education.
- To provide the solution of different problems of Primary Education.

Course Contents:

Unit - I History of Primary Education

a) Concept ofPrimary Education.
b) Primary Education : Origin and Development.
c) CompulsoryPrimary Education : History and Development
d) Objective of Primary Education

Unit - II Problems of Primary Education

a) Wastage and Staganation
b) Single Teacher School
c) School Building and Other Facilities
d) Lack of Proper Guidance

Unit - III Activities in Primary Education

a) Right to Education Act - 2009 : Review
b) Review the Recent Curriculum of Primary Education
c) Recent Evaluation System of Primary Education
d) Different Activities Organized in Primary Education

Unit - IV Recent Govt. Schemes for Primary Education

a) Provisions for Primary Education in Recent Five Year Plan
b) Recent Rules and Provision of State Govt. for Primary Education
c) Measures of Quality Enhancement in Primary Education
d) Organization and Execution of Mid-day-meal Programme

Term Paper : (Any one)

- Prepare a term paper on a given topic of your syllabus.
- Review any two recent articles on Primary Education.
- Observe a Primary School, prepare detail report and suggest the solution of its problems.

Learning Outcomes: After completion of this course students would able to:

- Understand the concept and History of Primary Education.
- Describe the problems of Primary Education.
- Understand curriculum, evaluation pattern and different activities of Primary Education.
- Acquient with recent plans or scheme of central and state govt. for Primary Education.

- ❖ Provide the solution of different problems of Primary Education

References:

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Semester III

Course code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED307	**Any one Area Specialization on course II Area A** Elementary Education II	**CE**	4	20	60	20	100

Objectives:

- To develop knowledge and understanding of the elementary education, itsneed and significance.
- To acquaint the students with the quality concern and administration of elementary education at different levels.
- To understand the policy perspective on ECCE in India and world.
- To develop insight for quality dimensions i.e. curriculum, pedagogy and programmes for elementary education.
- To develop skills for research and evaluation in ECCE and training.

Course Contents:

Unit -I Early childhood care : Policies and perspectives

a) Early childhood care and Education : Concept, Objectives, Need and Significance
b) Historical perspective and basic provision for childern & schools
c) ECCE : Indian and Global perspectives in light of recent reports
d) ECCE : Basic administrative structure and quality concern in USA, UK & India

Unit -II Curriculum and Pedagogy

a) Curriculum for Elementary Education : Characteristics and Importance
b) Types of Curriculum : Montessori, Kindergarten and Balwari
c) Curricular approaches & principles : Activity based, Child centered, Inclusive using Story telling, Role play, Puppetry, Musical and Rhythmic exercises etc.

Unit - III Programmes and Strategies

a) Administration and Rote of NCERT, SIERT and DIET for ECCE
b) Panchayatiraj and Community involvement in planing and management for elementary education
c) Rote and services of NGO's like Bharati Foundation and Azim premji foundation
d) National and State level programmes for Girl childhood Education, Residential schools for girls and teacher empowerment

Unit -IV Training, Research and Evaluation

a) Need and Significance of personnel involved in ECCE
b) Status & Nature of Training programmes : pre-service and in-service- critical evaluation, issues and problems
c) Areas of research studies in Elementary Education and problem solving through Action Research
d) Recent trends in elementary education for training & skill development

Term Paper : (Any one)

- Study and prepare a report on present status of Elementary Education at State/Regional/ District level.
- Reflection on literature on quality concern and service of one western country (through Internet and Journals etc.)
- Review of past two years innovative programmes in Elementary Education

Learning Outcomes: After completion of this course students would able to:

- ❖ Develop knowledge and understanding of the elementary education, itsneed and significance.
- ❖ Acquaint the students with the quality concern and administration of elementary education at different levels.
- ❖ Understand the policy perspective on ECCE in India and world.
- ❖ Develop insight for quality dimensions i.e. curriculum, pedagogy and programmes for elementary education.
- ❖ Develop skills for research and evaluation in ECCE and training.

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Semester III

Course code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED308	**Area B** Secondary and Senior Secondary Education II	**CE**	4	20	60	20	100

Objectives:

- To acquire necessary knowledge, skills and attitudes for the development of the self and the nation.
- To promote positive environmental and health practice.
- To enhance enjoyment in learning.
- To developmentally Society, Morality, Physically and Spirituality.
- To develop into a responsible and socially well adjusted person.

Course Contents:

Unit - I Teacher Education for Secondary and Higher Secondary Level

a) Teacher Education for Secondary Level.
b) Teacher Education for Higher Secondary Level.
c) Teacher Education for Higher Secondary Level -Vocational System.

Unit - II In Service Teacher Education& Methods

a) In Service Teacher Education for Secondary Level .
b) Methods of in-service Teacher Education for Secondary Level.
c) Board of Education, Rajasthan.
d) CBSE

Unit - III Curriculum , Control, Administration, Examination, Evaluation of Secondary Education

a) Curriculum of Secondary Education.
b) Co-curriculum activites in secondary education
c) Role of ICT for secondary education
d) Control and Administration of Secondary Education.
e) Examination, Evaluation in Secondary Education.

Unit - IV Vocationalisation, Expansion of Secondary Education

a) Vocationalisation of Secondary Education
b) Type of secondary schools.
c) Expansion of Secondary Education.
d) Quality of secondary education institutions
e) Career counseling at secondary schools

Term Paper : (Any One)

- Write a term paper on a topic given in the course.
- Critically evaluate of the teaching methods of any one school.

Learning Outcomes: After completion of this course students would able to:

- ❖ Acquire necessary knowledge, skills and attitudes for the development of the self and the nation.
- ❖ Promote positive environmental and health practice.
- ❖ Enhance enjoyment in learning.
- ❖ Developmentally Society, Morality, Physically and Spirituality.
- ❖ Develop into a responsible and socially well adjusted person

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9. पाण्डेय, रामशकल, भारतीय शिक्षा की समस्यायें, आगरा।
10. मलैया, विद्यावती, भारतीय शिक्षा की समस्याएँ एवं प्रवृत्तियाँ, मैकमिलन कम्पनी ऑफ इण्डिया, दिल्ली।
11. मिश्रा, रेणु, मूल्यपरक शिक्षा, राजस्थान बोर्ड शिक्षण पत्रिका, खण्ड 44–45, अंक – 3–4।
12. रावत, प्यारे लाल, प्राचीन व आधुनिक भारतीय शिक्षा का इतिहास, भारत पब्लिकेशन्स, आगरा।
13. रावत, प्यारे लाल, भारतीय शिक्षा का इतिहास, रामप्रसाद एण्ड सन्स, आगरा।
14. सिंघल, महेश चन्द्र, भारतीय शिक्षा की वर्तमान समस्या, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।
15. सैयेदन, के. जी., शिक्षा शास्त्र (साइंस ऑफ ऐजूकेशन), राजकमल प्रकाशन, दिल्ली।
16. अग्निहोत्री रविन्द्र, भारतीय शिक्षा की वर्तमान समस्या, रिसर्च पब्लिकेशन्स, दिल्ली।
17. ओड, एल. के., शिक्षा के नूतन आयाम, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।
18. कबीर, हुमायूँ, स्वतंत्र भारत में शिक्षा, राजपाल एण्ड सन्स, दिल्ली।

Semester IV

Course code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED401	Teacher Education-II	**CC**	4	20	60	20	100

Objectives:

- To acquaint the concept, aims and organizing the student teaching
- To understand the place of practice teaching and its principles in teacher education.
- To know various patterns of student teaching, their methods of organization and evaluation.
- To understand various skills of teaching, teaching models and different competencies for a teacher for effective classroom teaching.
- To understand various techniques and methods of evaluation of student teaching.
- To know various innovative instructional methods used in teacher education programme.
- To know latest researches done in the field of teacher education and student teaching.

Course Contents:

Unit- I Student Teaching and its Pattern

a) Concept of student teaching.
b) Objectives of student teaching.
c) Scope and importance of student teaching.
d) Problems of Student teaching in institutions preparing teachers.
e) Practice teaching and off campus programme.

Unit- II Training in Teaching Skills

a) Teaching models (concept attainment & inquiry training model, garjiya model)
b) Microteaching programme for training of teaching skill
c) Lesson plan for student teacher
d) Planning the practice teaching programme
e) Supervision of practice teaching programme

Unit- III Instruction Methods and Agencies of Teacher Education and Teacher Behavior

a) Instruction methods in teacher education (seminars, workshop, Panel discussion)
b) Role of Nation level agencies of teacher education (NCTE, NUEPA, NCERT, UGC, NAAC)
c) Role of State level agencies of teacher education (SCERT, IASE, CTE, DIET)
d) Maintenance of school records of student performance
e) Teacher behavior (flanders interaction)

Unit-IV Evaluations of Teacher Education Programme

a) Concept of evaluations in teacher education programme
b) Importance of evaluation in education
c) Types of evaluations
d) Internship programme

Term Paper :(Any one)

- One term paper on any topic related with the about unit.
- Prepare a report on latest rules & regulation of any one educational agency.
- Study of the annual reportSCERT/NCERT/RIE to identify various programmes for professional development of teacher education.

Learning Outcomes: After completion of this course students would able to:

- ❖ Acquaint the concept, aims and organizing the student teaching
- ❖ Understand the place of practice teaching and its principles in teacher education.
- ❖ Know various patterns of student teaching, their methods of organization and evaluation.
- ❖ Understand various skills of teaching, teaching models and different competencies for a teacher for effective classroom teaching.
- ❖ Understand various techniques and methods of evaluation of student teaching.
- ❖ Know various innovative instructional methods used in teacher education programme.
- ❖ Know latest researches done in the field of teacher education and student teaching.

References:

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2. अग्निहोत्री रविन्द्र (2007), आधुनिक भारतीय शिक्षा की समस्याएँ और समाधान, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।
3. जोशी दिनेश सिंह (2007), मेहता चतरसिंह, शिक्षक प्रशिक्षण के सिद्धान्त एवं समस्याएं राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।
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Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 402	Academic Writing (ISB)	CC	2	50 Practical & Viva-Voce			50

Objective:

- ❖ To develop the academic writing
- ❖ To develop research work writing
- ❖ To participate in seminar and workshop

UNIT I General Writing

a) Prepare a base review (any reference book)
b) Script/Story (Drama)
c) Prepare two content lesson of B. Ed. syllabus. (any two)

UNIT II Research Work Writing

a) Prepare an Article on current topic.
d) Present a Seminar paper (National/State/International)
e) Prepare a desertation summary

Learning Outcomes: After completion of this course students would able to:

- ❖ Write on research
- ❖ Understand the concept of seminar and workshop

Term Paper : (Any one)

Prepare a term paper on any topic related with above unit.

Semester IV

Course code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED403	Dissertation	**CC**	4	100 **(Dissertation-60+Viva-Voce-40)**			100

Objective:

- To prepare for practical work
- To get the knowledge of field work and related problems.

Dissertation: Each candidate for the M.Ed. degree is required to investigate a research problem in the field of education and submit a dissertation embodying the results of his/her investigation.

Viva-Voce Board : The Viva-Voce board will consist of the following two persons:

- The External Examiner
- The Head of the Department

Learning Outcomes: After completion of this course students would able to:

- Do practical work independently
- Understnd and knowledge of field work problems

Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 404	**Specialization on courses - I Area (a) : Educational Administration and Managements** Principles of Educational Administration and Management	Choose any one area which will comprise of three papers CE	4	20	60	20	100

Objectives:

- To develop the fundamental perspective of the theoritical tenants of administration and management.
- To understand the relationship between educational administration and human relations to enhance the effectiveness of organization.
- To know and analyze the causes and types of role conflicts in organization and resolve them.
- To be acquainted with the procedure of decision making and scientific management.
- To make the students with new trends and techniques of educational management.

Course Contents:

Unit -I Educational Administration and Management

a) Concept, Nature, Scope and Development of Administration and Management.
b) Historical Development and Contribution.
c) Modern Development : Scientific Management Approach, System Approach, Situational Approach.
d) Competency Concept of Graft, Administrative Behaviour - Halpin

Unit -II Educational Organization

a) Meaning and principles of Educational Organization.
b) Organizational Behaviour & Climate - Maslow's theory of needs and job satisfaction.
c) Organizational Development : Structural patterns, Analysis of factors affecting the organization.

Unit -III Educational Leadership and Decision Process

a) Concept, Types and Styles of Educational Leadership.
b) Models of Leadership : Ohieo State model, Managerial Greid Model.
c) Concept, Types and styles of Decision making.
d) Models and Process of Decision making.

Unit -IV Educational schemes and agencies

a) Educational Administration Policies : Post 1986 Development.
b) Centrally sponsered schemes and Role of state level Educational Administration.
c) Various agencies related to Educational Administration at state and National level and their functions.

Term Paper : (Any one)

1. Prepare a report on recent state/central level schemes related to education and their administration.
2. Prepare a report on any agency related to educational administration at state/National level and its major functions.
3. Prepare ppts on historical development and important contribution related to principles of educational administration and management.
4. Prepare ppts on survey report related to organizational climate of any educational institute and their related remedies.

Learning Outcomes: After completion of this course students would able to:

- ❖ Develop the fundamental perspective of the theoretical tenants of administration and management.
- ❖ Understand the relationship between educational administration and human relations to enhance the effectiveness of organization.
- ❖ Know and analyze the causes and types of role conflicts in organization and resolve them.
- ❖ Acquainted with the procedure of decision making and scientific management.
- ❖ Make the students with new trends and techniques of educational management

References:

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2. सुखिया उस. पी. (2008), विद्यालय प्रशासन, संगठन एवं स्वास्थ्य शिक्षा, विनोद पुस्तक मंदिर आगरा
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6. सिंह मया शंकर, (2007), शैक्षिक प्रबंधन एवं शिक्षण तकनीकी, अध्ययन पब्लिशर्स एंड डिस्ट्रीब्यूटर्स, नई दिल्ली
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8. सिंह रामपाल, शर्मा मदनमोहन, सेवानी अशोक, (2007), शैक्षिक प्रबन्धन एवं विद्यालय संगठन, विनोद पुस्तक मंदिर, आगरा
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12. मोहन्ती, जै. शैक्षिक प्रबन्धन एवं प्रकाशन, दीप एवं दीप पब्लिकेशन, नई दिल्ली।
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Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 405	**Area (b) Educational Technology** Principles of Educational Technology	Choose any one area which will comprise of three papers CE	4	20	60	20	100

Objectives:

- To acquaint the students with the concept, definition and Scope of educational technology.
- To acquaint the students with the system approach, communication process and content analysis.
- To enable the students to understand about the principles of programmed learning.
- To acquaint the student about the role of instructional technology.
- To acquaint the student about the teaching model.

Course Contents:

Unit - I Concept of Educational Technology

a) Educational Technology: Concept, its definition, nature, scope.
b) Forms of educational technology: teaching technology, instructional technology and behavior technology.
c) Approaches of educational technology: Hardware Software and System approach.

Unit-II Communication & its Process

a) Communication in education, communication process, types, communication in teaching learning.
b) Comparative study of memory, understanding and reflective level of teaching.
c) Content analysis.

Unit- III Models of Teaching Technology

a) Teaching Models: Concept, characteristics.
b) Glasser's Basic Training Model.
c) Creativity Teaching Model.

Unit-IV Programme Learning Approaches

a) Programmed Learning: Meaning, characteristics, principles.
b) Types of programmed learning: Linear and branching.
c) Advantages and limitations of programmed learning.

Term Paper : (Any one)

- Preparation and administration of programmed learning materials (at least 20 frames) or Development of a computer programme on a topic.
- Preparation of any two low cost teaching aid/ PPT Preparation

Learning Outcomes: After completion of this course students would able to:

- Understand with the concept, definition and Scope of educational technology.
- Explain system approach, communication process and content analysis.
- Describe about the principles of programmed learning.
- Understnad about the role of instructional technology.
- Acquaint about the teaching model.

Suggested Reading:

1. मित्तल, सन्तोष (2008), शैक्षिक तकनीकी एवं कक्षा कक्ष प्रबंध, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर।
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13. Buch,M.B. & Santhanam M.R. : Communication in Class Room CASE Baroda.

Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 406	**Area (c) Measurement and Evaluation** Principles of Measurement and Evaluation	Choose any one area which will comprise of three papers CE	4	20	60	20	100

Objectives:

- To understand the meaning and basic concepts of measurments and Evaluation.
- To differentiate between measurement and evaluation.
- To acquaint the students with new trends in examination reforms.
- To develop critical thinking the students to understand the process of test development and their standardization.

Course Contents :

Unit : I Concept of Measurement and Evaluation

a) Measurment: Physical vs. Psychological and Educational Measurement
b) Differentiate between Measurment and Assessment
c) Types of Evaluation
   - Placement Evaluation
   - Formative Evaluation
   - Summative Evaluation
   - Diagnostic Evaluation
   - Prognostic Evaluation

Unit : II Measurment of Learning and Achievement

a) Norm-referenced Test vs. criterion reference Test
b) Scale,Test,T-score,Z-score
c) Construction of an Achievement Test
   - Blue print
   - Try out of the test
   - Item-analysis
   - Difficulty Level, Discrimination Power Index

Unit : III Standardization of Test

a) Standardization Procedures for a test administration, Scoring and reporting
b) Teacher made Test vs. Standardised Test
c) Quality of a good Test
   - Validity
   - Reliability
   - Objectivity
   - Norms

Unit: IV Assessment of Validity , Reliability and Norms

a) Concept, definition of validity, reliability and norms
b) Types of validity, reliability and norms
c) Determining degree of reliability and validity
d) Factors affecting validity and reliability
e) Relationship between validity and reliability

Term Paper :(Any one)

- Construct, Try out and done item analysis of a teacher made test.
- Calculating Reliability of a test with using any methods.
- Establishing validity of a test with using any methods

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand the meaning and basic concepts of measurments and Evaluation.
- ❖ Differentiate between measurement and evaluation.
- ❖ Acquaint the students with new trends in examination reforms.
- ❖ Develop critical thinking the students to understand the process of test development and their standardization.

Suggested Reading:

1. Ferguson , George A.(1971), Statistical Analiysis in Psychology and Education. MC-Graw Hill Kegakusha Ltd.
2. Anastasi, A. (1970), psychological Testing, Macmillan New Delhi.
3. Gailford,J.P.& Frutcher,B (1970), Fundamental Statistics in psychology and education MC Graw-Hill Kagakush Ltd.
4. Grounlund, N. E. (1968) Measurement and exaluation in Teaching Macmillan co.
5. Cronbach, L. J. (1960), Essential psychological Testing, New York: Harper
6. Bloom,B.S. (1956), Taxonomy of Objectives "Cognitive Domain", Logman,New York.

Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 407	**Specialization on courses - II** **Area (a): Educational Administration and Managements** Educational Administration and Management Practice	Choose any one area which will comprise of three papers CE	4	20	60	20	100

Objectives:

- ❖ To acquaint the knowledge of different Education Administrative Structure in India.
- ❖ To know about various procedures of Educational Supervision an Co-ordination.
- ❖ To develop understanding of the concept and forms of Educational Management.
- ❖ To gain knowledge about the concept and principal of Financial Management.
- ❖ To assess the understanding about different Contemporary Trends in Educational Management.

Course Contents:

Unit- I Educational Administrative Structure in India

a) Concept, need, Characteristics, Principles, Functions, Scope, Educational administration and Educational Management.
b) Level : Panchayat and Zilla Parishad, District.
c) Level : State and Central
d) Control and Pressures on Educational Administration.

Unit- II Educational Supervision and Co-ordination

a) Concept, need, Scope of Supervision
b) Procedure and Process of Supervision
c) Co-ordination - Concept, Need, Scope

Unit- III Communication in Educational Administration and Management

a) Concept, need, scope
b) Types and forms
c) Process and Function
d) Delimitation

Unit- IV Educations Financial Management and Contemporary Trends in Educational Management

a) Concept, need, scope, Types, Principles Financial Management.
b) Budget, Concept, need, types, process.
c) T.O.M. Total Quality Management.
d) Time Management

Sessional Works: (Any one)

- Prepare a case study report of the organizational climate of a school.
- Prepare a financial budget report of a particular school.
- Prepare a two term paper of the content P.P.T.
- Abstracts of two recent articles related to Educational Administration and Management.

Learning Outcomes: After completion of this course students would able to:

- ❖ Acquaint the knowledge of different Education Administrative Structure in India.
- ❖ Know about various procedures of Educational Supervision an Co-ordination.
- ❖ Develop understanding of the concept and forms of Educational Management.
- ❖ Gain knowledge about the concept and principal of Financial Management.
- ❖ Assess the understanding about different Contemporary Trends in Educational Management

References:

1. मिश्रा महेन्द्रकुमार (2008), शैक्षिक प्रबन्धन एवं विद्यालय संगठन, यूनिवर्सिटी बुक हाऊस (प्रा.) लि., जयपुर
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3. प्रसाद केशव (2008), विद्यालय व्यवस्था, विनोद पुस्तक मंदिर आगरा
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Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 408	**Area (b) Education Technology** Innovative Methods and Techniques in Educational Technology	Choose any one area which will comprise of three papers CE	4	20	60	20	100

Objectives:

- To understand the idea of Methods, Techniques and Models of Teaching Technology.
- To develop knowledge of Various Teaching Methods and Techniques.
- To acquire the knowledge of new trends in teaching technology.
- To apply teaching for effective and innovative class room teaching.

Course Contents:

Unit - I Concept of Innovation and Objective

a) Innovation : Meaning, Definition and Characteristics.
b) Methods : Concept, Characteristics and Utility.
c) Components of Instructional Process: Objectives, Concept and Methods.
d) Formulation objective domains of behaviour :
   - Cognitive
   - Affective
   - Psychomotor

Unit - II Principal Methods of Teaching

a) Democratic Methods : (Concept, Merits and Limitation)
   - Project
   - Laboratory
   - Excursion
   - Group Discussion
   - Problem Solving
   - Programme Learning
   - Brain Storming
   - Review Methods
   - Hueristic Method
   - Co-operative Learning Methods

b) Auto-cratic methods (Concept, Merits and Limitation)
   - Demonstration
   - Team Teaching

Unit - II Innovative Techniques of Teaching Technology

- Video - conferencing
- Questioning

- Illustration
- Exposition
- Comparison
- (CAI) Computer Assisted Instruction)
- Reflective dialogue
- Online classes/E-learning

Unit -IV Models of Teaching Technology

a) Interaction Analysis (Flander's)
b) Social Learning Models (Bandura)
c) Advance Organizer Teaching Model (David Ausubel)
d) Developmental Teaching Model (Jean- Piaget)

Term Paper: (Any one)

- Write one term paper.
- Prepare a lesson plan with using any innovative methods.
- Prepare a Teaching model with examples

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand the idea of Methods, Techniques and Models of Teaching Technology.
- ❖ Develop knowledge of Various Teaching Methods and Techniques.
- ❖ Acquire the knowledge of new trends in teaching technology.
- ❖ Apply teaching for effective and innovative class room teaching.

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Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 409	**Area (c) Measurement and Evaluation** ToolsandTechniquesof Evaluation in Education	Choose any one area which will comprise of three papers CE	4	20	60	20	100

Objectives:

- To understand the process and performance through using various types of test items.
- To acquint the knowledge of preparing tools link Check list, Rating scales, Questionaires etc.
- To develop understanding about various Evaluation procedures
- To obtain the knowledge of objectives in Evaluation
- To know preparation of achievement and diagnostic tests and complete question paper.

Course Contents:

Unit : I Role of Testing of Non-Testing Techniques in Educational Evaluation

a) Purpose and Function of Testing in School
b) Interpretation of Raw Score to Standard Score
c) Types of psychological Tools
   - Questionnaires
   - Check list
   - Rating Scale
   - Interest inventories
   - Sociometric techniques
   - Interview Schedule

Unit : II Taxonomy of Evaluation and Objectives

a) B.S.Bloom's Taxonomy of Objectives
   - Cognitive Domain
   - Affective Domain
   - Psychomotor Domain
b) Oral Test vs. Written Test
c) Speed Test vs. Speeded Test
d) Objective vs. Subjective Test
e) Objective based Evaluation Procedure

Unit : III Measurement of Psychological Trait

a) Intelligence test
b) Personality Inventories
c) Attitude Scale (Likert and Thruston Scale)
d) Measurement of creativity (Verbal vs Non-verbal

Unit : IV Uses and Limitations of Test Norms

a) Item Analysis -Purpose and Procedure

b) Discrimination Power & Difficulty Index-methods of calculation
c) Distractor Factor and its needs in a test
d) Types of Norms: Age,Grade, Percentile, T and Z Score norms
e) Types of Scale
    - Cardinal Scale
    - ordinal Scale
    - Interval Scale
    - Ratio Scale

Term paper :(any one)

- Write any two term paper in the content
- Prepare any one questionnaire for a test.
- Develop a Cheek List or Interriew Schedule.

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand the process and performance through using various types of test items.
- ❖ Acquint the knowledge of preparing tools link Check list, Rating scales, Questionaires etc.
- ❖ Develop understanding about various Evaluation procedures
- ❖ Obtain the knowledge of objectives in Evaluation
- ❖ Know preparation of achievement and diagnostic tests and complete question paper.

Suggested Reading:

1. Grounland, N.E. (2003), Educational Measurement & Assessment in Education, Macmillan co. (8th Edition)
2. Fergusan, George (1971), A Statistical Analysis in Psychology and Education (3rd Edition), Mc.Graw hill,New Delhi
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Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 410	**Specialization on courses - III Area (a) :Educational Administration and Management** Modern Trends in Educational Administration and Management	Choose any one area which will comprise of three papers CE	4	20	60	20	100

Objectives:

- To develop an insight into modern perpectives and trends of Educational Administration and Management.
- To acquire the knowledge of Educational Management at different levels through scientific management.
- To develop the managerial skills through data analysis, planning proposals and decision making process.
- To develop knowledge of accreditation process, finance management and its application.
- To understand the planning procedure, human resource management and some new trends.

Course Contents:

Unit- I Educational Management and Its Levels

a) Educational Management - Concept, Scope and Characteristics of good management
b) Difference between Educational Administration and Education Management
c) Management at different levels - Elementary, Secondary and Higher Education
d) Scientific Management through PERT, CPM and PPBS

Unit - II Resource Management

a) Resources : Types, Scope and Need in Organization
b) Human resource management : Staff recruitment and cadre management policies and practices
c) Performance appraisal, Grievance redressal mechanism & Teacher's union
d) Conflict Management : Types of Conflict, Getzel's theory and Conflict management

Unit - III Planning and Financial Management

a) Educational planning : Concept, Types and Approches
b) Appraisal and Analysis of Educational Data, formulation of policy and planning proposal
c) Finance Management : Process of financing, Types of Educational Expenditure, Monitoring, Accounting and Auditing
d) Resource Mobilization & Finance, Project Analysis, Criteria for allocation of funds

Unit - IV Evaluation and Accreditation

a) Evaluation of Educational Management : Summative & Formative
b) Accreditation & Appraisal of Institute : Objective, Guidelines & Types
c) Administration - plan & non plan schemes and provisione at centeral and state level
d) Educational management information system (EMIS), Project management information system (PMIS)

Term Paper : (Any one)

- Prepare a report related to performance appraisal of any educational administrative unit.
- Prepare a review report for educational Programmes at state level.
- Prepare a critical report for human resouce development programmes in any organization.
- Prepare PPTs related to summative and formative evaluation structures of educatinal management evaluation.
- Prepare PPTs for monitoring and auditing related to observation for finacial management.

Learning Outcomes: After completion of this course students would able to:

- ❖ Develop an insight into modern perpectives and trends of Educational Administration and Management.
- ❖ Acquire the knowledge of Educational Management at different levels through scientific management.
- ❖ Develop the managerial skills through data analysis, planning proposals and decision making process.
- ❖ Develop knowledge of accreditation process, finance management and its application.
- ❖ Understand the planning procedure, human resource management and some new trends

References:

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1. वर्मा जे. पी शैक्षिक प्रबन्धन (2007), राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर
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Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 411	**Area (b) Education Technology** Educational Technology and Computer Application	Choose any one area which will comprise of three papers CE	4	20	60	20	100

Objectives:

- Students will become awarel of various ICT trends.
- Students will be able to use computer for their studies and get the general introduction about windows operating system.
- Students can create presentation and use MS Word for their text formatting
- Students will know how to create simple marksheet and will be able to use Internet for their study purpose.

Course Contents:

Unit - I I C T in Education

a) ICT : Concept, Characteristics, Importance
b) Challenges for ICT
c) Multimedia Approaches :
   - Video conferencing
   - Online classes
   - Smart Classes

Unit - II Introduction to Computers and Windows Operating System

a) Introduction to Computers
   - Definition , Application & Block Diagram of Computer
   - Computer Memory, Hardware &Software
   - I/O Devices
b) Introduction to Windows OS
   - Features of Windows OS
   - Basic Components of Windows OS- Desk Top, Task Bar, System Tray, Icons, Control Panel, File & Folder Management

Unit - III Introduction to MS-Word & Ms-Power Point

a) Introduction to MS-Word
   - An overview of the basics of word processing
   - Editing and Formatting Documents
   - Use spell check , grammar check & Thesaurus
   - Creating Tables
   - Introduction to Ms-PowerPoint

- Creating an effective presentation using power point

Unit - IV Introduction to MS-Excel & Internet

a) Introduction to MS-Excel
   - Creating an excel worksheet
   - Using formula & functions
   - Creating Charts & Graphs

b) Introduction to Internet
   - Introduction to Internet, Web Browser and Search Engine
   - Surfing the Net using search engines and download
   - Email

Term Paper : (Any one)

- Write one term paper.
- Prepare a P P T lesson with any concept of this paper.

Learning Outcomes: After completion of this course students would able to:

- ❖ Aware of various ICT trends.
- ❖ Use computer for their studies and get the general introduction about windows operating system.
- ❖ Create presentation and use MS Word for their text formatting
- ❖ Know how to create simple marksheet and will be able to use Internet for their study purpose.

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16. Freeman, F.S. (1962), Theory and Practice of Psychological Testing, Oxford and I.B.H. Publication company, New Delhi (3rd Edition)

Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Unit End Test	Term Paper	Total
MED 412	**Area (c) Measurement and evaluation** New Trends in Educational Assessment and Statistics	Choose any one area which will comprise of three papers CE	4	20	60	20	100

Objectives:

- To grasp the holistic idea about Educational Assessment.
- To enhance skill of new trends in education.
- To apply and diagnose the learning errors of evaluation.
- To develop the knowledge and basic use of statistics in education.
- To create innovation in examination system (CBCS).

Course Contents:

Unit - I New Trends in Education

a) Grading System Vs. Marking System.
b) Continuous and Comprehensive Evaluation (CCE)
c) Question Bank and Examination Reforms.
d) Use of Computer in Evaluation and open book system of Examination.
e) Semester System and Choice Based Credit System. (CBCS)

Unit - II Diagnostic Test and Remedial Instruction

a) Needs of Educational Diagnosis in Elementary and Secondary Schools.
b) Purpose of Diagnostic Test
c) Preparation Diagnostic Test
d) Remedial Instruction : Concept, Procedure and Needs.
e) Preparation of Remedial Test

Unit - III Measure of Central Tendency

a) Mean and its uses
b) Median and its uses
c) Mode of and uses

Unit - IV Measure of Variability

a) Range
b) Quartile Deviation
c) Average Deviation
d) Standard Deviation

Term Paper : (Any one)

- Prepare a diagnostic test or remedial material.
- Write a short notes about new trends of Evaluation in Education.
- Collection and prepare a question bank (minimum five years).
- Choose a problem and calculate Mean, Median, Mode and Standard in the same problems.

Learning Outcomes: After completion of this course students would able to:

- ❖ Grasp the holistic idea about Educational Assessment.
- ❖ Enhance skill of new trends in education.
- ❖ Apply and diagnose the learning errors of evaluation.
- ❖ Develop the knowledge and basic use of statistics in education.
- ❖ Ceate innovation in examination system (CBCS).

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15. Blooms, B.S. (1956), Taxonomy of Educational Objective. New York: Longman Green and Company.

Syllabus

DEPARTMENT OF EDUCATION

BACHELOR OF EDUCATION (B. Ed.)

Two Year Regular Programme

"A" Grade by NAAC & "A" Category by MHRD

Jain Vishva Bharati Institute

(Deemed to be University under section 3 of UGC Act, 1956)

Ladnun-341306 (Raj.)

2017 **Price: Rs.**

BACHELOR OF EDUCATION (B.ED.) PROGRAMME

Two Years Regular Programme

Jain Vishva Bharati Institute has launched a Bachelor of Education programme recognized by NCTE. The first session started from July 2005. The programme places specific emphasis on meditation as a tool to enhance learning skills and I.Q. This programme is also the first national teachers training programme to offer study in Education for Sustainable Development. Innovative syllabus and enthusiastic faculty work towards not only training the teachers but also assisting them with campus recruitment. Jain Vishva Bharati Institute is looking forward to train a new class of future generation teachers.

Introduction :

Enlightened, emancipated and empowered teachers lead communities and nation towards better and higher quality of life. Teachers are expected to create social cohesion, national integration and learning society. They disseminate knowledge and also generate new knowledge therefore, it becomes essential for any nation to give necessary professional inputs to its teachers. Jain Vishva Bharti Institute pursues the curriculum for its pre-service teacher training programme for women candidates who are far behind but can lead the whole nation. This will is a special programme focussed with a strong foundation in Science of Living. The candidates are encouraged to flourish an environment that promotes value and technology based society.

Duration: The B.Ed. programme is full time two years programme.

Eligibility: A candidate who has passed B.Ed. degree from any recognized university and qualified PTET conducted by the Rajasthan Government for that year as per guideline of State Government.

Objectives:

- To develop professionalism in teacher Education Programme.
- To motivate creative thinking and work among teacher trainees.
- To foster moral, social character and spiritual values of trainees.
- To develop Inter-relationship among Department, School and Society.
- To develop cognitive, Affective and Psycho-motor domain of the teacher trainees
- To promote for future Prospective, Employability and Skill based Teacher Training
- To develop Self Evaluation, Positive Attitude and self confidence
- To apply educational innovation and new strategies of the Teacher Education and trainee

1. Title and Commencement

These regulations shall be called the Jain Vishva Bharati Institute (Deemed-to-be) University, Ladnun Regulations for Choice Based Credit System (CBCS) and Continuous Assessment Grading Patterm (CAGP) for Post-Graduate and Under-Graduate Programmes. These regulations was adopted from academic year 2015-2016.

2. Definitions

2.1 "Programme" is used for a fixed educational programme in place of Degree. A Post-Graduate Programme shall be of four semester's duration and a normal under-graduate programme shall be of four semester's period.

2.2 "An Academic Year" consists of two semester's. Each semester consists of different papers of four units. Each unit with have 6 weeks for academic work.

2.3 "Course" is a component of programme i.e. in CBCS, papers will be referred to as courses. Each course is identified by a unique course Code. Every course may not be of equal weightage. Each course, in addition of having a curriculum will have learning objectives and learning outcome.

A Course may be designed to involve Lectures/Tutorials/Laboratory Work/Field Work/Project Work/Vocational Training/Viva-voce etc or combination of some of these.

Every course offered will have three components associated with the teaching learning process of the Course. Namely (I) Lecture – L (II) Tutorial-T (III) Practical's –P. Where

L- Stands for Lecture session.

T- Stands for Tutorial session consisting of participatory discussion/self study/desk work/brief seminar presentations by students and such other novel methods that make a student to absorb and assimilate more effectively the contents delivered in Lecture classes.

P- Stands for practice session and it consists of hands on experience/laboratory experiments/ field experiments/case studies that equip students to acquire much required skill component.

In terms of credit, every one hour session of L (per week) amounts to I credit per semester and minimum of two hour session of T or P (per week) amounts to I credit per unit over a period of one course of 24 weeks for teaching-learning process (inclusive of teaching and examination).

A course shall have one, two or all three components. That means a course may have only lecture component or only practical component or combination of any two or all the three components.

The total credit earned by a student at the end of the semester upon successfully completing the course is L+T+P. The credit pattern of the course is indicated as L:T:P

Different categories of courses are as follows:

- **Core Course**

  A Course which should compulsorily be studied by candidate as a core requirement is termed as core course.

  (a) Core-Compulsory is a course which has to be studied compulsorily as a part of core requirement so as to get degree in concerned discipline.

  (b) Core Elective or Core allied is a course that supports / strengthens the core compulsory.

- **Elective Course**

  It is a course which can be chosen from pool of courses. The course may be specific / specialized / supportive or advanced to the discipline of study.

  (a) Generic Elective Course add generic proficiency to the students and they are for the said discipline of study

  (b) Open Elective courses are from the pool of courses that are interdisciplinary and or multidisciplinary.

- **Foundation Course**

  It is a course that aims to improve proficiency and skill of the student.

  (a) Compulsory Foundation Course add generic proficiency to the students belonging to all disciplines of study.

  (b) Elective Foundation Courses are value based and aimed at man making education.

2.4 A module means a course having independent entity.

2.5 'Unit' means a course having independent part in a course.

2.6 "Credit" means the unit by which the course work is measured. It defines the quantum of contents/syllabus prescribed for the course. It also determines the number of hours of instructions required per week. In these regulations one credit means one hour of direct teaching work or two hours of practical work/field work per week for 20 weeks in a semester.

2.7 "Grade Letter" is an index to indicate the performance of student in a particular course. It is arrived at by transformation of actual marks secured by a student in a said course. Grade letters are O,A,B,C,D,E,F.

2.8 "Grade Point" is the weightage allotted to each grade letter depending on the range of marks awarded in a course.

2.9 "Credit Points" refers to the product of "Number of credit assigned to the course" and the grade point secured for the same course.

2.10 "Semester Grade Point Average" (SGPA) is an index of a student's performance in a given semester. It is the ratio of the "Total credit points earned by students in all courses at the semester" and the "Total number of credit assigned to the courses" in the semester.

2.11 "Cumulative Grade Point Average" (CGPA) refers to the cumulative grade point average of SGPA and is computed based on the following formula.

$$\text{CGPA} = \frac{\text{Sum of all Credit Points of Entire Programme}}{\text{Sum of Credits up to the end of Programme.}}$$

3. Credit Framework for Normal under Graduate Level Course

3.1 The normal graduation programme have 20 credits per each course and per semester making total credits for whole programme as 80. The distribution of credits or weightage of core, elective and Foundation courses may be as follows:

Distribution of Credits for Semester is as follows:				
Semester	I	II	III	IV
Credits	20	20	20	20

4. Credit and Teaching Hours.

1 Credit = 1 hour Teaching
1 Credit = 2 hour of Practical / Fieldwork
4 Credit Course needs four hour Student Teacher contact in a week.

5. Units and Course : A theory course shall have Four units.

6. Credits and Marks

1 Credit = 25 marks

7. Grading

Grade Points	Description	% of Marks	Division	Grade
10	Outstanding	90% - 99%	First	O
9	Excellent	80% - 89%	First	A
8	Very Good	70% - 79%	First	B
7	Good	60% – 69%	First	C
6	Fair	50% - 59%	Second	D
5	Average	36% - 49%	Pass	E
4	Dropped	Below 36%	Fail	F

8. Performance Evaluation (Calculation)

SGPA = ECG/EC for a Semester

G is grade and C is Credit of Course.

Cummulative Grade Point Average (CGPA) for entire course

CGPA = ECG/EC for all semester taken together.

The total credits cover the core, elective, field work or extension activities, soft skills etc.

GPA is calculated at the end of each term after grades have been processed and after any grade has been updated or changed.

Some criteria are to be followed for individual assignment / Quizzes/Test/Unit Test/ Tutorials/ Practical/ Projects/ Seminar.

The teacher should convert his/her marking in to the quality points and letter grade.

9. Scheme of Examination

1. Hindi/English shall be medium of instruction of examination.
2. Examination shall be conducted at the end of each semester as per the academic/examination calendar notified by the Institute.
3. Each theory paper will be valued as per marks division given in the prospectus which will include semester end theory exam. Practical (wherever applicable) and continuous internal assessment (CIA).
4. CIA will include the following components :
    - Attendance regularity 10 marks
    - Class Tests 05 marks
    - Assignments 10 marks
    - Class Presentation/Seminar 05 marks

    Total 30 marks

- For UG students to pass a semester, a student has to secure a minimum of 40% marks in aggregate and minimum of 36% marks in individual theory papers. A student has to pass in written examination.

10. Evaluation Panel:

Internship Evaluation Panel:

Pre-Internship and Post Internship

- HOD of the concerned Department
- Departmental Supervisor/School Head Master/Principal of the School/Nominated School Teacher

Final Lesson Panel: (Two Teaching Subject)

- HOD of the concerned Department
- Internal/ External subject expert

EPC Evaluation Panel:

Theory/Practical and viva-voce Examination Panel will be :

- HOD of the concerned Department.
- Internal Subject Expert.

Bachelor of Education (B.Ed)

Semester I

Distribution of Papers, Marks and Credits

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 101	Childhood and Growing Up	**CC**	**4**	**30**	**70**	**100**
BED 102	Contemporary India and Education	**CC**	**4**	**30**	**70**	**100**
BED 103	Language Across the curriculum	**CC**	**4**	**30**	**70**	**100**
BED 104	Understanding Discipline and Subjects	Any one **CE**	**4**	**30**	**70**	**100**
BED 105	Innovative Methods					
JVB101	Introduction to Jainism	**FC**	**4**	**30**	**70**	**100**
		Total	**20**	**150**	**350**	**500**

B.ED

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 201	Assessment for Learning	**CC**	**4**	**30**	**70**	**100**
BED 202	Learning and Teaching	**CC**	**4**	**30**	**70**	**100**
BED 203	Pre-Internship	**CC**	**4**	100 Pre Internship		**100**
BED 204	Hindi	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**
BED 205	English					
BED 206	Sanskrit					
BED 207	History					
BED 208	Civics					
BED 209	Social Science					
BED 210	Economics					
BED 211	Geography					
BED 212	Home Science					
BED 213	Chemistry					
BED 214	Physics					
BED 215	Mathematics	**CE**	**4**	**30**	**70**	**100**
BED 216	General Science					
BED 217	Biology					
BED 218	Commercial Practice					
BED 219	Book-keeping					
		Total	**20**	**120**	**380**	**500**

B. Ed.

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 301	Post Internship	**CC**	**16**	**160 Internship+ 120+120=240 Practical (Final Lesson in two school subjects)**		**400**
JVB 301	Critical Understanding of ICT	**FC**	**2**	**15 Practical**	**35**	**50**
JVB 302	Yoga and Preksha Meditation	**FC**	**2**	**15 Practical**	**35**	**50**
		Total	**20**	**30**	**470**	**500**

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 401	Gender, School and Society	CC	4	30	70	100
BED 402	Reading& Reflecting on Texts (EPC)	CC	2	15	35 Practical &Viva-Voce	50
BED 403	Drama & Arts in Education (EPC)	CC	2	15	35 Practical &Viva Voce	50
BED 404	Knowledge and Curriculum (part-A)	Any one CC	4	30	70	100
BED 405	Knowledge and Curriculum (part-B)					
BED 406	Creating an Inclusive school	CC	4	30	70	100
BED 407	Optional Course 1. Environmental Education	Any one CE	4	30	70	100
BED 408	2. Health and Physical					
BED 409	3. Guidance and Counseling					
BED 410	4. Distance Education					
BED 411	5. Additional Course (Any one) 5.1 Hindi					
	5.2 English					
	5.3 Sanskrit					
	5.4 History					
	5.5 Civics					
	5.6 Social Science					
	5.7 Economics					
	5.8 Geography					
	5.9 Home Science					
	5.10 Chemistry					
	5.11 Physics					
	5.12 Mathematics					
	5.13 General Science					
	5.14 Biology					
	5.15 Commercial Practice					
	5.16 Book-keeping					
		Total	**20**	**150**	**350**	**500**

- EPC- Enhancing Professional Capacities
- CIA-Continuous Internal Assessment
- CC- Core Compulsory
- CE - Core Elective
- FC- Foundation Course

Semester - I

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED101	Chidhood and Growing Up	**CC**	4	30	70	100

Objectives:

- ❖ Teacher trainees can aware about concept, methods & applications of Educational Psychology.
- ❖ To aware the trainees about concept and developmental dimensions of childhood.
- ❖ Trainees got informed about imagination, creativity & interests at school level.
- ❖ To know the related problems of Adolescence & remedies through Guidance & Counselling services.
- ❖ To aware about the process of human development
- ❖ To build sensitivity towards childrens' needs and capabilities within their socio-cultural context

Course Contents:

UNIT-I Educational Psychology and Development

a) Educational Psychology : Concept, Methods & Applications
b) Implications of Educational Psychology:Teachers, Curriculum, Class-room Situations
c) Indian Psychology : Concept and its implication
d) Growth & Development
e) Cognitive development:- Piaget & Bruner

UNIT-II Childhood and Its Development

a) Childhood : Its concept & characteristics
b) Childhood : Physical, Mental, Emotional, Social & Moral Development
c) Childhood : Dimensions to fostering Imagination, Memory & Creativity
d) Childhood : Activities for Personality Development
e) Childhood : Language Development

UNIT-III Adolescence and Its Development

a) Adolescence : Its Meaning & Characteristics
b) Adolescence : Physical, Emotional, Social, Spiritual & Moral Development
c) Adolescence : Fostering Thinking, Reasoning & Problem- solving abilities
d) Adolescence : Activities for Personality Development
e) Adolescence : Related Problems & Remedies
f) Guidance & Counselling services in schools

UNIT-IV Learner : Psychological Dimensions & New Trends

a) Personality : Concept, Types & Measurement
b) Intelligence & Multiple Intelligence : Meaning, Theories & Measurement
c) Creativity : Meaning, Development & Measurement
d) Adjustment : Concept, Process & Mechanism
e) Mental Health : Concept, Components & Scope

Assignment & Practical Works: (Any Two)

- Prepare a short term project to enhance Imagination, Creativity and Memory for school level students
- Prepare, administer and interpret a Case study/ Questionnaire related to problems of adolescence
- One Assignment Workrelated to topics in above unit
- Organize various Guidance and Counseling campaign for secondary level students
- Administer, Score and interpret a standardized psychological test related to personality/Intelligence/ Creativity/ Mental Health/Adjustment
- Prepare a Survey report related to various psychological dimension, problems and related remedies for school students

Learning Outcomes: After completion of this course students would able to:

- ❖ Utilize the knowledge of Educational Psychology for school education.
- ❖ Apply the concept of Growth & Development in teaching field.
- ❖ Plan various activities to fostering imagination, creativity & interests at school level.
- ❖ Know about various aspects related to Cognitive, Emotional & Social development of learner.
- ❖ Diagnose related problems of Adolescence & remedies through Guidance & Counselling services.

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Semester I

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED102	Contemporary India and Education	**CC**	4	30	70	100

Objectives:

- To know the concept and nature of Educaiton.
- To know the social mobility and social skill.
- To understand the various committee and commission.
- To educate about the recent policies of Education.

Course Contents:

Unit-I Concept and Nature of Education

a) Education : Concept, Nature, Objectives and Functions
b) Role and problems of education in nation building
c) Current educational provisions of education in India (One year)
d) Educational thoughts of Indians thinkers (Vivekanand and Mahatma Gandhi)

Unit-II Social Aspects of Education

a) Sociology in education : Concept, Functions and Contribution
b) Social change : Meaning, Definition, Factors and Effects of Education
c) Social mobility
d) Education and culture
e) Role of education in development of social skills.

Unit-III Progressive Development of Education in Terms of Commissions and Committees

a) Characteristics of ancient, medieval and british period of education.
b) Radhakrishna Commission of Education (1948)
c) Mudaliyer Commission of Education (1952)
d) Kothari Commission of Education(1964)
e) National education policy (1968 and 1986)
f) Revised national education policy (1992)

Unit : IV Programmes for Education

a) Issues and problems in prevailing education system at National and State level
b) Right to Education Act 2009
c) Sarva Shiksha Abhiyan and Mid day Meal Programme
d) Rashtriya Madhyamik Shiksha Abhiyan
e) Education as related to social equity and equality of educational opportunities

Assignment & Practical Works: (Any Two)

- Write the educational contribution of Any one Indian Thinker.
- Prepare a Assignment Workon how we can inculcate values in the present system of education.
- Prepare a structure of education since ancient period to present time.
- Concept of education in Emerging Indian Society as relevant to school children's
- Development of moral attitude through self management

Learning Outcomes: After completion of this course students would able to:

- Know social aspects of education and develop educational perspective.
- Solve prevailing problems of education in India.

- ❖ Understand the purpose, function and Role of education in nation building.
- ❖ Understand knowledge of the Indian education system as it has evolved from the past, as it is today.
- ❖ Understand the concept, principle of sustainable development and core concept of educational thinkers.
- ❖ Know social equity and equality of educational opportunities.

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Semester - I

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED103	Language Across the curriculum	**CC**	4	30	70	100

Objectives:

- To understand the various mode of language like reading, wirting, speaking and listining.
- To develop the skill of oral and written language.
- To acquainte with the idea of composition and art of writing i.e. letter, paragraph, application etc.
- To develop the Vocabulary Building and Language Problems & its Remedies
- To develop the vocabulary and language proficiency and related remedies.

Course Contents:

Unit -I Language acquisition and development

a) Language : Concept, Meaning and Nature
b) Language usages : Written, Oral, Role Playing with Communication
c) 3 Language Policy : First (Mother tongue)
: Second (Foreign language)
: Third (Religious or classical language)
d) Language development : From childhood to Adult stages

Unit -II Language Skills

a) Reading : Silent reading vs Rapid reading, News Paper, Journal, Books
b) Narrative Text vs. Expository text
c) LSRW (Listening, Speaking, Reading, Writing)
d) Note making and creative writing (Essay, Application, Letter, Paragraph)

Unit -III Language & Classroom Interaction

a) Expression : Public Speech, Lecture, Debating
b) Multilingualism in classroom
c) Summarizing and Reflection
d) Errors and Correction of Language in class

Unit-IV Vocabulary Building and Language Problems & its Remedies

a) New Structure and building of vocabulary
b) Learning new vocabulary and Diagnostic Language Errors
c) Language Phonemes & Identification of Sound Errors
d) Remedial Programme for Language Development

Assignment & Practical Works: (Any Two)

- Write Any one Assignment Work
- Identify speech defect in classroom teaching
- Prepare a Report on Creative Writing
- Prepare a C.D. on communication (30 minutes)

Learning Outcomes: After completion of this course students would able to:

- Understand the nature and use of language.
- Develop the idea of Multilingualism in class room teaching.
- Create the sense of language and its flavor.
- Inculcate language skills among trainees.
- Evaluate skills creative writing and expression.
- Acquire the idea of composition and art of writing i.e. letter, Paragraph, application etc.
- Develop ornamental use of vocabulary in different curriculum.

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Semester - I

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED 104	Understanding Discipline and Subjects	Any one **CE**	**4**	**30**	**70**	**100**
BED 105	Innovative Methods					

BED 104 : Understanding Discipline and Subjects

Objectives:

- To make aware the students about the diciplines and its characteristics.
- To give Introduction of Kalidas, Tulsidas and Shakespeare
- To understand the scientific idea of science education.
- To apply the thought of social science language in their day to day life.

Course Contents:

Unit- I Language and Disciplines

a) Meaning of discipline
b) Characteristics of a discipline
c) Inter- disciplinary approach

Unit- II Language and Disciplines

a) History of language development (Hindi, Sanskrit and English)
b) Language technology
c) Language lab
d) Phonetics science
e) Introduction of Kalidas, Tulsidas and Shakespeare

Unit- III Social Science and Discipline

a) History and game cricket
b) History of woman empowerment
c) New trends cultural in society
d) Political socialization
e) Article of democratic problems (Terrorism, corruption &kola-Brokers)

Unit- IV Science and Disciplines

a) Life sketch of scientists (Dalton, Rutherford, Newton, Mendal and Homi Jahangir Bhabha)
b) Science and sound
c) Nutrition and balanced diet
d) Human diseases
e) Electricity and light

Assignment & Practical Works: (Any Two)

- Write Any one Assignment Work.
- Write a short note on Importance of Language in teacher.
- Read and review an article.
- Prepare a report on creative writing.

Learning Outcomes: After completion of this course students would able to:

- Understand language of various discipline.
- Develop expression of various language areas.
- Acquire scientific study of language phonetics.
- Know the scientific idea of science education.

- ❖ Apply the thought of social science language in their day today life.
- ❖ Develop interdisciplinary approach of language (Hindi/Sanskrit/English).

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Semester - I

BED 105 : Innovative Methods

Objectives:

- To introduce students about the concepts of innovations in teaching.
- To understand the idea of various subject methods.

Course Contents:

Unit- I Concept of Innovation.

a) Innovation : Meaning, Definition
b) Characteristics of Innovation
c) Methods : concept, Objective
d) Meathods Characteristics and Utility

Unit- II Methods of Social science

a) Time line method
b) Source method
c) Biographical method
d) Socialized Recitation method

Unit- III Methods of Science

a) Demonstration method
b) Experimental/ Laboratoury method
c) Heuristic method
d) Project method

Unit- IV Methods of Language

a) Lecture method
b) Inductive and Deductive
c) Supervised study method
d) Brain Storming

Assignment & Practical Works: (Any Two)

- Write Any one Assignment Work
- Write a short note on Importance of Language in teacher
- Read and review an article
- Prepare a report on creative writing

Learning Outcomes: After completion of this course students would able to:

- Develop knowledge of various innovative methods.
- Understand the idea of methods.

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Semester - II

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED201	Assessment for Learning	**CC**	4	30	70	100

Objectives:

- To describe the role of assessment in education.
- To distinguish among measurement, assessment and evaluation.
- To explain different forms of assessment that aid student learning.
- To use wide range of assessment tools, techniques and construct these appropriately.
- To evolve realistic, comprehensive and dynamic assessment procedures.
- To calculate item difficulty and discrimination power of a test item.
- To prepare a good achievement test on any school subject.
- To realize the importance of continuous and comprehensive evaluation in the process of students learning.

Course Contents :

Unit I - Assessment and Evaluation in Education

a) Concept of measurement, assessment and evaluation
b) Types,Need, scope and relevance of evaluation
c) Principles of assessment and evaluation
d) Test, scale and measurement
e) Types of scale : nominal, ordinal, interval and ratio

Unit II -Tools and Techniques of Assessment and Evaluation

a) Characteristics of a good measuring instrument
b) Achievement test: steps of construction of achievement test – Teacher made and Standardized test
c) Types of test items and its construction : subjective test items and objectives test item
d) Diagnostic test construction and preparation of remedial materials
e) Analysis of test items – item difficulty level and item discrimination power

Unit III -Trends in Assessment

a) Continuous and Comprehensive Evaluation
b) Marking system vs Grading system
c) Semester system (C B C S) Chioce Based Credit System
d) Open book examination and question bank

Unit IV - Basic Statistics in Evaluation

a) Measure of Central Tendency:
    - Mean
    - Median
    - Mode
b) Measure of variability
    - Range
    - Quartile Deviation
    - Average Deviation

- Standard Deviation

Assignment & Practical Works: (Any Two)

- Prepare an achievement test of any school subject of secondary school.
- Write one Assignment Workwith in the content
- Construct a remedial material for school students in any content problems.
- Select, analyses and try- out a sample tool/test with item discrimination power.

Learning Outcomes: After completion of this course students would able to:

- Describe the role of assessment in education.
- Distinguish measurement, assessment and evaluation.
- Explain different forms of assessment that aid student learning.
- Use wide range of assessment tools, techniques and construct these appropriately.
- Evolve realistic, comprehensive and dynamic assessment procedures.
- Calculate item difficulty and discrimination power of a test item.
- Prepare a good achievement test on any school subject.
- Realize the importance of continuous and comprehensive evaluation in the process of students learning.

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Semester-II

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED202	Learning and Teaching	**CC**	4	30	70	100

Objectives:

- To acquire the basic knowledge of learning and Teaching.
- To understand the implications of educaiton.
- To develop various methods of teaching.
- To understand the various application of educaiton.

Course Contents:

Unit -I Basics of Learning

a) Learning : Concept, Nature and Characteristics
b) Factors Affecting Learning
c) Laws and Types of Learning
d) Cognitive Learning- Peaget, Bruner
e) Transfer of Learning

Unit-II : Theories of Learning and their Educational Implications.

a) Trial and Error theory
b) Classical conditioning theory
c) Operant conditioning theory
d) Insight theory of Learning
e) Social Learning theroy (Bandura)

Unit-III Concept variables and models of Teaching

a) Teaching : concept, Nature and characteristers
b) Variables of Teaching and their functions
c) Factors Affecting Teaching and Teaching process
d) Relationship between teaching and Learining
e) Teaching model- concept, functions, sources and elements

Unit-IV Theories and Application of Teaching

a) Levels of Teaching - memory, understanding and Reflective
b) Teaching theories-concept, need, types and utility
c) Analyzing Teaching in Deverse classrooms
d) Teaching as a complex activity
e) Teaching as a profession

Assignment & Practical Works: (Any Two)

- One Assignment Work on any topic related with above Unit.
- One Practical Work on any topic related with above Unit.

Learning Outcomes: After completion of this course students would able to:

- Acquire knowledge and understanding of learning and Teaching.
- Understand the theories of learning.
- Develop the skill of active engagement of students in teaching learning activity.
- Investigate differences and connections between learning in school and learning outside school.

- ❖ Inculcate the knowledge of teaching and its process.
- ❖ Understand learners, learning process and school.

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Semester II

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED 203	Pre-Internship	**CC**	**4**	100 Pre Internship		**100**

Pre-internship distribution (4 Weeks)

Objectives:

- To acquire the knowledge of internship.
- To understand skill focused teaching.
- To develop ability of comprehensive school teaching.
- To understand and organize various school activities.

Sr. No. Contents

1. **Skills Fouced Teaching**
   - Introduction
   - Questioning
   - Black Board
   - Reinforecement
   - Stumulus Variation
   - Communication
   - Personality Development etc.
2. **Comprehensive School Teaching**
   - Demsstration Lesson Plan
   - Lesson based on Various Approaches Method, such as --
     - Co-operative Learning
     - Activities Based Apprach
     - Team Teaching
     - Project Method
     - Brain Storming
     - Task Based
     - Programme Instruction etc.
3. Unit Plan, Blue Print, Achivement Test and Use of Teaching Aids
4. School Activities
   - Physical
   - Cultural
   - Leteraty
   - Yoga Exceress

Learning Outcomes: After completion of this course students would able to:

- Acquire the knowledge of internship.
- Understand skill focused teaching.
- Develop ability of comprehensive school teaching.
- Understand and organize various school activities

Semester-II

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED 204	Hindi	Pedagogy of a school subject (Any two) **CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ भाषा संरचना में हिन्दी भाषा तत्त्वों का ज्ञान प्रदान करना।
- ❖ श्रवण, भाषण, वाचन एवं लेखन सम्बन्धी भाषायी कौशलों का ज्ञान देना।
- ❖ माध्यमिक स्तर के निर्धारित पाठयक्रम एवं पाठ्यपुस्तक का विश्लेषण समीक्षा एवं कुशलता का विकास कराना।
- ❖ इकाई, दैनिक व सूक्ष्म पाठ योजनाओं के महत्त्व से अवगत कराना व निर्माण का ज्ञान कराना।
- ❖ हिन्दी भाषा के वैज्ञानिक स्वरूपों और कौशलों का ज्ञान कराना।
- ❖ हिन्दी भाषा की विभिन्न विधाओं एवं उनके व्यावहारिक शिक्षण पाठ योजनाओं का ज्ञान कराना।
- ❖ प्रश्न पत्र के निर्माण का ज्ञान देना।
- ❖ निदानात्मक एवं उपचारात्मक परीक्षण स्वरूप, महत्त्व एवं उपयोग का ज्ञान देना।
- ❖ मातृभाषा एवं राष्ट्रभाषा के रूप में हिन्दी की स्थिति से अवगत कराना।

विषय वस्तु :

इकाई : प्रथम – भाषा के विविध स्वरूप एवं सामान्य अवबोध

(अ) मातृभाषा, राष्ट्रभाषा के रूप में हिन्दी शिक्षण की स्थिति

(ब) मातृभाषा शिक्षण के उद्देश्य एवं सिद्धान्त

(स) हिन्दी शिक्षण में पुस्तकालय एवं वाचनालय का महत्त्व

(द) पाठ्यपुस्तक का अर्थ, परिभाषा, अच्छी पाठ्यपुस्तक के गुण–दोष

इकाई : द्वितीय – भाषा का वैज्ञानिक स्वरूप तथा भाषा कौशलों के विकास हेतु निम्नांकित पक्षों के स्वरूप का शिक्षण

(अ) वर्ण विचार, शब्द विचार, वाक्य विचार

(ब) श्रवण, उच्चारण एवं वर्तनी

(स) वाचन (सस्वर एवं मौन वाचन),

(द) अभिव्यक्ति (लिखित एवं मौखिक)

इकाई : तृतीय – हिन्दी शिक्षण में विभिन्न विधाओं का शिक्षण एवं मूल्यांकन

(अ) गद्य शिक्षण, पद्य शिक्षण, व्याकरण शिक्षण

(ब) रचना शिक्षण (पत्र, निबन्ध, कहानी)

(स) विभिन्न विधाओं पर पाठ योजना निर्माण

(द) इकाई योजना एवं नील पत्र निर्माण

(य) मूल्यांकन (सम्प्रत्यय, पाठान्तर्गत एवं पाठोपरान्त मूल्यांकन)

इकाई : चतुर्थ – हिन्दी शिक्षण की विभिन्न विधियों का अध्ययन

(अ) अभिक्रमित अनुदेशन विधि

(ब) आगमन–निगमन विधि

(स) दल शिक्षण
(द) हरबर्टीय पद्धति
(य) प्रायोजना विधि
(र) पर्यवेक्षित तथा निर्देशित स्वाध्याय विधि

सत्रीय कार्य – (किसी दो विषय पर)

- भाषा शिक्षण सम्बन्धी समस्याओं का चयन तथा उसके समाधान का उपाय खोजना।
- हिन्दी शिक्षण में सत्रीय प्रपत्र अथवा प्रश्न पत्र हल करना।
- माध्यमिक स्तर की पाठ्यपुस्तक अथवा किन्ही दो विशिष्ट लेखों की समीक्षा करना
- किन्हीं पाँच विद्यार्थियों की लेखन सम्बन्धी अशुद्धियों का निदान एवं उपचार (कक्षा 8 से 10वी)।
- हिन्दी विषय की किसी भी विधा पर पी.पी.टी. पर पाठयोजना तैयार करवाना।

Learning Outcomes:

- ❖ भाषा संरचना में हिन्दी भाषा तत्त्वों का ज्ञान प्राप्त कर सकेंगे।
- ❖ श्रवण, भाषण, वाचन एवं लेखन सम्बन्धी भाषायी कौशलों का प्राप्त कर सकेंगे।
- ❖ माध्यमिक स्तर के निर्धारित पाठयक्रम एवं पाठ्यपुस्तक का विश्लेषण समीक्षा एवं कुशलता का विकास कर सकेंगे।
- ❖ इकाई, दैनिक व सूक्ष्म पाठ योजनाओं के महत्त्व से अवगत कराना व निर्माण का ज्ञान प्राप्त कर सकेंगे।
- ❖ हिन्दी भाषा के वैज्ञानिक स्वरूपों और कौशलों का ज्ञान प्राप्त कर सकेंगे।
- ❖ हिन्दी भाषा की विभिन्न विधाओं एवं उनके व्यावहारिक शिक्षण पाठ योजनाओं का ज्ञान प्राप्त कर सकेंगे।
- ❖ प्रश्न पत्र के निर्माण का ज्ञान प्राप्त कर सकेंगे।
- ❖ निदानात्मक एवं उपचारात्मक परीक्षण स्वरूप, महत्त्व एवं उपयोग का ज्ञान प्राप्त कर सकेंगे।
- ❖ मातृभाषा एवं राष्ट्रभाषा के रूप में हिन्दी की स्थिति से अवगत हो सकेंगे।

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Semester II

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED 205	English	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To know about various basics of grammer.
- To explain the place of English language in India.
- To describe English as a Second language in the multi -lingual country like India.
- To explain different methods of teaching English.
- To develop the lesson and its planning.
- To apply different teaching skills in the class room.

Course contents:

Unit- I Basic English Grammar & it's Application

a) Parts of speech
b) sentence pattern, Types
c) Tense and verb patterns
d) Preposition
e) Voice change

Unit - II Place, importance and objectives of English as a second language:-

a) Importance of English language: comprehension of English and mother tongue based learning.
b) Position of English: Pre & post Independence in India.
c) Status of English in Indian school curriculum
   - Second language
   - First language
d) English language teaching: problems & issues
   - Library language
   - Window on the world
   - Medium of instruction
e) Aims and objectives teaching English at different levels.

Unit- III Methods, Approaches and Strategies and Lesson Planning:

a) Grammar-cum-Translation method
b) Direct method , Audio- lingual and Bilingual method
c) Structural approach and Communicative approach
d) Collaborative learning and Dramatization.
e) Unit plan and Micro plan,Lesson planning ,Blue print and Achievement test

Unit- IV Developing Language skill and Lesson Planning

a) Teaching Prose, Poetry, Story and Grammar.
b) Strategies of Teaching Skill: Listening, Reading, Speaking and Writing.
c) Supplementary skills: Reference Skill (e.g. using Dictionaries, Thesaurus, and Encyclopedias)
d) Concept Mapping

Assignment & Practical Works: (Any Two)

- List of structural items included in the text book at the secondary stage.
- Preparation of 5 word cards, 5 Picture cards and 5 puzzles.

- Enlist 50 innovative words with lexical interpretation.
- Prepare an audio/video recording for English Pronunciation

Learning Outcomes: After completion of this course students would able to:

- ❖ Know about various basic application of grammar
- ❖ Explain the place of English language in India.
- ❖ Describe English as a Second language in the multi -lingual country like India.
- ❖ Explain different methods of teaching English.
- ❖ Apply different teaching skills in the class room.
- ❖ Lesson plan, micro lesson plan, TLM (Teaching Learning Materials) for teaching English as a second Language.

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 206	Sanskrit	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ माध्यमिक स्तर के शिक्षकों में संस्कृत भाषा संबंधी व्याकरण की जानकारी एवं उनके प्रयोग की दक्षता का विकास करना।
- ❖ तृतीय भाषा शिक्षण के आधारभूत सिद्वान्तों का विकास करना।
- ❖ संस्कृत शिक्षण के उद्देश्यों का निर्धारण एवं व्यावहारिक परिवर्तन हेतु प्रयास करना।
- ❖ संस्कृत भाषा के विभिन्न कौशलों का पृथ्क एवं समन्वित शिक्षण का विकास करना।
- ❖ विभिन्न विधाओं के सफल अध्यापन हेतु विभिन्न विधियों का प्रयोग करना।
- ❖ संस्कृत भाषा शिक्षण में दृश्य–श्रव्य साम्रगी का निर्माण एवं शिक्षण में प्रयोग करना।
- ❖ संस्कृत शिक्षण के मूल्यांकन हेतु प्रश्नपत्र निर्माण करना एवं कौशलाधारित परीक्षण करना।
- ❖ संस्कृत भाषायी दक्षता में होने वाली अशुद्धियों का कौशलानुसार निदान करना।

विषय वस्तु :

इकाई – प्रथम –संस्कृत शिक्षण के सिद्धान्त, कौशल व उद्देश्य

(अ) संस्कृत भाषा शिक्षण का महत्त्व एवं उपयोगिता

(ब) संस्कृत शिक्षण के सिद्धान्त एवं सूत्र

(स) संस्कृत शिक्षण के उद्देश्य एवं अपेक्षित व्यवहारगत परिवर्तन

(द) भाषायी कौशल शिक्षण – श्रवण, कथन, पठन एवं लेखन

(य) संस्कृत शिक्षण में दृश्य–श्रव्य सामग्री

इकाई – द्वितीय – व्याकरण का सामान्य ज्ञान

(अ) शब्द रूप – अकारान्त, इकारान्त, उकारान्त

(ब) धातु रूप – भू, पठ्, हस्, पा, गम्, सेव्, कथ्, लभ् (लट्, लोट्, लङ्., लृट, विधिलिङ्. लकारों में)

(स) संधि –

- अच् सन्धि – इकोयणचि, एचोऽयवायाव :, अकः सवर्णे दीर्घः, आदगुणः वृद्धिरेचि
- हल् सन्धि – स्तोः श्चुनॉश्चुः, झलां जशोऽन्ते, यरोऽनुनासिकेऽनुनासिको वा, तोर्लिः
- विसर्ग सन्धि – ससजुषोरूः, हशि च, रो रि, विसर्जनीयस्य सः

(द) समास – अव्ययीभाव समास, तत्पुरूष समास, कर्मधारय समास, द्विगु समास, द्वन्द्व समास, बहुव्रीहि समास, इनका सामान्य परिचय एवं समास विग्रह

इकाई – तृतीय – संस्कृत शिक्षण की विभिन्न विधाओं का अध्ययन एवं पाठयोजनाएँ

(अ) गद्य शिक्षण

(ब) पद्य शिक्षण

(स) व्याकरण शिक्षण

(द) रचना शिक्षण (पत्र, निबन्ध, कहानी)

इकाई – चतुर्थ – संस्कृत शिक्षण की विधियों का अध्ययन एवं मूल्यांकन

(अ) संस्कृत शिक्षण की विधियों का अध्ययन

- प्रत्यक्ष विधि
- संग्रन्थन विधि
- आगमन निगमन विधि
- विश्लेषणात्मक विधि
- अनुवाद विधि/भण्डारकर विधि

(ब) इकाई योजना

(स) ब्लू प्रिंट एवं प्रश्न पत्र निर्माण

सत्रीय कार्य : (किसी दो विषय पर)

- माध्यमिक स्तर की संस्कृत पाठ्यपुस्तक की समीक्षा करना।
- किसी एक वर्ष का प्रश्नपत्र हल करना।
- किसी एक विधा पर शैक्षिक पाठ्यक्रम का आलेखन।
- रचना पाठ के लिए पाँच चित्रों का निर्माण।
- उच्चारण सुधार हेतु पाँच अभ्यास तालिकाओं का निर्माण।
- संग्रन्थन विधि पर पाठयोजना तैयार करना।

Learning Outcomes:

- माध्यमिक स्तर के शिक्षकों में संस्कृत भाषा संबंधी व्याकरण की जानकारी एवं उनके प्रयोग की दक्षता का विकास कर सकेंगे।
- तृतीय भाषा शिक्षण के आधारभूत सिद्वान्तों का विकास कर सकेंगे।
- संस्कृत शिक्षण के उद्देश्यों का निर्धारण एवं व्यावहारिक परिवर्तन हेतु प्रयास कर सकेंगे।
- संस्कृत भाषा के विभिन्न कौशलों का पृथ्क एवं समन्वित शिक्षण का विकास कर सकेंगे।
- विभिन्न विधाओं के सफल अध्यापन हेतु विभिन्न विधियों का प्रयोग कर सकेंगे।
- संस्कृत भाषा शिक्षण में दृश्य–श्रव्य साम्रगी का निर्माण एवं शिक्षण में प्रयोग कर सकेंगे।
- संस्कृत शिक्षण के मूल्यांकन हेतु प्रश्नपत्र निर्माण करना एवं कौशलाधारित परीक्षण कर सकेंगे।
- संस्कृत भाषायी दक्षता में होने वाली अशुद्धियों का कौशलानुसार निदान कर सकेंगे।

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 207	History	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand the aim and objectives of teaching history at different levels of the secondary stage.
- To apply different approch to organize history
- To understand the types of evaluation of teaching history
- To develop classroom skills to apply different methods and approaches of teaching history at the secondary stage.
- To develop the skill to plan for instruction and the instructional support materials.
- To develop the skill related to diagnostic testing and remedial teaching.

Course Contents:

Unit- I Meaning, Nature and Curriculum of Teaching History

a) Concept and Objective of Teaching History of the Secondary Stage.
b) Correlation of History with other school subject.
c) Principle of Curriculum Teaching History.
d) Different Approach to Organizing History Curriculum, Chronological , Biographical, Topical , Concentric.

Unit- II Methods and planning in Teaching History

a) Lesson plan and Unit plan
b) Story Telling, Biographical, Source, Time-line, Supervised, and Project Method
c) History Teacher-professional growth in change's
d) Teaching Aids- meaning, Type's and importance

Unit- III Evaluation of Teaching History

a) Concept of Evaluation
b) Purpose of Evaluation in Teaching History
c) Types of Evaluation (Essay Types, short Answer Types and Objective Types)
d) Blue-Print & Construction of Achievement Test in History

Unit- IV Innovative Methods in Teaching History

a) Programmed instruction method.
b) Team-Teaching
c) Panel discussion
d) Field trip

Assignment & Practical Works: (Any Two)

- Historical study of a place of Local Important
- An Essay on any current Issue
- Critical Appraisal of any of the History Text books Prescribed for the Secondary level
- Preparing a Scrap-book on Any one aspect of History and Culture
- Report writing of a freedom fighter/Social work and the Historical Personality of 20th Century at your locality based on interview
- One Assignment Workon any topic related with above Unit.

Learning Outcomes: After completion of this course students would able to:

- Understand the nature, scope and importance of learning history at secondary.
- Explain aim and objectives of teaching history at different levels of the secondary stage.
- Develop knowledge about the basic principles governing the construction of history curriculum and develop the ability history curriculum
- Organize Co-curricular activities and community resources for promoting history learning.
- Develop classroom skills needs for applying different methods and approaches of teaching history at the secondary stage.
- Understand the skill to plan for instruction and the instructional support , materials.
- Develop the skill needed for diagnostic testing and remedial teaching.

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 208	Civics	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To explain the role of civics to promote International Understanding.
- To understand Planning-Annual Plan, Unit Plan, & Daily Lesson Plan.
- To prepare different methods of teaching civics.
- To apply various Fndamental Principal of Formulation Curriculum in Civics
- To develop competencies related toteaching of civics.

Course Contents:

Unit- I Theoritical Perspective of Civics Teaching

a) Meaning & Development of Civics.
b) Nature, Scope & Developing Critical Thinking about Civics.
c) Role of Civics in Promoting International Understanding.
d) Aims & Objectives of Civics Teaching at Different Levels - Primary, Upper Primary. Secondary & High Secondary.

Unit- II Planning of teaching & Evaluation

a) Planning-annual Plan, Unit Plan, & Daily Lesson Plan.
b) Audio Visual Aids.
c) Inovation
d) Evaluation (different types of test, setting, question paper, blue print, scoring key).

Unit- III Methods of teaching Civics

a) Lecture Method
b) Project Method
c) Problem Solving Method
d) Programme Learning
e) Team Teaching
f) Discussion Method, Demonstration

Unit- IV Curriculum Planning & Activities

a) Selection & Organization Content at Various Levels
b) Fundamental Principal of Formulation Curriculum in Civics
c) Charactristics of a good Text Book
d) Planning a Civics Studies Room

Assignment & Practical Works: (Any Two)

- Write an essay on any political problem.
- One Assignment Worksolve.
- A critical study of Any one aspect of the constitution or one of its amendments.
- Make five different teaching materials using different type of teaching aids.
- Make charts on fundamental rights & duties.
- Prepare a scrap book on any political issue

Learning Outcomes: After completion of this course students would able to:

- Understand the role of civics.
- Understand the Planning of teaching & Evaluation.
- Prepare Fundamental Principal of Formulation Curriculum.
- Develop competencies in teaching of civics.

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 209	Social Science	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To enable the students to understand the meaning of social science and correlate with modern social science .
- To understand the different approaches and organizing Social Science
- To prepare students for panel discussion , seminar and workshop
- To enable the student – teacher to critically examine the social science syllabus and text books.
- To develop the classroom skills and use of techniques for teaching of social science.
- To develop the ability to organize co-curricular activities and utilize community resources for promoting social science learning.

Course Contents:

Unit -I Meaning nature and scope of social science

a) Historical Development of Social Science
b) Modern Concept, Nature and Scope of Social Science
c) Importance of Teaching Social Science at Different Levels of Secondary
d) Correlation of Social Science with Other School Subject
e) Aims and Objectives of Teaching Social Science at Different Level

Unit -II Social Science Curriculum Principles of Designing a Good Curriculum and Planning in Social Science Teaching

a) Different Approaches to Organizing Social Science
   - Chronological
   - Biographical
   - Concentric
b) Characteristics of Good Text Book
c) Planning a Social science Room
d) Social Studies Teacher – Quality, Functions and Professional Growth of Social Science Teacher
e) Planning for Teacher of Social science
   - Annual plan
   - Unit plan
   - Lesson plan

Unit - III Methods of Teaching Social Science

a) Story telling, Biographical, Socialized Recitation, Source method, Problem solving Method, Project method.
b) Team Teaching
c) Panel Discussion , Seminar and Workshop
d) Field Trips
e) Programmed Instruction

Unit - IV Use of Instruction Material and Evaluation in the Social Science

a) Audio- Visual Equipment :- Use of Slide Projector OHP, Epidiascope, Television and Computer.

b) Teaching Aids of Various kinds, their Effective Use in Class Room (Models, Black-board, Map, Graphs, Time Chart , Films, Coins and Puppet .

c) Concept, Importance and Purpose of Evaluation in Social Studies.

d) Construction of Blue Print and Achievement Test in Social Science

Assignment & Practical Works: (Any Two)

- Studying historical monuments available locally and writing report on it
- Prepare a scrape book on any social issue
- Studying any social problem and write a report of the same
- Two abstracts of articles published in news papers journal on currents social issues
- Assignment Workany two topic
- Prepare a lesson plan using local/ community resources as teaching aids (fair, festival ,person, place etc.)
- Construction , administration and interpretation an achievement test of any ;standard of school
- Make 2 different teaching materials using different type of teaching (e.i. Charts, at as model & power point etc) at school social science subject
- Write film script

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand the need for learning social science .
- ❖ Understand the place of social science in the secondary school curriculum.
- ❖ Develop the skills in student – teachers to select and apply appropriate methods and evaluate social science.
- ❖ Critically examine the social science syllabus and text books.
- ❖ Develop the classroom skills needed for teaching of social science.
- ❖ Develop the ability to organize co-curriculum activity and utilize community resources for promoting social science learning.
- ❖ Acquire the ability to develop instructional support materials.
- ❖ Review the text –book of social science (secondary level).

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 210	Economics	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To help the students to acquire the basic understanding in the field of Economics.
- To enable the student teachers to understand the aims and objectives of teaching Economics at the secondary school stage.
- To develop the ability, to evaluate the present curriculum in Economics at the secondary level.
- To develop the ability to organize group activities and projects in the subject.
- To develop the ability to use of various methods of teaching Economics.
- To enable the student to acquire necessary skills for the use and preparation of teaching aids and instructional material in Economics.
- To develop in the students appropriate attitudes towards the country's Economy.
- To develop in the student an adequate sense of awareness about Economic issues of the country and an out-look of problem solving through analysis and application of the theory of Economics.
- To develop competence in framing objective based achievement and diagnostic test, their administration and their scoring and drawing conclusions there of. 10.To develop in the students an ability to conduct various surveys in Economics and organize field trips.
- To enable the student-teachers to prepare unit plan, lesson plan and related teaching learning strategies.
- To enable the student teachers to review the text book of Economics.

Course Contents:

UNIT-I Concept of Economics

a) The Place of Economics in School Curriculum.
b) Aims and Objectives of Teaching Economics at the Secondary Level
c) Instructional Objectives, Behavioural Objectives, Measurable and Non-measurable Objectives, Behavioural Statements of Objectives for Various Learning Points and Lessons.

UNIT-II Principle of Curriculum Planning

a) Principles and Approaches to Framing Syllabus and its Critical Appraisal at Secondary Level.
b) Curriculum Planning and Activities.
c) Evaluation of Text-books in Economics at the School Level:
   - Criteria of Good Text-book
   - Assignments, Exercises, Glossary and Summary in the Text
d) Maxims and Principles of Class-room Teaching.
e) Class-room Observation.

UNIT-III Planning and Methods of Teaching Economics

a) Lecture Method.
b) Project and Problem Solving Method.
c) Discussion Method.
d) Inductive and Deductive Method.
e) Unit and Daily Lesson Plannings
f) Teacher's Role and Attitude

UNIT-IV Instruction Material and Evaluation in Economics

a) Black-board, Maps. Graphs, Slides & Transparency, Audio-visual Aids, Slide Projector, Overhead Projector, LCD etc.
b) Importance and Concept of Evaluations,
c) Evaluation Devices- Essay type. Short answer Type and Objectives Type Test.
d) Blu Print
e) Preparation, Administration and Scoring of Unit Test.

Assignment & Practical Works: (Any Two)

- Preparation of two teaching aids related to subject. (PPT Transparency)
- Review of two published papers related to subject.
- Review of a text-book at school level.

Learning Outcomes: After completion of this course students would able to:

- ❖ Explain the basic of Economics.
- ❖ Understand the aims and objectives of teaching Economics at the secondary school stage.
- ❖ Develop the ability, to evaluate the present curriculum in Economics at the secondary level.
- ❖ Organize group activities and projects in the subject.
- ❖ Use of various methods of teaching Economics.
- ❖ Acquire necessary skills for the use and preparation of teaching aids and instructional material in Economics.
- ❖ Appropriate attitudes towards the country's Economy.
- ❖ Adequate sense of awareness about Economic issues of the country and an out-look of problem solving through analysis and application of the theory of Economics.
- ❖ Framing objective based achievement and diagnostic test, their administration and their scoring and drawing conclusions there of.
- ❖ Prepare unit plan, lesson plan and related teaching learning strategies.
- ❖ Review the text book of Economics.

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 211	Geography	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand the modern concept of Geography.
- To prepare yearly plan, unit plan, lesson plan for different classes.
- To prepare maps and charts to illustrate the content of different classes and use them effectively.
- To critically evaluate the existing school syllabus and review the text book of Geography.
- To apply appropriate method and techniques of teaching to particular topics at different levels.
- To arrange field trips and local surveys.

Course Contents:

Unit- I Concept and Objectives

a) Development of Geography, Modern concept and new trends of Geography.
   - Its place in schools curriculum.
   - Its importance in day to day life and International understanding

b) Correlation of Geography with other school subjects.

c) Teaching objectives of Geography at different levels- Primary, Upper Primary secondary and Higher Secondary.

UNIT- II Curriculum planning in Geography

a) Principles of curriculum construction in Geography and its critical appraisal

b) Basic Principles for selection and organization of content according to learners level.

c) Co-curricular activities in Geography, study of home region, Organization of field trips and excursion, Geography museum and library.

d) Evaluation of text book in Geography.

U**NIT- III Methods, Planning for teaching and role of teacher**

a) Annual plan,

b) Unit plan ethods,

c) Daily lesson plan

d) Story telling, Regional Method, Demonstration method, laboratory, inductive and Deductive method. Descriptive and Comparative method (Problem Solving, project and Supervised study method). Approaches- Field trips, visit labs, use of local resources in teaching of Geography.

e) Qualities, Role and professional growth of Geography teacher

UNIT-IV Use of Instructional Material and Evaluation inGeography

a) Audio-Visual Equipment:- use of Slide Projector, OHP, Epidiascope, Television and computer in Geography

b) Teaching aids of Various kinds. Their effective use in class room (Models maps, pictures, sketches, diagrams, film, film strips. Atlas, Slides transparencies etc., Geography room/laboratory. Importance of lab work, equipment and apparatus.

c) Evaluation of achievements in Geography.

d) Construction of achievement test.
   - Different types of tests, their merits and limitations, (Essay type. short, answer and objective type.)
   - Blue- Print, preparation of question paper and item analysis.

Assignment & Practical Works: (Any Two)

- Prepare a scrap book on Geographical articles and news.
- Preparation of maps, charts and models for physical Geography
- Develop some lesson plan based on new methods and approaches.
- Write one or two article or abstract related to the current issues of Geography
- Critical appraisal of geography syllabus at secondary level.
- Construction of objective type test items.
- Collection of news paper cuttings related to Geographical issues.
- Prepare a bibliography of reference books on the topics prescribed in Geography syllabus.
- Practical demonstration of the ability to use some weather instruments.
- Prepare a report on visit to some place of Geographical interest.

Learning Outcomes: After completion of this course students would able to:

- Understand the modern concept of Geography and its correlation with other school subjects.
- Explain co-curriculam activities in geography.
- Prepare various teaching plances.
- Exlain different teaching aids.

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 212	Home Science	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand the Concept, Nature and Scope of Home science.
- To provide knowledge related to pedagogical concept like aims, objectives, approaches, methods, blue print and assessment.
- To stimulate curiosity and creativity for application of different methods according to learning situations.
- To develop attitude towards skill development, application of new trends and use of information technology to enhance productivity of teaching.

Course Contents:

Unit- I Theoritical Perspective of Home Science

a) Concept, Nature and Scope of Home science
b) Correlation of Home science with other school subjects in context of resolving problems related to family and community
c) Vocational skill Development through Home science teaching
d) Aims and objectives of Home science teaching

Unit- II Planning, Curriculum & Evaluation

- Planning : Concept, Types and Significance
- Criteria of Curriculum Development : Individualized, Interdisciplinary and Special issue oriented
- E- resources in Home science : Fashion blog, Nutritional remedies, Blogs, Specific institute related to textile, designing & health
- Co- curricular activities : Group Discussion, Exhibition, Excursion etc
- Blue print construction, Continuous & Comprehensive Evaluation in Home science

Unit- III Approaches and methods : Concept, Process, Scope and limitations :

a) Constructivist approach
b) Problem solving method
c) Project method
d) Experimental method
e) Dalton method and Dramatization

Unit- IV Measurement and Evaluation

a) Concept of Measurement and Evaluation
b) Criteria of good Evaluation
c) Preparation of Blue Print
d) Dignostic test and Remedial learning material
e) Continuous and Comprehensive Evaluation

Assignment & Practical Works: (Any Two)

- Prepare a survey report for vocational skill development through Home science at college level
- Experimental works in food/clothing/textiles/household gadgets in context of teaching and learning
- Visit to Health centre/ Community service centre/ schools/ colleges/ NGO and prepare a file with report
- Construct a project related to recent problem in local area

- Develop a diagnostic test for students and plan remedial works for them
- Prepare two lesson plan based on Constructivist/ experimental approach for students

Learning Outcomes: After completion of this course students would able to:

- ❖ Organize co- curricular activities like Group Discussion, Exhibition, Excursion etc. at school level.
- ❖ Stimulate curiosity and creativity for application of different methods according to learning situations.
- ❖ Develop attitude towards skill development, application of new trends and use of information technology to enhance productivity of teaching.

Analyze school syllabus of the subject in relation to its applicability in local situations

References:

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 213	Chemistry	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To develop a broad understanding of the principles and procedures used in moden science specially in chemistry.
- To develop essential skill for practicising modern science education.
- To understand aims and objectives of chemistry.
- To gain ability for critically evaluate the existing syllabus of science.
- To prepare achievement test and diagnostic test.
- To enable him to organize co-curricular activities related to science.
- To appreciate the contribution of world scientist in connection with historical development of chemistry.

Course Contents:

UNIT-I Nature and Scope

a) Nature of Science and Chemistry, Importance of Chemistry in Daily Life, Correlation of Chemistry with Other Subjects
b) Values of Teaching Chemistry
c) Scientific Attitude, Scientific Literacy
d) Eminent World Scientist in the Area of Chemistry Like Dalton, Einstein, Neil Borh, Rutherford, Marry Quarry.
e) Globalisation and Chemistry

UNIT-II Curriculum planning and activities

a) Place of Chemistry in School Curriculum, Principles of Developing Chemistry Curriculum
b) Modern Trends in Chemistry Curriculum, Reading Material - Text Book, Journal, Handbook, Science Library
c) Critical Appraisal of Syllabus of Science with Reference to Chemistry Prescribed by State Board of Secondary Education

UNIT-III Methods and approaches of teaching

a) Lecture cum Demonstration Method (Inductive and deductive method), Project Method, Scientific Method, Heuristic Method
b) Panel Discussion. Seminars and Workshop Laboratory Method.
c) Teaching aid-Bulletin Board, Flannel Board, Filmstrips, Transparency, OHP, Direct Projector LCD Panel, Non-formal Approaches- field trips
d) Laboratory- Lay out Plans, Equipments, Furniture, Maintenance of Records, Repair, Care and Improvisation of Apparatus, Safetymeasures in Laboratory

UNIT-IV

a) Planning for Teaching and Role of Teachers. Annual Plan, Content analysis, Pedogogical Analysis

b) Inquiry Model of Teaching Lesson Plan and Level Plan Piagian and Brunerian Approach- Behaviourist Contribution

c) Evaluation - Criteria of good Evaluation Concept of Evaluation, Types of Test Items : Objective, Short Answer, Essay Type, their Merits and Demerits, Blue Print for a Unit Test

d) Achievement and Diagnostic Test

Assignment & Practical Works: (Any Two)

- Make a list of practicals related to secondary science curriculum
- Essay related to any topic of the paper
- Make a list of local resources useful in teaching chemistry to the students of vv Secondary class
- Make a visit any senior secondary science laboratory of a school and prepare a report.
- Make a presentation based on any above topic.

Learning Outcomes: After completion of this course students would able to:

- ❖ Understanding Importance of Chemistry and correlate it with other subjects
- ❖ Acquient with the Modern Trends in Chemistry.
- ❖ Gain ability for critically evaluate the existing syllabus of science.
- ❖ Prepare achievement test and diagnostic test.
- ❖ Oorganize co-curricular activities related to science.

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 214	Physics	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To appreciate the contribution of eminent physicist in connection with the development of the subject.
- To familiar with the aims and objective of the subject in relation to the present need of the society and educational policies of India.
- To plan curriculum at the secondary and senior secondary level and analyze the syllabus of the subject in relation to its applicability to practical situation.
- To develop scientific attitude and provide training in scientific method to their student.
- To write objectives in behavioural term content analysis and content mapping .
- To develop yearly plan, unit plan and lesson plan.
- To plan, equip and organize physics practical in the laboratory.
- To use various methods with appropriateness of content, level and classroom situation.
- To prepare test paper for theory and practical work.

Course Contents:

Unit- I Nature Scope & Curriculum

a) Nature of science and physics, major milestones in the development of physics
b) Aims, objectives and values of teaching physics at secondary and senior secondary level
c) Concept of curriculum place of physics in secondary/sr. secondary level curriculum, selection and organization of content and experience
d) Correlation of physics with other school subjects and its role in daily life
e) Critical appraisal of the prescribed syllabus of physics (at senior secondary, secondary level of Rajasthan and CBSE board)

Unit- II Planning for Instruction and Role of Teachers

a) Writing of objectives in behavioural terms, content analysis.
b) Developing yearly, unit and daily lesson plan.
c) Teachers role in training students in scientific method and in development of scientific attitude.
d) Qualities, responsibilities and professional growth of physics teacher.
e) Creativity among students.

Unit- III Methods and Approaches of Teaching Physics

a) Demonstration method, Heuristic method, Inductive-Deductive method.
b) Laboratory method, Project method, problem solving method, assignment method.
c) Multi sensory aids in teaching of physics like chart, model modern electronic resources like; LCD projector, OHP and ICT
d) Co-curricular activities like science club, science fairs and field trip.
e) Role of state and national level institutes and laboratories(DST, ISRO, solar observatories etc.) in promoting science education.

Unit- IV Evaluation

a) Types of test items.
b) Construction of various test items.
c) Preparation of blue print and achievement test.
d) Diagnosis and remedial teaching in physics, enrichment material.
e) Evaluation and practical work in physics.

Assignment & Practical Works: (Any Two)

- Planning of an out of class activity to use local environment to teach physics.
- Life sketch of any two modern physicists.
- Essay related to a topic prescribed in the paper .
- Case study of Any one senior secondary lab of physics.
- Conducting and reporting three experiments useful at secondary level.
- Description of design of any improvised apparatus.

Learning Outcomes: After completion of this course students would able to:

- ❖ Appreciate the contribution of eminent physicist in connection with the development of the subject.
- ❖ Understand with the aims and objective of the subject in relation to the present need of the society and educational policies of India.
- ❖ Plan curriculum at the secondary and senior secondary level and analyze the syllabus of the subject in relation to its applicability to practical situation.
- ❖ Develop scientific attitude and provide training in scientific method to their student.
- ❖ Write objectives in behavioural term content analysis and content mapping .
- ❖ Develop yearly plan, unit plan and lesson plan.
- ❖ Plan, equip and organize physics practical in the laboratory.
- ❖ Use various methods with appropriateness of content, level and classroom situation.

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Semester II

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED 215	Mathematics	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand and appreciate the uses and significance of Mathematics in daily life
- To learn various approaches of teaching mathamethics and use them judiciously.
- To know the methods of planning instruction for the classroom.
- To prepare curricular activities and organize the mathematics Laboratory.
- To appreciate and organize activities to develop aesthetics of mathematics.
- To give competence in teaching different mathematics topic effectively

Course Contents:

Unit- I Concept meaning and objectives of mathematics.

a) Concept, meaning and nature of mathematics
b) History of mathematics
c) Contribution of Indians and western mathematics.
d) Aims and objectives of teaching mathematics
e) Blooms taxonomy relating to the teaching objectives in mathematics (cognitive Affective, psychomotor domain)

Unit- II Methods and approaches of teaching mathematics.

a) Inductive vs. Deductive
b) Analytical vs. synthesis
c) Heuristic, Project, drill, assignment and supervised study, Laboratory method.
d) Lesson planning, Unit plan and Yearly plan for mathematics teaching.
e) Audio visual teaching aids in mathematics (Chart, Model, OHP, LCD, ICT), Improvising Low cost teaching aids in mathematics.

Unit- III Planning for instruction and curriculum.

a) Curriculum development principle for the secondary and senior secondary level.
b) Teaching of Arithmetic, algebra and Geometry
c) Text book in mathematics, Quality of good book in mathematics.
d) Critically evaluation of existing mathematics syllabus prescribed by Rajasthan Board of Secondary Education and C.B.S.E. at different levels.
e) Using mathematics as a game for recreation, organizing Quiz programmes, magic square, answering puzzle and reasoning.

Unit- IV Evaluation in teaching mathematics:

a) Academic testing – objective vs. subjective type test.
b) Diagnostic evaluation in mathematics.
c) Preparation of blue print and achievement test.
d) Preparations of standardized vs. teacher made test in mathematics.
e) Process of obtaining feedback and evaluation in mathematics in term of teaching objectives.

Assignment & Practical Works: (Any Two)

- Preparation of detailed plan about development of mathematics laboratory or mathematics club.

- Life sketch of any two Mathematicians.
- Essay related to a topic prescribed in above paper.
- Prepare a case study of slow learner in mathematics or gifted child in mathematics.
- Observation of mathematics classroom teaching in any secondary school and then prepare a diagnostic and remedial teaching plan.

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand and appreciate the uses and Significance of Mathematics in daily life
- ❖ Use various approaches of teaching mathamethics and use them judiciously.
- ❖ Understand the methods of planning instruction for the classroom.
- ❖ Prepare curricular activities and organize the mathematics Laboratory.
- ❖ Appreciate and organize activities to develop aesthetics of mathematics.
- ❖ Give competence in teaching different mathematics topic effectively

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 216	General Science	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To develop the knowledge about science and its nature.
- To acquire the knowledge about contribution of eminent Indian scientists.
- To aware about the aims, objectives and construction of curriculum.
- To develop understanding aout co-curricular activities, methods of teaching and preparation of test paper.

Course Contents:

UNIT- I Concept and Nature of General Science

a) Science : concept, nature and scope
b) Correlation of science with other subjects
c) General Science and its importance in school curriculum.
d) Inquring influence of science on man and environment.
e) Scientist and their professional achivement.

UNIT- II Aims Objectives and Curriculum

a) Writing aims and objectives in behavioural term.
b) Developing yearly, unit and daily lesson plan.
c) Principle of curriculum construction in General Science.
d) Teachers role in training students in scientific method and scientific attitude.
e) Professional growth of General Science teacher.

UNIT-III Methods of Teaching General Science

a) Lecture method, Demonstration method
b) Inductive-deductive method
c) Project method, problem solving method
d) Laboratory method, Assignment method
e) Heuristic method

UNIT- IV Activities and Evaluation

a) Science laboratory
b) Teaching aids in General science- OHP, LCD Projector , Television.
c) Co curricular activities, Science club, Science fair
d) Evaluation : concept and importance
e) Preparation of blue print and test paper construction.

Assignment & Practical Works: (Any Two)

- Make a list of practicals related to secondary science curriculum.
- Essay related to one topic prescribe in the paper.
- Preparation of a comprehensive field trip to plan for a group of twenty students.
- Make a list of local resources useful in teaching general science to the students.
- Make a visit at any senior secondary science laboratory of a school and prepare a report.
- Conducting and reporting three experiments useful at secondary level.
- Make a presentation based on any above topic.

Learning Outcomes: After completion of this course students would able to:

- ❖ Contribution of eminent Indian scientists in connection with the development of the subject.
- ❖ Familiar with the aims and objectives of the subject in relation to present needs of the society and education policies in India.
- ❖ Plan curriculum at secondary and senior secondary level and analyze the syllabus of the subject in relation to its applicability to practical situations.
- ❖ Identify proper methodology to deal with the content which is to be handled by him as teacher in secondary and higher level.
- ❖ Develop a broad understanding of the principles and procedures used in modern science education.
- ❖ Prepare test paper for evaluation.

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 217	Biology	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To acquire the knowledge of nature and scopes of Biology.
- To develop understanding the principles of curriculum, planning and E-resources in Biology.
- To develop awareness about various approches and innovative methods of Biological science for effective teaching learning process.
- To develop knowledge of multisensory teaching aids to enhance students engagement and activity based learning.
- To aware about construction of blue print, dignostic test and remedial self learning material and conduct CCE procedure.

Course Contents:

Unit- I Theoritacl Perspective of Biology

a) Meaning , Nature and Scope of Biological science and its branches
b) Historical Dvelopment of Biological science
c) Development of values through Biology teaching
d) Science as a domain of enquiry, dynamic body of knowledge and as a process of constructing knowledge
e) Developing and significance of Scientific Temper through activities
f) Aims and Objectives of Biological teaching
g) Writing Objectives in Behavioral terms and Content analysis

Unit- II Curriculum and Planning

a) Concept and principles of curriculum
b) Models and approaches related to curriculum organization
c) Recent curriculum innovations in context of National Curriculum Framework (NCF)
d) Planning : Concept, Types and Importance
e) Co- Curricular activities- Excursion, Science fair, Science club
f) E-resources in Biology : Biology blog, E-learning, Useful links and websites etc.

Unit- III Methods and Approaches

a) Herbertian & Constructivist approach (Five 'E' model)
b) Co- operative learning approach
c) Inquiry training model & its application
d) Problem solving approach
e) Inductive and Deductive methods
f) Multisensory Teaching aids- Low cost models, L.C.D. Projector, Poster making, Concept map etc.

Unit- IV Measurement and Evaluation

a) Concept of Measurement and Evaluation
b) Criteria of good Evaluation
c) Preparation of Blue Print
d) Dignostic test and Remedial lerning material
e) Continuous and Comprehensive Evaluation in biology

Assignment & Practical Works: (Any Two)

- Construct, administer and interpret an achievement/diagnostic test and resolving related problems through remedial measure too
- Prepare the Concept map related to school level teaching and demonstrate them to learndifferent contents in classroom
- Prepare the report on environmental problems in local area and resolving issues through scientific project.
- Poster Presentation/ Drama on various issues related to community awareness about biodiversity/ environmental problems/ waste management.
- Organization of exploratory activities to develop scientific attitude and temper

Learning Outcomes: After completion of this course students would able to:

- ❖ Acquire the knowledge of nature and scopes of Biology.
- ❖ Understand the principles of curriculum, planning and E-resources in Biology.
- ❖ Know and apply the various approches and innovative methods of Biological science for effective teaching learning process.
- ❖ Apply knowledge of multisensory teaching aids to enhance students engagement and activity based learning.
- ❖ Construct blue print, dignostic test and remedial self learning material and conduct CCE procedure.

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 218	Commercial Practice	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To acquire the basic understanding in the field of commerce education.
- To develop the ability to plan curriculum and instructions in commerce at school level.
- To develop the ability to critically evaluate existing school syllabus and text book.
- To impart knowledge about the methods and devices of teaching commerce and to develop the skill of using the same.
- To dvelop the ability of preparing an achievement test.
- To develop commercial efficiency among students.

Course Contents:

Unit - I Concept of teaching commerce

a) Meaning, nature and scope of commerce education.
b) Aims, objectives and values of teaching commerce at senior secondary level.
c) The place of commerce in education.
d) Qualities of commerce teacher , role and professional growth.

Unit - II Planning of Teaching Commerce

a) Unit plan and daily lesson plan.
b) Maxims of teaching.
c) Devices of teaching commerce.
d) Classroom observation

Unit -III Methodology of Teaching Commerce

Modern Methods of Teaching Commerce :

- Analytic & Synthetic method
- Socialised Recititation Method
- Team teaching
- Programmed instruction method
- Project Method

Unit - IV Instructions Material and Evaluation in Commerce Education

a) Importance of teaching aids for effective instruction commerce education.
b) Different audio-visual equipment and material used commerce education.
c) Evaluation in commerce importance, type of tests essay, short answer and objective type.
d) Blue print.
e) Construction of Achievement Test.

Assignment & Practical Works: (Any Two)

- Content Related subject topic
- Preparation any two teaching aids (Model, P.P.T.,

Learning Outcomes: After completion of this course students would able to:

- ❖ Acquire the basic understanding in the field of commerce education.
- ❖ Develop the ability to plan curriculum and instructions in commerce at school level.
- ❖ Develop the ability to critically evaluate existing school syllabus and text book.
- ❖ Apply impart knowledge about the methods and devices of teaching commerce and to develop the skill of using the same.
- ❖ Prepare an achievement test.
- ❖ Usw commercial efficiency among students.

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Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 219	Book-keeping	Pedagogy of a school subject Any two **CE**	**4**	**30**	**70**	**100**

Objectives:

- To acquire the basic understanding of teaching of Book–keeping and Accountancy.
- To develop the ability to plan curriculum and instruction in Book-keeping and Accountancy.
- To develop the ability to critically evaluate the existing school curriculum of Book–Keeping.
- To impart knowledge of the methods and devices of teaching Book–keeping and to develop the skill of using the same.
- To give information about appropriate methods and devices of teaching particular topics for book–keeping.
- To develop necessary skill in preparation of using various teaching aids.

Course Contents:

Unit- I Meaning and scope of Book–keeping and Accountancy

a) Meaning and scope of book–Keeping and Accountancy. it's value and Importance in Social Life.
b) Aims and objectives of teaching Book-keeping and accountancy at senior secondary level.
c) Teachers Role and Attitude.

Unit - II Planning of Teaching Book-keeping and Accountancy

a) Unit plan
b) Lesson plan
c) Annual plan
d) Maxims and principle of classroom teaching
e) Classroom observation

Unit- III Teaching Approches and methods of Teaching Book-keeping and Accountancy

a) Teaching Approches of Book-keping and Accoutancy
b) Journal Approch, Ledger Approch
c) Cash book Approch, Equation approch
d) Text book–keeping and accountancy their importance Criteria for selection of text book. Reference book and Journal.
e) Various methods of teaching book-keeping and accountancy – project, problems solving, Lecture-cum-demonstration method, team Teaching Program learning method.

Unit- IV Instruction Material and Evaluation in Book-keeping and Accountancy

a) Audio-visual aids in teaching Book-Keeping and accountancy computer. (tally) Internet
b) Evaluation of students performance
c) Blue Print
d) Construction of Achievement Test

Assignment & Practical Works: (Any Two)

- Content related to subject topic
- Any one subject topic

Learning Outcomes: After completion of this course students would able to:

- Acquire the basic understand of teaching of Book–keeping and Accountancy.
- Develop the ability to plan curriculum and instruction in Book-keeping and Accountancy.
- Critically evaluate the existing school curriculum of Book–Keeping.
- Impart Knowledge of the methods and devices of teaching Book–keeping and to develop the skill of using the same.
- Apply appropriate methods and devices of teaching particular topics for Book – Keeping.
- Prepare achievement and diagnostic Tests.
- Develop necessary skill in preparation of using various teaching aids.

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Semester III

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED301	Post Internship distribution	**CC**	16	160 Intership+120+120=240 Practical (Two Subjects final lesson)		400

Objectives:

- To develop unit plan and lesson plan
- To write objective in behavioural terms
- To observe the lessons of the school teachers.
- To prepare schedule of various activities for studetns.
- To organize different co-curricular activities in the school.
- To prepare blue pring and test paper for different classes.

Post Internship distribution (16 Weeks)

Sr. No.	Contents
1.	Regular Practice Teaching including - Unit Plan and Blue Print (At least Each Subject of 25 lessons)
2.	Observation
3.	**Block Teaching** o School Admission o Time Table o Morning Assembly o Classroom Management o Organization of Various Activities o Physical Activities o Cultural Activities o Literary Activities o Yoga Exercies o Field Trips/Picnic o Counducting of Meeting o Maintenance of Garden/School o Action Research o Preparation of Register o Liberary Management o Other Work of School o Swachhata Abhiyan o S. U. P. W. o Education Tour
4.	Final Lesson (Two teaching subject)

Learning Outcomes: After completion of this course students would able to:

- Develop unit plan and lesson plan
- Write objective in behavioural terms
- Observe the lessons of the school teachers.
- Prepare schedule of various activities for studetns.
- Organize different co-curricular activities in the school.
- Prepare blue pring and test paper for different classes.

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
JVB 301	Critical Understanding of ICT	**FC**	**2**	**15 Practical**	**35**	**50**

Objectives:

- To explain the concept of ICT in education.
- To develop skills in using MS Office applications for education.
- To use internet efficiently to access information and communicate with others.
- To understand the applications of E-learning in education.

Course Contents:

Unit - I MS Office

a) MS- word (Text management)
b) Power Point (Preparation of Slide)
c) Smart Class
d) E - Learning

Unit - II Internet and Multimedia

a) E-mail, Chat
b) Searching, Downloding and Uploding
c) Multimedia and its Education Uses.
d) Mobile Banking

Assignment & Practical Works: (Any Two)

- Prapare one Assignment Workon any topic related to above units.
- Prepare power point presentation on Any one topics related to School content/ B.Ed. Syallbus.

Learning Outcomes: After completion of this course students would able to:

- Explain the concept of ICT in education.
- Develop skills in using MS Office applications for education.
- Use internet efficiently to access information and communicate with others.
- Understand the applications of E-learning in education.

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Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
JVB 302	Yoga and Preksha Meditation	**FC**	**2**	**15 Practical**	**35**	**50**

Objectives:

- ❖ जीवन विज्ञान, प्रेक्षाध्यान एवं योग विद्या की जानकारी प्राप्त कर सकेंगे।
- ❖ संतुलित व्यक्तित्व का निर्माण।
- ❖ विद्यालयस्तरीय ध्यान एवं योग के प्रशिक्षक तैयार करना।

अधिगम की उपलब्धि

- ❖ जीवन विज्ञान, प्रेक्षाध्यान एवं योग विद्या की जानकारी प्राप्त कर सकेंगे।
- ❖ संतुलित व्यक्तित्व का निर्माण।
- ❖ विद्यालयस्तरीय ध्यान एवं योग के प्रशिक्षक तैयार करना।

विषयवस्तु :

इकाई–1 योग के प्रयोग

(अ) योग : अर्थ, परिभाषा, अष्टांग योग की उपयोगिता
(ब) आसन : सूर्यनमस्कार,(अर्थ, प्रक्रिया एवं लाभ) ताड़ासन, पाद्हस्तासन, गरूड़ासन, जानुशिरासन, वक्रासन, वज्रासन, पद्मासन, उत्तानपादासन, पवनमुक्तासन, भुजगांसन, शलभासन,(स्थिति, विधि, लाभ)
(स) प्राणायाम : सूर्यभेदी, चन्द्रभेदी,व अनुलोम विलोम
(द) मुद्रा : ज्ञान मुद्रा,वीतराग मुद्रा
(य) बन्ध : मूलबन्ध, उड्डियानबन्ध व जालधंर बन्ध

इकाई–2 प्रेक्षाध्यान

(अ) प्रेक्षाध्यान का इतिहास, अर्थ एवं उद्देश्य
(ब) प्रेक्षाध्यान के सहायक अंगो का सक्षिप्त परिचय एवं महत्व
(स) कायोत्सर्ग, अर्न्तयात्रा, श्वास प्रेक्षा एवं ज्योतिकेन्द्र प्रेक्षा (प्रयोग, अभिव्यक्ति एवं प्रस्तुति)
(द) प्रेक्षाध्यान के मुख्य चरणों का संक्षिप्त परिचय

सत्रीय कार्य :(कोई एक)

- ▪ विषय से सम्बन्धित कोई एक टर्म पेपर तैयार करना।
- ▪ सूर्य नमस्कार की विभिन्न स्थितियों का प्रदर्शन।

Learning Outcomes:

- ❖ जीवन विज्ञान, प्रेक्षाध्यान एवं योग विद्या की जानकारी प्राप्त कर सकेंगे।
- ❖ संतुलित व्यक्तित्व का निर्माण।
- ❖ विद्यालयस्तरीय ध्यान एवं योग के प्रशिक्षक तैयार करना।

संन्दर्भ ग्रन्थ सूची :

1. अमूर्त चिन्तन : आचार्य महाप्रज्ञ
2. जीवन विज्ञान की रूपरेखा, लेखक : मुनि धर्मेश कुमार
3. जीवन विज्ञान शिक्षक निर्देशिका – मुनि किशनलाल
4. जीवन विज्ञान : मूल्यपरक शिक्षा का एवं अभिनव प्रयोग – मुनि धर्मेश
5. जीवन विज्ञान प्रेक्षाध्यान एवं योग : समणी मल्लि प्रज्ञा
6. जीवन विज्ञान : शिक्षा का नया आयाम, लेखक : आचार्य महाप्रज्ञ
7. जीवन विज्ञान : शिक्षक प्रशिक्षक मार्गदर्शिका– मुनि किशनलाल
8. जीवन विज्ञान : स्वस्थ समाज रचना का संकल्प, लेखक : आचार्य महाप्रज्ञ
9. नया मानव : नया विश्व – आचार्य महाप्रज्ञ
10. परिवार के साथ कैसे रहें ? – आचार्य महाप्रज्ञ
11. प्रेक्षाध्यान प्रयोग पद्धति – लेखक : आचार्य महाप्रज्ञ
12. प्रेक्षाध्यान : आसन प्राणायाम, मुनि किशनलाल

13. प्रेक्षाध्यान : सिद्धान्त और प्रयोग, लेखक : आचार्य महाप्रज्ञ, सम्पादक : मुनि किशन लाल, शुभकरण सुराना
14. प्रेक्षाध्यान : यौगिक क्रियाएं, मुनि किशनलाल
15. प्रेक्षाध्यान : शरीर विज्ञान, श्री जेठालाल जवेरी, मुनि महेन्द्र कुमार
16. प्रेक्षाध्यान : स्वास्थ्य विज्ञान (भाग 1,2), श्री जेठालाल जवेरी, मुनि महेन्द्र कुमार 'तुम स्वस्थ रह सकते हो, लेखक – आचार्य महाप्रज्ञ
17. प्रेक्षाध्यान : व्यक्तित्व विकास, लेखक : मुनि धर्मेश कुमार
18. प्रेक्षा संदर्शिका – मुनि धर्मेशकुमार
19. Preksha Meditation : Therapeutic Thinking by Arun Zaveri
20. Science of Living, Ed. Muni Mahendra Kumar

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 401	Gender, School and Society	CC	4	30	70	100

Objectives:

- To understand the modern concept of society, organization & gender sensitivity.
- To aware about the dimension of development of school administration.
- To develop basic understanding & familiarity with key concept, society, social problem, social relationship and new trends
- To develop knowledge of the role of different NGO & organizations.

Course Contents:

Unit- I Role of Society & Organization in Gender sensitivity

a) Gender Equity : Concept, Needs, Problem and solution
b) Nature of Society
c) Women Commission
d) Right to Education

Unit- II Dimensions of Development of School

a) Administration – Structure of Centre and State education.
b) Head-Master – Merits, work, duties and leadership
c) Ideal Teacher – Personality and Qualification
d) Modern school , Library, Laboratory, and Hostel
e) Outline of co-curricular activities in school

Unit- III Present Education & Society

a) Role of education in different Areas (Family, school, and society).
b) Present Social Problems (unemployment, Students indiscipline, Poverty, Illiteracy, Health & Nutrition)Concept, cause, and Solution
c) Education and Society Relationship

Unit- IV Role of organization in Gender sensitivity, society, and school

a) NGO – (meaning and Role)
b) Role of present Social – worker
c) Government Planning
d) Role of Religious Organization

Assignment & Practical Works: (Any Two)

- Study of any one significant problem of a secondary school and prepare report detail – it's possible causes and solutions.
- Solve any one Assignment Work.
- Critically evaluate of the different activities of any one school.
- Case study of any N.G.O working in local area.

Learning Outcomes: After completion of this course students would able to:

- Sensitize students about different social & national level problems at school level.
- Remedies regarding gender discrimination, government schemes and Right to Education.
- Implement their knowledge to plan community awareness programmes to sensitize weaker section of society.
- Understanding relationship between education and society as well as NGO's.
- Utilize their administrative skill to manage different administrative activities at school level.

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2. चौबे, सरयू प्रसाद, (1990), शिक्षा के समाजशास्त्रीय आधार, विनोद पुस्तक मंदिर, आगरा
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5. भटनागर, सुरेश (1996), शैक्षिक प्रबंध व शिक्षा की समस्याएं, सूर्या पब्लिकेशन, मेरठ
6. वशिष्ठ, के. के. (1985), विद्यालय संगठन एवं भारतीय समाज की शिक्षा की समस्याएं, लायक बुक डिपो, मेरठ
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10. वास्तव अजना (2016),महिला शिक्षा तथा कानून राखी प्रकाशन आगरा 2016

website

1. www.gender.com.ac.uk.
2. www.genderstuddies.org.
3. www.genderparddigm.com./publication/html

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 402	Reading& Reflecting on Texts (EPC)	CC	2	15	35 Practical &Viva-Voce	50

Objectives:

- To develop basic Communication Skills.
- To promote Creative Writing among students.
- To acquire the knowledge of art of Speaking.

Course Contents:

Unit- I Reading Comprehension

a) Explain with stage of any self expression of any one guest.
b) Enlist errors in reading among school students.
c) Review of any one books with reading.
d) Write the educational essence of any five stories and morale thought with reading.

Unit- II Writing composition & Action Plan

a) Recite 10 poem / verse/ stanza and write it.
b) Prepare an action plan and organize accordingly.
c) Proof reading.
d) Prepare list of innovative vocabulary for speaking. (50 words).

Learning Outcomes: After completion of this course students would able to:

- Understnd Communication Skills.
- Promote Creative Writing among students
- Explain the art of speaking

Assignment & Practical Works: (Any Two)

- One Assignment Work on any topic related to above units.
- Prepare a plan and organize any two activities related to above units.
- Demonstrate different type of speaking.
- To identify the causes of ineffective speech and remedies for it.

Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 403	Drama and Arts in Education (EPC)	**CC**	**2**	**15**	**35 Practical and Viva-voce**	**50**

Objectives:

- To develop skills of role playing and acting.
- To acquire the knowledge and develop skill of arts, painting and playing musical Instruments.

Course Contents:

Unit- I Write a Drama Script

a) Prepare a Drama for any Social issues (Class VI to XI)
b) Role playing for different scene of Drama
c) To know different types of Drama

Unit- II Fine Arts, materials and its relevancy (Any two works)

a) Mehendi, Drawing
b) Rangoli/Model Preparation
c) Poster Painting

Learning Outcomes: After completion of this course students would able to:

- Develop skills of role playing and acting.
- Acquire the knowledge and develop skill of arts, painting and playing musical Instruments.

Assignment & Practical Works: (Any Two)

- Prepare any one Assignment Work related to above units.
- Plan and organize any two activities related to above units.
- Prepare Arts and crafts with un usual material
- Prepare Fine Arts with paper
- Hand made Architecture
- Soft toys (Teddy bear)
- Dance Art
- Fine Arts/ Painting
- Skill of Playing musical instrument
- Food Shef
- Handicraft

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 404	Knowledge and Curriculum (part-A)	**CC** Any one	**4**	**30**	**70**	**100**
BED 405	Knowledge and Curriculum (part-B)					

BED 404 : Knowledge and Curriculum (part-A)

Objectives:

- To know the concept objective and principles of curriculum.
- To develop the idea and bases of curriculum.
- To understand various types of curriculum.

Course Contents:

Unit- I Knowledge and Curriculum Concept

a) Knowledge : Concepts, Characteristics, Sources of Acquiring, Methods of Acquiring
b) Curriculum: Meaning, Definition, Characteristics, Aims Importance
c) Difference between old and new concepts of curriculum
d) Principle of curriculum construction and Knowledge

Unit- II Bases of curriculum

a) Sociological bases
b) Scientific bases
c) Philosophical bases
d) Psychological bases

Unit- III Types of curriculum

a) Activity centred and life centred curriculum
b) Subject centred and core centred
c) Experience centred and work based curriculum
d) Hidden Curriculum

Unit- IV National curriculum

a) Concept and Characteristics of National curriculum
b) Curriculum reform in India
c) NCF-2005 (School education)
d) NCFTE-2009(Teacher education)

Assignment & Practical Works: (Any Two)

- One Assignment Work on the topic related with the unit.
- Preparation of any one Assignment Work on curriculum .
- Review of present curriculum (Optional subject related)
- Curriculum framework for 10th class.

Learning Outcomes: After completion of this course students would able to:

- Understand the concept, objective and principles of curriculum.
- Develop the idea and bases of curriculum.
- Evaluate the relevancy of curriculum.
- Describe various approaches to curriculum construction.

Referances :

1. अग्निहोत्री, रवीन्द्र , आधुनिक भारतीय शिक्षा
2. अग्निहोत्री, रवीन्द्र, भारतीय शिक्षा की वर्तमान समस्याएँ, रिसर्च पब्लिकेशन
3. अग्निहोत्री, रवीन्द्र (2007), आधुनिक भारतीय शिक्षा और समाधान, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर
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6. त्यागी, निरंजन, माध्यमिक विद्यज्ञलयों में पाठ्यक्रम शिक्षण, हिन्दी ग्रन्थ अकादमी
7. पाण्डेय, बृजेश (2002), पाठ्यक्रम अनुदेशन, भारतीय आधुनिक शिक्षा,
8. पाठक, पी. डी. (1995), भारतीय शिक्षा और उसकी समस्याएँ
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11. रावत, प्यारेलाल, प्राचीन एवं आधुनिक भारतीय शिक्षा का इतिहास, भारत पब्लिकेशन, आगरा
12. सक्सैना, एन. आर. स्वरूप, शिक्षा सिद्धान्त, सूर्या पब्लिकेशन, आर. एल. कुक डिपो, मेरठ
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15. National Curriculum Frame work NCFTE (2009), for Teacher Education, NCTE, New Delhi
16. National Curriculum Frame work NCF (2005), for Scholl Education, NCTE, New Delhi

BED 405 : Knowledge and Curriculum (part-B)

Objectives:

- To develop ideas of philosophical bases of curriculum
- To various Sociological bases of curriculum
- To develop various psychological bases of curriculum
- To develop Educational New Trends of curriculum

Course Contents:

Unit- I Philosophical bases of curriculum development

a) Idealism, Naturalism, Pragmatism and curriculum
b) Jain philosophy , Geeta Philosophy , Buddhism Philosophy and curriculum
c) M. K. Gandhi, Vivekanand , R. N. Tagore and curriculum

Unit- II Sociological basis of curriculum development

a) Social change and curriculum
b) Social Mobility and curriculum
c) Social development and curriculum
d) Culture and curriculum

Unit- III Psychological bases of curriculum development

a) Structruralism and curriculum
b) Behaviourism and curriculum
c) Associationism and curriculum
d) Gestaltism and curriculum

Unit- IV Educational New Trends of curriculum

a) Skill and curriculum
b) Values and curriculum
c) NCF-2005(School Education)
d) NCFTE-2009(teacher Education)

Assignment & Practical Works: (Any Two)

- Preparation of One Assignment Work.
- One abstracts of Educational New trends article published in some standard Journals
- Preparation of curriculum Design (any subject related)
- Curriculum frame work for B.Ed. programme.

Learning Outcomes: After completion of this course students would able to:

- Describe various philosophical bases of curriculum
- Understand various Sociological bases of curriculum
- Acquire various psychological bases of curriculum
- Develop Educational New Trends of curriculum

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11. National Curriculum Frame work NCFTE (2009), for Teacher Education, NCTE, New Delhi
12. National Curriculum Frame work NCF (2005), for Scholl Education, NCTE, New Delhi

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 406	Creating an Inclusive school	CC	4	30	70	100

Objectives:

- To develop the understanding of the concept and philosophy of inclusive education in the context of education for all.
- To identify and address diverse needs of all learners
- To familarize with the trends and issues in inclusive education
- To develop an attitude to foster inclusive education
- To develop and understanding of the role of facilitators in inclusive education
- To prepare teachers for inclusive schools

Course Contents:

Unit- I Introduction to Inclusive Education

a) Meaning, Objective , Need and Types of Inclusive Education
b) Principles of Inclusive Education
c) Soluation and challenge of Inclusive Education
d) ICT Material of Inclusive Education

Unit- II Legislation, Emerging Issues and Role of Agencies in Inclusive Education

a) Legislation for inclusive education- National policy of disabilities 2006
b) Sarva Shiksha Abhiyan (2002)
c) NGO
d) RTE-2009

Unit- III Exceptional Child and Special Educational

a) Exteptional Child : Meaning and Types
b) Mentally Retared Child
c) Physically Handicapped Child
d) Hearing Impaired Child
e) Visually Handicapped Child
f) Emotionally Disturb Child

Unit- IV Special Educational Need (SEN) of learners in Inclusive School

a) Speech Defective Childern
b) Language Handicapped Child
c) Learning Disadvantage Child
d) Parents of Exceptional Childern
e) Guidance of Exceptional Childern
f) Special School (Building Co-curricular Activities)

Assignment & Practical Works: (Any Two)

- One Assignment Work
- Write a One Article of Disabilities Child
- Case study of disabilities child

- Write a report of evaluation process in inclusive school

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand of the concept and philosophy of inclusive education in the context of education for all.
- ❖ Identify and address diverse needs of all learners
- ❖ Describe the trends and issues in inclusive education
- ❖ Apply the attitude to foster inclusive education
- ❖ Develop and understanding of the role of facilitators in inclusive education
- ❖ Prepare teachers for inclusive schools

Suggested Readings:

1. Ahuja.A, Jangira, N.K. (2002) : "Effective Teacher Training, Co-operative Learnin Based pproach", National Publishing House, 23 Daryaganj, New delhi-02
2. Sharma, P.L. (1990), Teacher Handbook on IED, Helping Children with Special Needs NCERT, Publication Delhi
3. UNESCO (1989), UN Convention on the Right of the Child, UNESCO
4. UNESCO (2006), UN Convention on the Right of Persons with Disabilities.
5. UNESCO (2009), Policy Guideline on Inclusion in Education UNESCO
6. कुशवाहा, पुष्पलता, एवं सक्सैना, कनक (2006)., शैक्षिक प्रबन्धन एवं विद्यालय संगठन, आस्था प्रकाशन, जयपुर
7. परवीन, आबिदा (2013), शिक्षण एवं अधिगम के मनो–सामाजिक आधार, आस्था प्रकाशन, जयपुर
8. बघेला, एच.एस. (2007), शैक्षिक प्रबन्धन एवं विद्यालय संगठन, राजस्थान प्रकाशन, जयपुर
9. बिन्दु आभारानी, सक्सैना, स्वाति (2008), विशिष्ट बालक, अग्रवाल पब्लिकेशन्स, आगरा
10. योगेन्द्रजीत, भाई (2008), शिक्षा में नवाचार और नवीन प्रवृत्तियाँ, विनोद पुस्तक मंदिर, आगरा
11. सुखिया, एस.पी. (2008), विद्यालय प्रशासन एवं संगठन, विनोद पुस्तक मंदिर, आगरा
12. हन्फी, ऐम.ए. एवं हन्फी एस.ए. (2009), अधिगमकर्ता का विकास एवं शिक्षण अधिगम प्रक्रिया, विनोद पुस्तक मंदिर, आगरा, जयपुर

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 407	Optional Course 1. Environmental Education	Any one CE	4	30	70	100

BED 407 : Environmental Education

Objectives:

- ❖ To understand the problems of concerning environment through multi disciplinary approach.
- ❖ To develop the skill of planning and organizing ecological activities in the schools.
- ❖ To create consciousness about environment among the adult learners.
- ❖ To give information on different techniques and materials for the affective dissemination of environmental information.

Course Contents:

UNIT- I Concept Of Environment

a) Meaning , Scope, Importance
b) Eco-System – Charecteristic Qualities
c) Inter- Dependence In Environment

d) Natural Resources
e) Bio-Diversity – Scope & Threats, Preservation

UNIT- II Environmental Education

a) Meaning, Importance and Objective
b) Scope of Environmental Education
c) Need for Public Awareness as a subject
d) Muti-disciplenary Nature of Environmental Studies Curriculum Development

UNIT- III Environmental Hazards and Pollution

a) Air Pollution
b) Water Pollution
c) Soil Pollution
d) Noise Pollution

UNIT- IV Global Issues and Environmental Conservation

a) Global Issuse (Global Warming, Climate Change, Deplition of Ozone Leyer and Energy Crisis)
b) Different Aspects Related To Environmental Conservation.
c) Environmental Preservation &Improvement (At National & International Level)
d) National Environment Policy

Assignment & Practical Works: (Any Two)

- Study on Any one environmental problems. The report on the study must include efforts of the pupil / teacher in developing awareness among people about the environmental problems.
- Prepare a plan to teach environment at education to the adults.
- One Assignment Work solve.
- Prepare a scrap book of an environmental articles and news.
- Conduct environmental competition for local school student.

Learning Outcomes: After completion of this course students would able to:

- Students are able to understand the problems concerning environment through multi disciplinary approach.
- Students are able to develop the skill of planning and organizing Ecological activities in the schools so the children can equipped to play their part in protection and enrichment of environment.
- Students are able to create Environment Consciousness among the adult learners.
- Students are able to use different Techniques and materials for the affective Dissemination of Environmental information.
- Students are able to conduct local surveys,arrange field trips Environmental games and hobbies

संदर्भ ग्रन्थ सूची :

1. उपाध्याय, राधावल्लभ, (2008), पर्यावरण शिक्षा, विनोद पुस्तक मंदिर, आगरा
2. गुप्ता, चाँदमल, शर्मा, रेनू (2008), पर्यावरण शिक्षा, आस्था प्रकाशन, जयपुर
3. गोयल, एम. के. (2008), पर्यावरण शिक्षा, विनोद पुस्तक मंदिर, आगरा
4. बरौलिया, ए., पर्यावरणीय शिक्षा के नये आयाम, राधा प्रकाशन मन्दिर, आगरा
5. बरौलिया, ए. पराशर, राधिका एवं दुबे, श्री कृष्ण, पर्यावरण शिक्षा के नये आयाम, राधा प्रकाशन मंदिर, आगरा
6. राजस्थान पाठ्यपुस्तक मण्डल की कक्षा 11 से 12 तक की पुस्तकें
7. रावत, कमलेश, पर्यावरण शिक्षा, अलका पब्लिकेशन्स, अजमेर
8. श्री वास्तव, पंकज (2007), पर्यावरण शिक्षा, मध्यप्रदेश हिन्दी ग्रन्थ अकादमी,

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 408	2. Health and Physical	Any one CE	4	30	70	100

Objectives:

- To develop the organic system of the body.
- Development of understanding and appreciation of the techniques and strategies of sports
- To develop correct health habits.
- Attainment of knowledge of proper health procedure as related with physical exercise.
- The physical education program will allow the students to participate in developmentally appropriate activities.

Course Contents:

Unit- I Concept of Health Education

a) Meaning of Health education.
b) Environmental factor which promote and affect In Health.
c) Importance and objective of Health education.
d) General Exercises in school.

Unit- II Environment and Science of Living and Yoga

a) Importance of water to life and our environment.
b) Science of Living and yoga.
c) Role of Individual in improvement of sports environment.
d) Physical and physiological benefits of exercise on children.

Unit- III Physical Education, Balanced Diet and First Aid

a) Meaning and Importance of physical Education
b) Balanced Diet and Nutrition : Macro and Micro Nutrients
c) First Aid

Unit- IV History of Volleyball & Kabbadi

a) Historical Development of Volleyball
b) Measurement and Rule of Volleyball
c) Historical Development of Kho-Kho
d) Measurement and Rule of Kabbadi

Assignment & Practical Works:

- Write a Term paper on a topic given in the course
- Skill of any one Team Game of choice from the given List

Learning Outcomes: After completion of this course students would able to:

- Develop the organic system of the body.
- Understand and appreciation of the techniques and strategies of sports
- Aware about correct health habits.
- Attain knowledge of proper health procedure as related with physical exercise.

Suggested Readings:

1. Thorburn, M. (2000), Physical Education-Intermediate Course Notes, Leckie & Lechie Publisher.
2. कमलेश एवं संगरल, शारीरिक शिक्षा में शिक्षण विधियां, विनोद पब्लिकेशन, लुधियाना।
3. पाराशर, गीता एवं कुमार सुनील (2014), स्वास्थ्य शिक्षा तथा मनोरंजन।
4. सफाया, आर. के. स्वास्थ्य एवं शारीरिक शिक्षा, विनोद पब्लिकेशन, लुधियाना।
5. सिंह, बलदेव, स्वास्थ्य एवं शारीरिक शिक्षा, विनोद पब्लिकेशन, लुधियाना।
6. सिंह, परमजीत, राठौड़, भूपेन्द्र सिंह, बार्थोनिया, माया, खान, एम. ए. (2007), शारीरिक एवं स्वास्थ्य शिक्षा, कक्षा–9 माध्यमिक शिक्षा बोर्ड, राजस्थान अजमेर।

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 410	4. Distance Education	Any one CE	4	30	70	100

Objectives:

- To provide an effective alternative path to wider opportunities in education and especially in higher education.
- To provide an efficient and less expensive education.
- To provide education facilities to all qualified and willing persons.
- To provide opportunities of academic pursuits to educate citizens willing to improve their standard of knowledge.
- To provide education facilities to those individuals who look upon education as a life-long activity.

Course Contents:

Unit-I Theoretical Prospective of Distance Education

a) Meaning and Definition of Distance Education.
b) Characteristics of Distance Education
c) Distance education as a discipline.
d) Need for establishing Distance Education as a discipline.

Unit-II Scenario of Distance Education Institutes

a) State wise situation of Distance Education Institutes in India.
b) Objectives of Indira Gandhi National Open University.
c) Main Theoretical Bases of Distance Education.
d) Theory of Independent study by CHARLES WEDEMEYER.

Unit-III Essential Elements of Developing in Distance Education

a) Essential Elements of Developing curriculum in Distance education.
b) Different services provided by Sanchar Kendra IGNOU.
c) Non- Print Instructional media in Distance Education: Educational RADIO.
d) Major educational Television projects in Distance education.

Unit-IV Counseling for Distance Learners

a) Organizing counseling Services for Distance Learners.
b) Various Types of Tele - Conferencing.
c) Format of the Text in Distance Education.
d) Distance Learners and Counseling

Assignment & Practical Works:

- Write any one term paper on a topic with in the content.
- Make the list of Distance Education programme of various universities in India.

Learning Outcomes: After completion of this course students would able to:

- Provide an effective alternative path to wider opportunities in education and especially in higher education.
- Understand an efficient and less expensive education.
- Explain education facilities to all qualified and willing persons.
- Identify the opportunities of academic pursuits to educate citizens willing to improve their standard of knowledge.

Suggested Readings:

1. Datt, Ruddar (1985), Distance Education in India, Open School, New Delhi
2. Hillard, R. I., Writing for T.V. and Radio, N.Y. Hastings House
3. Parmaji, S. (1984), Distance Education, Sterling Publication, New Delhi
4. यादव, सियाराम (2008), दूरवर्ती शिक्षा, विनोद पुस्तक मंदिर, आगरा

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.1 Hindi	Any one CE	4	30	70	100

Objectives:

- ❖ काव्य के विभिन्न घटक तत्त्वों का ज्ञान देना।
- ❖ काव्य के घटक तत्त्व रस, छन्द, अलंकारों का ज्ञान प्रदान करना।
- ❖ काव्य के गुण : माधुर्य, ओज, प्रसाद का ज्ञान देना।
- ❖ हिन्दी की शिक्षण विधियों का ज्ञान देना।
- ❖ हिन्दी के विभिन्न व्याकरणीय घटकों का ज्ञान देना।
- ❖ व्याकरण के घटक अनुवाद, संज्ञा, सर्वनाम, कारक, सन्धि, समास एवं विशेषण का ज्ञान देना।
- ❖ सूक्ष्म शिक्षण के विभिन्न कौशलों की जानकारी देना।
- ❖ हिन्दी के विभिन्न कवियों, लेखकों के उपन्यासों, कहानियों, रचनाओं का ज्ञान प्रदान करना।

विषय वस्तु:

इकाई : प्रथम – काव्य के घटक तत्त्व

(अ) काव्य के गुण : माधुर्य, ओज एवं प्रसाद

(ब) अलंकार – शब्दालंकार, अर्थालंकार, श्लेष, यमक, अनुप्रास, उपमा, रूपक, उत्प्रेक्षा, मानवीकरण, अतिशयोक्ति, विभावना, भ्रान्तिमान।

(स) रस का स्वरूप, रस के अवयव, श्रृँगार रस, हास्य रस, करूण रस, रौद्र रस, वीर रस, भयानक रस, वीभत्स, अद्‌भुत रस, शान्त रस, वात्सल्य रस, भक्ति रस।

(द) छन्द–दोहा, चौपाई, कवित्त, सोरठा एवं सवैया।

इकाई : द्वितीय – शिक्षण विधियों का परिचय

(अ) सूक्ष्म शिक्षण – सम्प्रत्यय एवं प्रमुख कौशलों का परिचय।

(ब) वाचन विधि

(स) व्याख्या विधि

(द) अनुवाद विधि

इकाई : तृतीय – व्याकरणीय घटक

(अ) अनुवाद : अर्थ एवं प्रकार

(ब) शब्द शक्तियों के भेद, उदाहरण

(स) संज्ञा, सर्वनाम एवं कारक का अर्थ एवं प्रकार

(द) सन्धि, समास एवं विशेषण का अर्थ एवं प्रकार

इकाई – चतुर्थ – हिन्दी साहित्यकारों का संक्षिप्त परिचय एवं उनका विशिष्ट अवदान :–

(अ) तुलसीदास,सूरदास, कबीरदास एवं रसखान

(ब) प्रेमचन्द, जयशंकर प्रसाद, हजारी प्रसाद द्विवेदी, मन्नू भंडारी

(स) महादेवी वर्मा, सूर्यकान्त त्रिपाठी निराला

(द) रामधारीसिंह दिनकर, हरिवंशराय बच्चन

सत्रीय कार्य (निम्न में से कोई दों)

- कक्षा सातवीं की पुस्तक 'बाल–महाभारत' अथवा कक्षा आठवीं की पाठ्य पुस्तक 'भारत की खोज' की समीक्षा करना।
- हिन्दी विषय की वर्तमान स्थिति की दशा एवं दिशा पर रिपोर्ट लिखना।
- अपनी पसन्द की कोई पांच–पांच कहानी अथवा कविताओं का संकलन करना एवं उनका प्रस्तुतिकरण।

- माध्यमिक या उच्च माध्यमिक की हिन्दी विषय की पाठ्य पुस्तक में विभिन्न कहानियों का नाट्य रूपान्तरण करना।
- 'हमारा संकलन' स्क्रेप बुक/पुस्तिका का निर्माण करना, जिसमें विभिन्न समाचारपत्रों, पत्रिकाओं, प्रमुख महापुरूषों, प्रसिद्ध लेखकों, कवियों, कवयित्रियों, प्रसिद्ध खिलाड़ियों व अन्य प्रसिद्ध व्यक्तियों के जीवन परिचय एवं विशेष उपलब्धि का सचित्र वर्णन।

Learning Outcomes:इस पाठ्यक्रम के पूरा होने के बाद छात्र शिक्षक सक्षम होगा।

- ❖ काव्य के विभिन्न घटक तत्त्वों का ज्ञान प्राप्त कर सकेंगे।
- ❖ काव्य के घटक तत्त्व रस, छन्द, अलंकारों का ज्ञान प्राप्त कर सकेंगे।
- ❖ काव्य के गुण : माधुर्य, ओज, प्रसाद का ज्ञान प्राप्त कर सकेंगे।
- ❖ हिन्दी की शिक्षण विधियों का ज्ञान प्राप्त कर सकेंगे।
- ❖ हिन्दी के विभिन्न व्याकरणीय घटकों का ज्ञान प्राप्त कर सकेंगे।
- ❖ व्याकरण के घटक अनुवाद, संज्ञा, सर्वनाम, कारक, सन्धि, समास एवं विशेषण का ज्ञान प्राप्त कर सकेंगे।
- ❖ सूक्ष्म शिक्षण के विभिन्न कौशलों की जानकारी प्राप्त कर सकेंगे।
- ❖ हिन्दी के विभिन्न कवियों, लेखकों के उपन्यासों, कहानियों, रचनाओं का ज्ञान प्राप्त कर सकेंगे।

सन्दर्भ ग्रन्थ :

1. अवधेश अरूण, (2001), हिन्दी भाषा का स्वरूप, बिहार हिन्दी ग्रन्थ अकादमी, पटना।
2. ओड, एल.के (1982), हिन्दी शिक्षण में त्रुटि, निदान एवं उपचार, वनस्थली विद्यापीठ।
3. कक्षा 6 से 12 वीं तक की एन.सी.ई.आर.टी. की हिन्दी विषय की विभिन्न पाठ्य पुस्तकें।
4. कुमार, योगेश, (2004), आधुनिक हिन्दी शिक्षण, ए.पी. एवं पब्लिशिंग कॉर्पोरेशन, नई दिल्ली।
5. कुशवाहा, पुष्पलता, सक्सैना, कनक (2009), हिन्दी शिक्षण, आस्था प्रकाशन, जयपुर।
6. दुग्गल एवं वर्मा, (1982), हिन्दी शिक्षण, आर्य बुक डिपो, दिल्ली।
7. नाथ, देवेन्द्र, राष्ट्र भाषा हिन्दी की समस्याएँ एवं समाधान।
8. पाण्डेय, रामशक्ल, (2008), हिन्दी शिक्षण, विनोद पुस्तक मंदिर, आगरा।
9. पारीक, सुधीर, टेलर लाल गोपाल (2008), पद्यान्जलि माध्यमिक शिक्षा बोर्ड राजस्थान, अजमेर।
10. भाई, योगेन्द्रजीत, (2007), हिन्दी भाषा शिक्षण, विनोद पुस्तक मंदिर, आगरा।
11. रमन, बिहारीलाल, (1990), हिन्दी शिक्षण, रस्तोगी एण्ड कम्पनी, मेरठ।
12. शर्मा, मन्जू, जैन, बनवारी लाल, (2007), हिन्दी शिक्षण, शिक्षा प्रकाशन, जयपुर।
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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.2 English	Any one CE	4	30	70	100

Objectives:

- To acquire the knowledge of Phonetics and its uses through different organs of speech
- To develop Understanding of English text
- To apply the Content knowledge through preparing lesson plan in English Language
- To explain the idea of assessment of English teaching
- To describe the Knowledge of diagnostic test and Remedial instruction in English teaching

Course Contents:

Unit- I Language production and phonology

a) Language acquisition
b) Organs of speech
c) Elements of Speaking
d) Phonology sound system: Vowel, Diphthongs and Consonants)

Unit -II Understanding Language Text

a) Text book Vs Reference books
b) Analysis of a Text book
c) Quality of good text book

Unit-III Lesson plan and teaching learning materials (TLM)

a) Strategies : Language games, Puzzles, role playing.
b) Teaching Aids in English:(Audio ,Visual, Audio- Visual)
c) Use of LCD ,OHP, Linguaphone , online Classes, Hand outs

Unit-IV Assessment of English Language

a) Diagnostic Evaluation
b) Remedial instruction
c) Errors in English (Oral vs. Witten)
d) Types of test in English teaching(Subjective Vs Objective types)

Assignment & Practical Works: (Any Two)

- Review of a English Text book
- Prepare a PPT on any topic of English teaching for Secondary School.
- Prepare a PPT on any topic of English teaching for Secondary school.
- Prepare some Phonological words in each Sound in English.(Vowels (12), Diphthongs (8) and Consonants (24)

Learning Outcomes: After completion of this course students would able to:

- Acquire the knowledge of Phonetics and its uses through different organs of speech
- Develop Understanding of English text
- Apply the Content knowledge through preparing lesson plan in English Language
- Explain the idea of assessment of English teaching
- Describe the Knowledge of diagnostic test and Remedial instruction in English teaching

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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.3 Sanskrit	Any one CE	4	30	70	100

Objectives:

- ❖ विद्यालयी बालकों में व्याकरण की सामान्य जानकारी एवं उनके प्रयोग की दक्षता का विकास करना।
- ❖ संस्कृत भाषायी दक्षता में होने वाली अशुद्धियों का निदान करना।
- ❖ संस्कृत महाकाव्यों, गद्यकाव्यों, नाट्यकाव्यों का ज्ञान प्राप्त करना।
- ❖ हिन्दी वाक्यों का संस्कृत भाषा में अनुवाद कर सकने की योग्यता का विकास करना।
- ❖ संस्कृत विद्यालयों के पाठ्यक्रम का समीक्षात्मक मूल्यांकन करना।

विषयवस्तु :

इकाई – प्रथम – संज्ञा, प्रत्यय, उपसर्ग एवं अवयवों का ज्ञान।

a) संज्ञा प्रकरण – उच्चारणस्थानानि प्रयत्नाः (आभ्यन्तर, बाह्य), अल्पप्राणः, महाप्राणः, घोषः।
b) प्रत्यया – क्त, क्तवतु, शतृ, शानच, तुमुन्, अनीयर, ण्वुल, क्त्वा, ल्यप्, तरप्, तमप्।
c) अव्ययानां प्रयोग – उच्चैः, पुनः, शनैः, नमः, खलु, धिक्, प्रातः, कदा, विना, श्व, ह्यः।
d) उपसर्गा – प्र, परा, अप्, सम, दुर्, आ, अति, प्रति, सु, परि, अधि।

इकाई – द्वितीय – कारक, छन्द एवं अलंकारों का सामान्य ज्ञान।

a) कारक – प्रातिपादिकार्थ लिङ्ग–परिमाण–वचन मात्रे प्रथमा। कर्तुरीप्सिततमं कर्म, अभितः परितः। समयानिकषा हा प्रतियोगेऽपि। कर्तृकरणयोस्तृतीया, येनाङ्गविकार। कर्मणा यमभिप्रैति स संप्रदानम, रूच्चर्थानां–प्रीयमाणः, क्रुधद्रुहेर्ष्यासूयार्थानां यं प्रति कोपः। ध्रुवमपायेऽपादानम्, भीत्रार्थानां भयहेतुः।, आधारोऽधिकरणम्, यतश्चनिर्धारणम्। षष्ठीशेषे, कर्तृकर्मणोः कृतिः।
b) छन्दा – अनुष्टुप्, आर्या, इन्द्रवज्रा, उपेन्द्रवज्रा, वसन्ततिलका, मन्दाक्रान्ता, शार्दूलविक्रीडितम्।
c) अलंकार – अनुप्रास, यमकम्, उपमा, रूपकम्, सन्देह, दृष्टान्त, अतिशयोक्ति, वक्रोक्ति, उत्प्रेक्षा।

इकाई – तृतीय – भारतीय संस्कृति एवं संस्कृत रचनाकारों का संक्षिप्त परिचय।

a) भारतीय संस्कृति – वर्ण व्यवस्था, आश्रम व्यवस्था एवं षोड्श संस्कार।
b) महाकाव्य कवि – भारवि, श्रीहर्ष एवं बाल्मीकि।
c) गद्य काव्य कवि – दण्डी एवं बाणभट्ट।
d) नाट्य कवि – कालिदास एवं भवभूति।

इकाई – चतुर्थ – शिक्षण विधियाँ।

a) दण्डान्वय विधि
b) खण्डान्वय विधि
c) स्वाध्याय निर्देशित पद्धति
d) स्पष्टीकरण विधि

सत्रीय कार्य एवं प्रायोगिक कार्य– (किसी दो विषय पर)

- कक्षा 10 की संस्कृत पाठ्यपुस्तक की समीक्षा करना।
- पाठ्यक्रम के किसी एक इकाई के एक प्रकरण को विस्तार से समझाइये।
- कक्षा 8 की पाठ्यसामग्री से कठिन शब्दों की सूची तैयार करना एवं उनका अर्थ ग्रहण (कम से कम 30 शब्द)।
- 20 श्लोकों का कंठस्थीकरण।
- संस्कृत में मानव शरीर के अंगों के नाम।
- किन्हीं 15 घरेलू सामग्रियों के संस्कृत में नाम।

Learning Outcomes:

- ❖ विद्यालयी बालकों में व्याकरण की सामान्य जानकारी एवं उनके प्रयोग की दक्षता का विकास कर सकेंगे।
- ❖ संस्कृत भाषायी दक्षता में होने वाली अशुद्धियों का निदान कर सकेंगे।

- ❖ संस्कृत महाकाव्यों, गद्यकाव्यों, नाट्यकाव्यों का ज्ञान प्राप्त कर सकेंगे।
- ❖ हिन्दी वाक्यों का संस्कृत भाषा में अनुवाद कर सकने की योग्यता का विकास कर सकेंगे।
- ❖ संस्कृत विद्यालयों के पाठ्यक्रम का समीक्षात्मक मूल्यांकन कर सकेंगे।

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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.4 History	Any one CE	4	30	70	100

Objectives:

- To understand ancient history on the basis of political, social and economic conditions.
- To develop the idea of Vedic Jainism, Buddhism & Shaivism religious.
- To acquire Knowledge of medieval periods in respect of temple, forts and bhakti movement.
- To evaluate the historical perspective modern India i.e. 1857 movement, gandhian politics.

Course Contents:

Unit- I Concept and Revolution of National Freedom

a) Concept of History
b) Main places of Sindhu-Ghati sabbhyata (Harappa, mohen- jodora , kalibanga, lothal)
c) Revolution of National Freedom (Revolution of Asahayog Andolen, Bharat Chhodo Andolen, Savinay Avagya Andolen
d) The Russian Revolution of 1917

Unit- II Historical perspectives of ancient period.

a) Political and economic history from the mauryan to the gupta period.
b) Issue in social history, Including caste and class.
c) A history of Vedic & Jainism Religious. (A brief review).
d) A history of Shaivism & Buddhism religious. (A brief review).

Unit- III Historical perspectives of medieval and modern India.

a) Structure of agrarian relation in the 16^{th} 17^{th} centuries.
b) Architecture & political system during Vijay nagar period.
c) Ideas and practices of the bhakti-sufi saints.
d) Medieval society through travelers account's.(Alberuni & Ibn-batuta)

Unit- IV Historical perspectives of modern India.

a) East India Company, Revenue Settlement's.
b) Representations of 1857.
c) The Nature of Gandhian politics.
d) Industrial revolution.

Assignment & Practical Works: (Any Two)

- Archaeological report on a main site.
- Historical story(Two)
- Planning, organization and report writing on seminar.
- Picture of 1857 (Scrab-Book)
- Prepare a Historical model/Historical Democracy

Learning Outcomes: After completion of this course students would able to:

- Understand ancient history on the basis of political, social and economic conditions.
- Develop the idea of Vedic Jainism, Buddhism & Shaivism religious.
- Acquire Knowledge of medieval periods in respect of temple, forts and bhakti movement.
- Evaluate the historical perspective modern India i.e. 1857 movement, gandhian politics.

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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.5 Civics	Any one CE	4	30	70	100

Objectives:

- To identify political views among students.
- To acquaint the content knowledge of political science.
- To comprehend the dynamic political status and issues of our country.
- To develop reasoning ability among students for various competitive exam.
- To enable the pupil teacher to review the text-book of civics content (Secondary level).

Course Contents:

Unit- I Political Thought

a) Socialism
b) Marxism
c) Gandhism
d) Dr.Bheem Rao Ambedakar

Unit- II Indian Constitution & Political Involvement

a) Indian Constitution
b) Democracy
c) Political Group
d) Political socialization

Unit- III Political Problems and Organization

a) Terrorism, political crime, corruption
b) International organization (DAKSHE, SARK, U.N.O.)
c) Election commission of India
d) NCW (National commission for women)

Unit- IV Current Political Scenario

a) Recent governing member and central, state level ministry
b) Fundamental rights and duties
c) Lok Sabha, Rajya Sabha, Vidhan Sabha, Vidhan Parishad
d) President, Prime Minister, Governor, Chief Minister

Assignment & Practical Works: (Any Two)

- One Assignment Worksolve class 11 & 12
- Write an essay on any political problem.
- Study the causes of political problem and write a report of the same.
- Write an essay, story; poem can be created to tell moral values to litigants.
- Prepare scrap book of political news.
- Write any two abstracts related to political issues.

Learning Outcomes: After completion of this course students would able to:

- Identify political views among students.
- Acquaint the content knowledge of political science.
- Comprehend the dynamic political status and issues of our country.
- Develop reasoning ability among students for various competitive exam.
- Enable the pupil teacher to review the text-book of civics content (Secondary level).

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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.6 Social Science	Any one CE	4	30	70	100

Objectives:

- To understand Social Science on the basis of political, social and economic conditions.
- To develop the idea of Society, Social group, Community Marriage.
- To acquire Knowledge of Indian Social Problems (Culture, Castiesm, Communalism, Poverty, Corruption)
- To evaluate the Indian Social Issue.

Course Contents:

Unit-1 Meaning and Concept of Sociology

a) Development of Sociology
b) The meaning of Sociology
c) Subject matter of Sociology
d) Sociology and Social Science

Unit -II Society

a) Society - Meaning and Need
b) Social group- Meaning and Types [Primary and Secondary]
c) Community- Meaning, Characteristics Concept of community
d) Marriage- Aims and Types of Hindu marriage

Unit -III Social Change in Indian Society

a) Social change
b) Family
c) Cast and class- meaning and Changes in Caste and Class
d) Regionalism

Unit -IV Indian Social Problems

a) Culture-definition, Characteristics, Lack of Culture
b) Communalism
c) Poverty
d) Corruption

Assignment & Practical Works: (Any Two)

- Write an article on current Social issue.
- Prepare Assignment Workany two subject topic.
- Prepare a case study of Any one local problem.

Learning Outcomes: After completion of this course students would able to:

- Understand Social Science on the basis of political, social and economic conditions.
- Develop the idea of Society, Social group, Community Marriage.
- Acquire Knowledge of Indian Social Problems (Culture, Castiesm, Communalism, Poverty, Corruption)
- Evaluate the Indian Social Issue.

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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.7 Economics	Any one CE	4	30	70	100

Objectives:

- To help the students to acquire the basic understanding in the field of Economics.
- To enable the student teachers to understand the aims and objectives of teaching Economics at the secondary school stage.
- To develop the ability, to evaluate the present curriculum in Economics at the secondary level.
- To develop the ability to organize group activities and projects in the subject.
- To develop the ability to use of various methods of teaching Economics.
- To enable the student to acquire necessary skills for the use and preparation of teaching aids and instructional material in Economics.
- To develop in the students appropriate attitudes towards the country's Economy.
- To develop in the student an adequate sense of awareness about Economic issues of the country and an out-look of problem solving through analysis and application of the theory of Economics.
- To develop competence in framing objective based achievement and diagnostic test, their administration and their scoring and drawing conclusions there of. 10. To develop in the students an ability to conduct various surveys in Economics and organize field trips.
- To enable the student-teachers to prepare unit plan, lesson plan and related teaching learning strategies.
- To enable the student teachers to review the text book of Economics.

Course Contents:

Unit- I Meaning and Concept of Micro and Macro Economics

a) Micro Economics
b) Macro Economics
c) Concept of National Income

Unit- II Demand and Supply and Money

a) Basic concept of Demand and supply
b) Consumer Equilibrium
c) Definition of Money, Its Function
d) Functions of Commercial Bank
e) Functions of Central Bank

Unit- III Indian, Foreign Trade and Economics Planning

a) Indian Foreign Trade - Direction and Trends
b) Concept of Globalization, Privatization and Liberalization
c) Economic Planning in India
d) Poverty in India
e) Unemployment in India

Unit- IV Method and Evaluation in Economics

a) Programmed Instruction Methods
b) Team Teaching

c) Computer assisted Instruction (CAI)
d) Lecture cum Demonstration Method
e) Evaluation in Economics

Assignment & Practical Works:

- Preparation a Assignment Works Any one subject topic.
- Review of two published papers related to subject

Learning Outcomes: After completion of this course students would able to:

- ❖ Help the students to acquire the basic understanding in the field of Economics.
- ❖ Enable the student teachers to understand the aims and objectives of teaching Economics at the secondary school stage.
- ❖ Develop the ability, to evaluate the present curriculum in Economics at the secondary level.
- ❖ Enable ability to organize group activities and projects in the subject.
- ❖ Understand to use of various methods of teaching Economics.
- ❖ Enable the student to acquire necessary skills for the use and preparation of teaching aids and instructional material in Economics.
- ❖ Develop in the students appropriate attitudes towards the country's Economy.
- ❖ Develop in the student an adequate sense of awareness about Economic issues of the country and an out-look of problem solving through analysis and application of the theory of Economics.
- ❖ Develop competence in framing objective based achievement and diagnostic test, their administration and their scoring and drawing conclusions there of. 10. To develop in the students an ability to conduct various surveys in Economics and organize field trips.
- ❖ Prepare unit plan, lesson plan and related teaching learning strategies.
- ❖ Review the text book of Economics.

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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.8 Geography	Any one CE	4	30	70	100

Objectives:

- To understand the modern concept of Geography.
- To understand the aims and objectives of teaching Geography.
- To prepare yearly plan, unit plan, lesson plan for different classes.
- To prepare maps and charts to illustrate the content of different classes and use them effectively.
- To critically evaluate the existing school syllabus and review the text book of Geography.
- To apply appropriate method and techniques of teaching to particular topics at different levels.
- To arrange field trips and local surveys.
- To prepare achievement test and diagnostic test, administration of the test, analysis of results, make suggestion for remedial teaching.

Course Contents:

Unit- I Motion of the Earth

a) Latitudes, Longitudes
b) Interior of the Earth
c) Origin of continents and oceans, sudden movements
d) Atmosphere, Composition, Insulation, Pressure belts, winds
e) Ocean Currents and Tides

Unit- II Indian Geography

a) Physical features
b) Climate
c) Natural vegetation
d) Drainage
e) Agriculture

Unit-III Rajasthan Geography

a) Physical features
b) Climate
c) Natural vegetation
d) Drainage
e) Agriculture

Unit- IV Practical Work in Geography

a) Definition, Scope and Development of Cartography
b) Technique, Materials, Tools of Map Making
c) Map
d) Scale
e) Representation of Statistical Data

Assignment & Practical Works:

- Assignment Workany two topic subject related
- Any two map making

Learning Outcomes: After completion of this course students would able to:

- Understand the modern concept of Geography.
- Describe aims and objectives of teaching Geography.
- Pprepare yearly plan, unit plan, lesson plan for different classes.
- Prepare maps and charts to illustrate the content of different classes and use them effectively.
- Critically evaluate the existing school syllabus and review the text book of Geography.
- Apply appropriate method and techniques of teaching to particular topics at different levels.
- Arrange field trips and local surveys.

- ❖ Prepare achievement test and diagnostic test, administration of the test, analysis of results, make suggestion for remedial teaching.

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12. सिंह सविन्द्र, पर्यावरण भूगोल, प्रयाग पुस्तक भवन, इलाहाबाद
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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.9 Home Science	Any one CE	4	30	70	100

Objectives:

- ❖ To understand the Concept, Nature and scope of Home Science.
- ❖ To explore different ways of creating learning situations for different concepts of Home Science.
- ❖ To facilitate the development of scientific attitude in learner.
- ❖ To provide the knowledge related to Home management, Budgeting, Textile and Fashion as well as common health problems etc.
- ❖ To ensure the application of knowledge to resolve nutritional, health and resources related problems through Home Science
- ❖ To stimulate curiosity, skills and creativity in Home Science.

Course Contents:

Unit- I Development and Childhood Care

a) Home Science Education : Meaning, Definition & Scope, History and Objectives
b) Concept of Human Development & Growth
c) Life span stages and Types of Development
d) Reproductive health and Child Care

Unit- II Nutrients and Dietary Management

a) Food : Definition, functions and classification
b) Nutrients and their composition, sources and functions
c) Balanced diet with nutrition for pregnancy and different stages of development
d) Methods of cooking for healthy food
e) Dietary management during different diseases

Unit- III Resource Management and Clothing

a) Resource Management, Budgeting, Saving and Investment in family
b) Fibers - types and properties, Yarn construction, Marketing, Principles of clothing construction
c) Preparation of fabrics Cutting-Layout, Pinning, Marking and Cutting
d) Fashion Terminology and Fashion cycle

Unit- IV Housing and Women

a) House planning and furnishing
b) Financial and legal consideration for housing
c) Consumer Aids and consumer protection
d) Women Empowerment : Guidance and Counseling ; Welfare Organizations

Assignment & Practical Works: (Any Two)

- Data collection for various problems in local community like as nutritional, health issues, consumer awareness and Women Empowerment etc
- Prepare and implement a project related to various community problems
- Plan and organize an exhibition related to Handicrafts, latest fashionable costumes
- Make and demonstrate dye samples/block printing samples/knitting and embroidery
- Prepare and perform a drama (group) related to local issues and awareness

Learning Outcomes: After completion of this course students would able to:

- Understand the Concept, Nature and scope of Home Science.
- Explore different ways of creating learning situations for different concepts of Home Science.
- Facilitate the development of scientific attitude in learner.
- Provide the knowledge related to Home management, Budgeting, Textile and Fashion as well as common health problems etc.
- Ensure the application of knowledge to resolve nutritional, health and resources related problems through Home Science
- Stimulate curiosity, skills and creativity in Home Science

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10. सिरोही, सरिता (1997), आधुनिक गृह विज्ञान भाग – 2, कक्षा 12वीं, फ्रैंकी पब्लिशिंग हाउस, नई दिल्ली

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.10 Chemistry	Any one CE	4	30	70	100

Objectives:

- To gain the knowledge of Chemistry for secondary and senior secondary level.
- To improve the various skills of student teachers in practical work.
- To understand the practical and theoretical description of various content.
- To solve different problems related with the content of chemistry.
- To know importance and use of course content.
- To plan, equip and organize chemistry practical in the laboratory.
- To use various methods with appropriateness of content, level and class room situations.
- To develop scientific attitude and provide training in scientific method to their students.

Course Contents:

Unit- I Chemical Properties

a) Chemical Equation
b) Chemical Equilibrium
c) Types of Chemical Reactions
d) Acid and Base
e) Chemical Change

Unit- II Metal and Non Metals

a) Metal

b) Nonmetal
c) Chemical Properties of Metal
d) Hydrogen
e) Water

Unit- III Carbon

a) Bonding in Carbon
b) Saturated and Unsaturated Carbon Compound
c) Nomenclature of Carbonic Compound
d) Chemical Properties of Carbon Compound
e) Coal and Petroleum

Unit- IV Periodic Table

a) Periodic Table and Atoms
b) Atoms and Molecules
c) Atomic Mass and Mole Concept
d) Atomic Models
e) Isotopes and Isobars

Assignment & Practical Works: (Any Two)

- Preparation of a term paper based on any above topic.
- Solve an examination question paper.
- Make a presentation based on any above topic.
- Conducting and reporting three experiments useful at secondary level.

Learning Outcomes: After completion of this course students would able to:

- ❖ Gain the knowledge of Chemistry for secondary and senior secondary level.
- ❖ Improve the various skills of student teachers in practical work.
- ❖ Understand the practical and theoretical description of various content.
- ❖ Solve different problems related with the content of chemistry.
- ❖ Know importance and use of course content.
- ❖ Plan, equip and organize chemistry practical in the laboratory.
- ❖ Use various methods with appropriateness of content, level and class room situations.
- ❖ Develop scientific attitude and provide training in scientific method to their students

.Suggested Readings:

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2. रसायन विज्ञान, (2014) भाग–2, कक्षा 11 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
3. रसायन विज्ञान, (2014) भाग–1, कक्षा 12 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one)	Any one CE	4	30	70	100

	5.11 Physics					

Objectives:

- ❖ To gain the knowledge of concepts of physics.
- ❖ To improve the various skills of student teachers in practical work.
- ❖ To understand the practical and theoretical description of various content.
- ❖ To able for solving different problems related with the content of physics.
- ❖ To plan, equip and organize physics practical in the laboratory.

Course Contents:

Unit- I Electric field

a) Electric charge
b) Conductor and non conductor
c) Charge through induction
d) Characteristics of electric charge
e) Coulomb's law

Unit- II Optics

a) Mirror reflection, refraction
b) Spherical mirror
c) Total internal reflection
d) Lens
e) Power of lens

Unit- III Characteristics of matter

a) Elasticity of solids
b) Stress
c) Pressure
d) Viscosity
e) Surface energy and surface tension

Unit- IV Gravitation and Energy

a) Gravitation
b) Work
c) Energy
d) Power
e) Sound

Assignment & Practical Works: (Any Two)

- Preparation of a term paper based on any above topic.
- Solve an examination question paper.
- ▪ Make a presentation based on any above topic.
- ▪ Conducting and reporting three experiments based on above topics.

Learning Outcomes: After completion of this course students would able to:

- ❖ Gain the knowledge of physics for secondary and senior secondary level.
- ❖ Improve the various skills of student teachers in practical work.
- ❖ Understand the practical and theoretical description of various content.
- ❖ Solve different problems related with the content of physics.
- ❖ Plan, equip and organize physics practical in the laboratory

Suggested Readings:

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2. भौतिकी, (2014) भाग 2, कक्षा 11 के लिए पाठ्य पुस्तक राजस्थान राज्य पाठ्य पुस्तक मण्डल, जयपुर
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6. विज्ञान, (2014) कक्षा 9 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर

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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.12 Mathematics	Any one CE	4	30	70	100

Objectives:

- To gain the knowledge of Mathematics.
- To know different methods for solve mathematical problems.
- To understand the mathematics formulas and use them appropriately.
- To solve various types of mathematical problems

Course Contents:

Unit- I Number System

a) Irrational numbers
b) Real numbers and their decimal expansions
c) Operation on real numbers
d) Laws of exponents for real number
e) Fundamental theorem of arithmetic

Unit- II Plane Geometry

a) Angles and lines at a point
b) Angles made by a transversal with two lines
c) Classification of triangles on the basis of sides and angles
d) Square, Rectangle and Circle
e) Congruence of triangles

Unit- III Algebra

a) Linear equations (in two variables)
b) Polynomials in one variable
c) Zeros of a polynomial
d) Factorization of polynomial
e) Quadratic equation

Unit- IV Trigonometry

a) Introduction
b) Trigonometric ratio
c) Trigonometric ratio of various angles
d) Surface area
e) Statistics –mean, mode , median

Assignment & Practical Works: (Any Two)

- Preparation of a term paper based on any above topic
- Solve an examination question paper
- Make a presentation based on any above topic.

Learning Outcomes: After completion of this course students would able to:

- Gain the knowledge of Mathematics.
- Know the different methods for solve mathematical problems.
- Understand the mathematics formulas and use them appropriately.
- Solve various types of mathematical problems

Suggested Readings:

1. गणित, (2014), कक्षा 7 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
2. गणित, (2014), कक्षा 8 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
3. गणित, (2014), कक्षा 9 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर

4. गणित, (2014), कक्षा 10 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
5. गणित, (2014), कक्षा 11 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
6. गणित, (2014), कक्षा 12 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
7. जैन, एस. एल. (2007), गणित शिक्षण, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर
8. नेगी जे. एस. (2006), गणित शिक्षण, विनोद पुस्तक मंदिर, आगरा
9. रावत एम. एस. (1960), अग्रवाल एम. बी. एल., गणित शिक्षण, विनोद पुस्तक मंदिर, आगरा
10. सिंह एस. (2005), गणित शिक्षण, विनोद पुस्तक मंदिर, आगरा

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.13 General Science	Any one CE	4	30	70	100

5.13 General Science

Objectives:

- To develop knowledge of General Science for secondary and Senior Secondary level
- To improve various skills of student teachers in practical work
- To understand the practical and theoretical description of various content
- To solve different problems related with the content of science
- To make student teachers to know importance and use of course content
- To plan, equip and organize physics practical in the laboratory.
- To use various methods with appropriateness of content, level and class room situation.
- To develop scientific attitude and provide training in scientific method to their students.

Course Contents:

Unit- I Matter in Our Surroundings

a) Matter
b) States of matter
c) Change in state of matter
d) Mixture and solution
e) Physical and chemical changes

Unit- II Atoms and Molecules

a) Laws of chemical combination
b) Molecule
c) Atom
d) Chemical formula
e) Mole concept

Unit- III Motion

a) Displacement
b) Velocity
c) Acceleration
d) Force
e) Laws of motion

Unit- IV Atomic Structure

a) Atomic structure
b) Chemical bonding (Ionic bond and covalent bond)
c) IUPAC nomenclature
d) Periodic table
e) Acid - base concept

Assignment & Practical Works: (Any Two)

- Preparations of term paper based on any above topic
- Solve an examination question paper

- Make a presentation based on any above topic
- Conducting and reporting three experiments based on above topics.

Learning Outcomes: After completion of this course students would able to:

- ❖ Gain the knowledge of General Science for secondary and Senior Secondary level
- ❖ Improve various skills of student teachers in practical work
- ❖ Understand the practical and theoretical description of various content
- ❖ Different problems related with the content of science
- ❖ Make student teachers to know importance and use of course content
- ❖ Plan, equip and organize physics practical in the laboratory.
- ❖ Use various methods with appropriateness of content, level and class room situation.
- ❖ Develop scientific attitude and provide training in scientific method to their students.

Suggested Readings:

1. भौतिकी, (2014) भाग 1, कक्षा 11 के लिए पाठ्य पुस्तक राजस्थान राज्य पाठ्य पुस्तक मण्डल, जयपुर
2. भौतिकी, (2014) भाग 2, कक्षा 11 के लिए पाठ्य पुस्तक राजस्थान राज्य पाठ्य पुस्तक मण्डल, जयपुर
3. रसायन विज्ञान, (2014) भाग–1, कक्षा 11 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
4. रसायन विज्ञान, (2014) भाग–2, कक्षा 11 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
5. विज्ञान, (2014) कक्षा 8 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
6. विज्ञान, (2014) कक्षा 9 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
7. विज्ञान, (2014) कक्षा 10 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
8. अग्रवाल वी. पी., सिडाना के., पारीक के, (2007), विज्ञान शिक्षण, शिक्षा के प्रकाशन, जयपुर
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10. रावत डी. एस. (2009), विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा
11. शर्मा एस. आर. (2008), विज्ञान शिक्षण, अर्जुन पब्लिशिंग हाउस, नई दिल्ली
12. सूद जे. के. (2007), विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.14 Biology	Any one CE	4	30	70	100

Objectives:

- ❖ To understand the various concepts related to Biology.
- ❖ To facilitate the development of Scientific Temper in learner.
- ❖ To provide critical and analytical knowledge to student teacher.
- ❖ To enhance creativity, skillfulness and teaching abilities among trainees to teach the school level students.
- ❖ To develop the skills related to problem solving, critical analysis and awareness to solve various health problems of community.
- ❖ To stimulate curiosity, application of knowledge and constructive thinking among the student teacher for whole biosphere.

Course Contents:

Unit- I Growth and Development

a) Cell structure and cell cycle (Mitosis, Meiosis).

b) Tissues : Types and functions, Internal structure of Monocot and Dicot root, Secondary Growth process, Tissue culture

c) Taxonomy of plants, Structure of flower, Floral formula & Floral diagram.

d) Photosynthesis: Pigment, Light & Dark reaction, C3 and C4 cycle, Calvin cycle & affecting factors, Crassulacean acid Metabolism

Unit- II Reproduction and Genetics

a) Reproduction : Types, System, Procedure and Reproductive health issues in animals
b) Genetics and Evolution: Molecular basis, Mendelism, Gene cloning, Gene transfer
c) Embryology - Stages and Growth, Organogenesis and Test tube baby
d) Biotechnology : Recombinant DNA technology, Gene mapping

Unit- III Physiology and Regulation

a) Respiration : Types, System and process in animals, Glycolysis, Kerb cycle, Oxidative phosphorylation and Fermentation
b) Human physiology : Various system, Related process (Digestion, Circulation, Excretion)
c) Regulation in Animals : Nervous system, Endocrine system

Unit- IV Biodiversity and New Trends

a) Neo Darwinism, Palentogical & Morphological evidences, Hardy-winberg law.
b) Biodiversity and Ecology : Types of pollution, Global Warming, Alnino effect, Ecological Pyramids, Bio-geo-chemical cycles
c) Community and Diseases : Malaria, AIDS, Polio, Cancer, malnutrition etc
d) New Trends and contribution of Eminent Indian Scientist in Biology

Assignment & Practical Works: (Any Two)

- Preparation of planning with concept mapping and teaching learning process belongs to five topics in any above unit
- Solve an examination question paper
- Make a power point presentation based on any above topic in units
- Prepare a report related to diseases in local area and organize a awareness campaign in school

Learning Outcomes: After completion of this course students would able to:

- Understand the various concepts related to Biology.
- Facilitate the development of Scientific Temper in learner.
- Provide critical and analytical knowledge to student teacher.
- Enhance creativity, skillfulness and teaching abilities among trainees to teach the school level students.
- Develop the skills related to problem solving, critical analysis and awareness to solve various health problems of community.
- Stimulate curiosity, application of knowledge and constructive thinking among the student teacher for whole biosphere.

Suggested Readings:

1. Gregaire, L., Gallagher, P. (1992), Life Science, SMD Educational, Publishers, Leiden, The Netherlands.
2. Nair, P. K. G., Hegde, M. J., Prabhu, S. G. (1998), A Text book of Biology (Vol.2), Himalaya Publishing House, Mumbai
3. Naumov, D. (1987) , Zoology, Mir Publishers, Moscow
4. Rajendra, K., D' Silva Precilla., Dernandes, Anita (2004), Biology, Boscos Publications, Mangalore
5. Scott, Peter Physiology and Behaviour of Plants, John Wiley & Son's Ltd. West Sussex, England.
6. ''जीव विज्ञान'' पाठ्य पुस्तकें कक्षा 11 एवं 12 : राष्ट्रीय शैक्षिक एवं अनुसंधान परिषद्, नई दिल्ली
7. शुक्ल, बी. आर. के. व रस्तोगी, सुधा (1994), मानव उद्विकास, सुलभ प्रकाशन, लखनऊ

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.15 Commercial Practice	Any one CE	4	30	70	100

Objectives:

- To help the students to acquire the basic understanding in the field of commerce education.
- To develop the ability to sensitize and equip student teachers to handle issues related to business organization and concerns in responsible manner.
- To impart knowledge about the methods and devices of teaching.
- To develop the ability to plan curriculum and instructions in commerce at school level.
- To develop commercial efficiency among students.

Course Contents:

Unit- I Business Organization

a) Nature and aims of Business organization.
b) Forms of business organization, public private and global.
c) Business service and emerging modes of business.
d) Social and economic issues and concerns of the present day Indian society.
e) Business organization, finance and types of business.

Unit- II Nature of Management

a) Meaning and nature of management
b) Level of management
c) Co-ordination
d) Principle of management

Unit- III Environment of Business Organization

a) Meaning and importance of environment of business organization.
b) Planning-meaning, importance and process
c) Organization-concept, importance and types
d) Staffing, need, process, Resource

Unit- IV Direction

a) Concept and importance of direction
b) Supervision
c) Motivation
d) Leadership
e) Communication
f) Control

Assignment & Practical Works:

- Content related to subject topic.
- Analysis two or article from news paper, T.V., Radio or Journal related business organization and management.

Learning Outcomes: After completion of this course students would able to:

- Able to help the students to acquire the basic understanding in the field of commerce education.
- Develop the ability to sensitize and equip student teachers to handle issues related to business organization and concerns in responsible manner.
- Impart knowledge about the methods and devices of teaching.
- Develop the ability to plan curriculum and instructions in commerce at school level.

- ❖ Develop commercial efficiency among students

References:

1. Marvin Philip (971), Multiplying Management Effectiveness American Management Association, U.S.A.
2. Nolakha, Dr. R.L. (2011), Principles of Management, Ramesh Book Depot. Jaipur
3. Prasad, L.M. (2005), Principles and Practice of Management, Sultan Chand & Sons, New Delhi
4. Tripathi, P.C. (2005)] Personal Management and Industrial Relation, Sultan Chand & Sons, New Delhi
5. अग्रवाल, अग्रवाल, कोठारी (2006–07), वित्तीय प्रबन्धन, रमेश बुक डिपो, जयपुर
6. अग्रवाल, विजय, सुरोलिया (2001–02), व्यावसायिक बजटन, रमेश बुक डिपो, जयपुर
7. एन.सी.ए.आई.बी., वित्तीय प्रबन्धन, इंडियन इंस्टीट्यूट ऑफ बैंकिंग एण्ड फाइनेन्स, नई दिल्ली
8. ओझा, डोसी, जैन, मेहता (2002), वित्तीय प्रबंधन, अजमेरा बुक कम्पनी, जयपुर
9. शर्मा, एन.एन., शर्मा, आर.के, गुप्ता शशी के. (2006), वित्तीय प्रबन्धन, कल्याणी पब्लिशर्स, लुधियाना
10. साध्वी, मोहन कुमारी, साध्वी प्रेमलता (2004) व्यवसाय प्रबन्धन के सूत्र और आचार्य भिक्षु की मर्यादाएं, आदर्श साहित्य संघ प्रकाशन, चुरू

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED 411	5. Additional Course (Any one) 5.16 Book-keeping	Any one CE	4	30	70	100

Objectives:

- To acquire the basic understand of teaching of Book–keeping and Accountancy.
- To develop the ability to plan curriculum and instruction in Book-keeping and Accountancy.
- To develop the ability to critically evaluate the existing school curriculum of Book–keeping.
- To impart knowledge of the methods and devices of teaching Book–keeping and to develop the skill of using the same.
- To apply appropriate methods and devices of teaching Particular topics for Book–keeping.
- To prepare achievement and diagnostic Tests.
- To develop necessary skill in preparation of using various teaching aids.

Course Contents:

Unit- I Meaning and concept of Book-keeping and Accountancy

a) Meaning and Theory Base of Book-keeping and Accountancy
b) Recording of Business Transactions
c) Bank Reconciliation statement: need and Preparation
d) Trial balance and Rectification of Errors
e) Depreciation, Provision and Reserves
f) Bill of Exchange.

Unit- II Company Accounts

a) Meaning, characteristics, classification of company
b) Capital structure of a company
c) Disclosure of share capital in company's balance sheet
d) Issue of shares, process of issue of shares
e) Debenture-issue and redemption

Unit- III Financial Statements of a Company

a) Meaning, nature, objectives and type of financial statements
b) Characteristics, importance, and format of balance sheet
c) Analysis of financial statements
d) Accounting ratios
e) Cash flow statement

Unit- IV Accounting for Partnership

a) Meaning and basic concepts
b) Reconstitution of partnership-Admission of partner
c) Reconstitution of partnership-Death and retirement of partner
d) Dissolution of partnership firm

Assignment & Practical Works:

- Content related to subject topic.
- Analysis news items from news Paper, T. V, Radio etc to write a report on Accountancy / banking related issues and concern of the present day Indian Society.

Learning Outcomes: After completion of this course students would able to:

- ❖ Able to acquire the basic understand of teaching of Book–keeping and Accountancy.
- ❖ Develop the ability to plan curriculum and instruction in Book-keeping and Accountancy.
- ❖ Develop the ability to critically evaluate the existing school curriculum of Book–keeping.
- ❖ Impart knowledge of the methods and devices of teaching Book–keeping and to develop the skill of using the same.
- ❖ Able to apply appropriate methods and devices of teaching Particular topics for Book–keeping.
- ❖ Prepare achievement and diagnostic Tests.
- ❖ Apply necessary skill in preparation of using various teaching aids.

References:

1. Jain, Khandelwal, Pareek (2009), Book-keeping and Accountancy, Ajmera Book Company, Jaipur
2. Jain, S.P. Narang L.K. (2005), Cost Accountancy, Kalyani Publishers, New Delhi
3. Maheshwari, S. N., Maheshwari S. K. (2008), Problem and Solution in Advanced Accountancy, Vikas Publishing House Private Limited Noida, U.P.
4. Maheshwari, S. N., Maheshwari S. K. (2008), Problem and Solution in Advanced Accountancy Vol. II, Vikas Publishing House Private Limited Noida, U.P.
5. Shukla, M.C. Grewal, T.S. Gupta S.C. (2000) Advanced Accountancy, Vol. I, S. Chand & Company, New Delhi
6. ओसवाल, मंगल, बिदावत (2010), उच्च स्तरीय लागत समस्याएँ, रमेश बुक डिपो, जयपुर
7. जैन, खण्डेलवाल, पारीक, शर्मा, बहीखाता एवं लेखाशास्त्र, अजमेरा बुक कम्पनी, जयपुर
8. जैन, खण्डेलवाल, पारीक, लागत लेखांकन, अजमेरा बुक कम्पनी, जयपुर
9. जैन, खण्डेलवाल, पारीक, दवे (2009), वित्तीय लेखांकन एवं निर्णयन, अजमेरा बुक कम्पनी, जयपुर
10. वर्मा, जी.डी. गुप्ता, शशी के, गुप्ता आर. के (2005), प्रबन्धकीय लेखांकन, कल्याणी पब्लिशर्स, लुधियाना
11. शर्मा, जांगीड़, अग्रवाल, माथुर, सुथार, सक्सैना, गुजराल (2011–12), वित्तीय लेखांकन,आर.बी.डी. पब्लिकेशन, जयपुर
12. शुक्ला, एम.सी. ग्रेवाल, टी. एस., गुप्ता एम.पी., अग्रवाल बी. एम., एडवांस एकाउण्टेन्स, एस. चन्द एण्ड कम्पनी लि. नई दिल्ली

Syllabus

DEPARTMENT OF EDUCATION

Bachelor of Arts-Bachelor of Education
(B.A- B. Ed.)

Four Years Integrated Regular Programme

"A" Grade by NAAC & "A" Category by MHRD

Jain Vishva Bharati Institute

(Deemed to be University under section 3 of UGC Act, 1956)

Ladnun-341306 (Raj.)

2017	Price: Rs.

Bachelor of Arts-Bachelor of Education (B.A- B.ED.)

Four Years Integrated Regular Programme

Jain Vishva Bharati Institute has launched a Bachelor of Education programme recognized by NCTE. The first session started from July 2005 and B.A. B.Ed programme has started from October 2016. The programme places specific emphasis on meditation as a tool to enhance learning skills and I.Q. This programme is also the first national teachers training programme to offer study in Education for Sustainable Development. Innovative syllabus and enthusiastic faculty work towards not only training the teachers but also assisting them with campus recruitment. Jain Vishva Bharati Institute is looking forward to train a new class of future generation teachers.

1. Introduction :

Enlightened, emancipated and empowered teachers lead communities and nation towards better and higher quality of life. Teachers are expected to create social cohesion, national integration and learning society. They disseminate knowledge and also generate new knowledge therefore, it becomes essential for any nation to give necessary professional inputs to its teachers. Jain Vishva Bharti Institute pursues the curriculum for its pre-service teacher training programme for women candidates who are far behind but can lead the whole nation. This will is a special programme focussed with a strong foundation in Science of Living. The candidates are encouraged to flourish an environment that promotes value and technology based society.

Duration: The B.A. B.Ed programme is full time four years Integrated programme.

Eligibility: A candidate who has passed senior secondary from any recognized Board and qualified entrance test conducted as per guideline of State Government.

Objectivess:

- To give the subject knowledge of graduation level.
- To develop professionalism in teacher Education Programme.
- To motivate creative thinking and work among teacher trainees.
- To foster moral, social character and spiritual values of trainees.
- To develop Inter-relationship among Department, School and Society.
- To develop cognitive, Affective and Psycho-motor domain of the teacher trainees
- To promote for future Prospective, Employability and Skill based Teacher Training
- To develop Self Evaluation, Positive Attitude and self confidence
- To apply educational innovation and new strategies of the Teacher Education and trainees.

Scheme of Examination

1. Hindi/English shall be medium of instruction of examination.
2. Examination shall be conducted at the end of each semester as per the academic/ examination calendar notified by the Institute.
3. Each Theory paper will be valued as per marks division given in the prospectus which will include semester end Theory exam. Practical (wherever applicable) and continuous internal assessment (CIA).

4. CIA will include the following components :
    - Attendance regularity 10 marks
    - Class Tests 05 marks
    - Assignments 10 marks
    - Class Presentation/Seminar 05 marks

    Total 30 marks

For UG students to pass a semester, a student has to secure a minimum of 40% marks in aggregate and minimum of 36% marks in individual theory papers. A student has to pass in written examination.

Evaluation Panel:

CIA Concerned Two Subject teacher nominated by the HOD of the Department.

Internship Evaluation Panel:

- Pre-Internship and Post Internship
    - HOD of the concerned Department
    - Departmental Supervisor/School Head Master/Principal of the School/Nominated School Teacher

Final Lesson Panel: (Two Teaching Subject)

- HOD of the concerned Department
- Internal/External Subject Expert

EPC Evaluation Panel:

Theory/Practical and viva-voce Examination Panel will be :

- HOD of the concerned Department.
- Internal Subject Expert.

(B.A. - B.E.d.)

Semester I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 101	Childhood and Growing Up	**CC**	**4**	**30**	**70**	**100**
BAE 101	Hindi Literature	**Any Three CE**	**4**	**30**	**70**	**100**
BAE 102	English Literature					
BAE 103	Sanskrit Literature					
BAE 104	History	**CE**	**4**	**30**	**70**	**100**
BAE 105	Political Science					
BAE 106	Sociology					
BAE 107	Geography	**CE**	**4**	**30**	**50+20 (Only Geography Practical) 70**	**100**
BAE 108	Economics					
BAE 109	Home Science					
JVB 101	Introduction to Jainism	**FC**	**4**	**30**	**70**	**100**
		Total	**20**	**150**	**350**	**500**

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 201	Assessment For Learning	**CC**	**4**	**30**	**70**	**100**
EDU 202	Learning And Teaching	**CC**	**4**	**30**	**70**	**100**
BAE 201	Hindi Literature	**Any Three CE**	**4**	**30**	**70**	**100**
BAE 202	English Literature					
BAE 203	Sanskrit Literature					
BAE 204	History	**CE**	**4**	**30**	**70**	**100**
BAE 205	Political Science					
BAE 206	Sociology					
BAE 207	Geography	**CE**	**4**	**30**	**50+20 (Only Geography Practical) 70**	**100**
BAE 208	Economics					
BAE 209	Home Science					
		Total	**20**	**150**	**350**	**500**

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 301	Understanding Discipline and Subjects	Any one **CE**	**4**	**30**	**70**	**100**
EDU 302	Innovative Methods					
BAE 301	Hindi Literature	**Any Three CE**	**4**	**30**	**70**	**100**
BAE 302	English Literature					
BAE 303	Sanskrit Literature					
BAE 304	History	**CE**	**4**	**30**	**70**	**100**
BAE 305	Political Science					
BAE 306	Sociology					
BAE 307	Geography	**CE**	**4**	**30**	**50+20 (Only Geography Practical) 70**	**100**
BAE 308	Economics					
BAE 309	Home Science					
JVB 301	Critical Understanding of ICT	**FC**	**2**	**15** Practical	**35**	**50**
JVB 302	Yoga and Preksha Meditation	**FC**	**2**	**15** Practical	**35**	**50**
		Total	**20**	**150**	**350**	**500**

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 401	Gender, School and Society	**CC**	**4**	**30**	**70**	**100**
EDU 402	Reading and Reflecting on Texts (EPC)	**CC**	**2**	**15**	**35 Practical & Viva-Voce**	**50**
EDU 403	Drama and Arts in Education (EPC)	**CC**	**2**	**15**	**35 Practical & Viva-Voce**	**50**
BAE 401	Hindi Literature	**Any Three CE**	**4**	**30**	**70**	**100**
BAE 402	English Literature					
BAE 403	Sanskrit Literature					
BAE 404	History	**CE**	**4**	**30**	**70**	**100**
BAE 405	Political Science					
BAE 406	Sociology					
BAE 407	Geography	**CE**	**4**	**30**	**50+20 (Only Geography Practical) 70**	**100**
BAE 408	Economics					
BAE 409	Home Science					

		Total	**20**	**150**	**350**	**500**

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 501	General English	**CC**	**4**	**30**	**70**	**100**
EDU 502	Contemporary India and Education	**CC**	**4**	**30**	**70**	**100**
BAE 501	Hindi Literature	**Any Three CE**	**4**	**30**	**70**	**100**
BAE 502	English Literature					
BAE 503	Sanskrit Literature					
BAE 504	History					
BAE 505	Political Science	**CE**	**4**	**30**	**70**	**100**
BAE 506	Sociology					
BAE 507	Geography				**50+20 (Only Geography Practical) 70**	
BAE 508	Economics	**CE**	**4**	**30**		**100**
BAE 509	Home Science					
		Total	**20**	**150**	**350**	**500**

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 601	General Hindi	**CC**	**4**	**30**	**70**	**100**
EDU 602	Pre- Internship	**CC**	**4**	**100** Pre- Internship		**100**
BAE 601	Hindi Literature	**Any Three CE**	**4**	**30**	**70**	**100**
BAE 602	English Literature					
BAE 603	Sanskrit Literature					
BAE 604	History					
BAE 605	Political Science	**CE**	**4**	**30**	**70**	**100**
BAE 606	Sociology					
BAE 607	Geography				**50+20 (Only Geography Practical) 70**	
BAE 608	Economics	**CE**	**4**	**30**		**100**
BAE 609	Home Science					
		Total	**20**	**120**	**380**	**500**

Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 701	Creating and Inclusive Education	**CC**	**4**	**30**	**70**	**100**
EDU 702	Language Across the Curriculum	**CC**	**4**	**30**	**70**	**100**
BAE 701	Hindi	Pedagogy of a School Subject **Any two CE**	**4**	**30**	**70**	**100**
BAE 702	English					
BAE 703	Sanskrit					
BAE 704	History					
BAE 705	Civics					
BAE 706	Social Science					
BAE 707	Economics					
BAE 708	Geography	**CE**	**4**	**30**	**70**	**100**
BAE 709	Home Science					
BAE 710	**Optional Course** Environmental Education	**Any one CE**	**4**	**30**	**70**	**100**
BAE 711	Health and Physical					
BAE 712	Guidance and Counseling					
BAE 713	Distance Education					
BAE 714	**5. Additional Course (Any one)** 5.1 Hindi					
	5.2 English					
	5.3 Sanskrit					
	5.4 History					
	5.5 Civics					
	5. 6 Social Science					
	5.7 Economics					
	5.8 Geography					
	5.9 Home Science					
		Total	**20**	**150**	**350**	**500**

Semester VIII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU-801	Knowledge and Curriculum (Part-A)	Any one **CC**	**4**	**30**	**70**	**100**
EDU-802	Knowledge and Curriculum (Part-B)					
EDU-803	Post Internship	**CC**	**16**	**160 Internship+ 120+120=240 Practical (Two Subjects final lesson)**		**400**
		Total	**20**	**30**	**470**	**500**

EPC- Enhancing Professional Capacities
CIA-Continuous Internal Assessment
CC- Core Compulsory
CE - Core Elective
EC-Elective course

FC- Foundation Course

Semester I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU101	Childhood and Growing Up	**CC**	**4**	**30**	**70**	**100**

Objectives:

- Teacher tainees can aware about concept, methods & applications of Educational Psychology.
- To aware the trainees about concept and developmental dimensions of childhood.
- Trainees got informed about imagination, creativity & interests at school level.
- To know the related problems of Adolescence & remedies through Guidance & Counselling services.
- To aware about the process of human development
- To build sensitivity towards childrens' needs and capabilities within their socio-cultural context

Course Contents:

UNIT-I Educational Psychology and Development

a) Educational Psychology : Concept, Methods & Applications
b) Implications of Educational Psychology:Teachers, Curriculum, Class-room Situations
c) Indian Psychology : Concept and its implication
d) Growth & Development
e) Cognitive development:- Piaget & Bruner

UNIT-II Childhood and Its Development

a) Childhood : Its concept & characteristics
b) Childhood : Physical, Mental, Emotional, Social & Moral Development
c) Childhood : Dimensions to fostering Imagination, Memory & Creativity
d) Childhood : Activities for Personality Development
e) Childhood : Language Development

UNIT-III Adolescence and Its Development

a) Adolescence : Its Meaning & Characteristics
b) Adolescence : Physical, Emotional, Social, Spiritual & Moral Development
c) Adolescence : Fostering Thinking, Reasoning & Problem- solving abilities
d) Adolescence : Activities for Personality Development
e) Adolescence : Related Problems & Remedies
f) Guidance & Counselling services in schools

UNIT-IV Learner: Psychological Dimensions & New Trends

a) Personality : Concept, Types & Measurement
b) Intelligence & Multiple Intelligence : Meaning, Theories & Measurement
c) Creativity : Meaning, Development & Measurement
d) Adjustment : Concept, Process & Mechanism
e) Mental Health : Concept, Components & Scope

Assignment & Practical Work (Any Two)

- Prepare a short term Project to enhance Imagination, Creativity and Memory for school level students
- Prepare, administer and interpret a Case study/ Questionnaire related to problems of adolescence
- One Assignment Work related to topics in above unit
- Organize various Guidance and Counseling campaign for secondary level students
- Administer, Score and interpret a standardized psychological test related to personality/Intelligence/ Creativity/ Mental Health/Adjustment
- Prepare a Survey report related to various psychological dimension, problems and related remedies for school students

Learning Outcomes: After completion of this course students would able to:

- Utilize the knowledge of Educational Psychology for school education.
- Apply the concept of Growth & Development in teaching field.
- Plan various activities to fostering imagination, creativity & interests at school level.
- Know about various aspects related to Cognitive, Emotional & Social development of learner.
- Diagnose related problems of Adolescence & remedies through Guidance & Counselling services.

Suggested Readings:

1. Backett Chris (2004), Human Growth & Development, Sage Publication
2. Das, J. P. (1998), The Working Mind : An Introduction to Psychology, Sage Publication.
3. Chomskey, N. (1968), Language and Mind, Harcourt Brace, Jovanobich.
4. Singh Indramani & Parasuraman, Raja (1998) Human Cognition - A Multi Disciplinary Perspective, Sage Publication.
5. Baddeley, A. D. (1996) Human Memory : Theory and Practice, Washington, DC : Psychology Press.
6. Gruneberg, M. M.; Marris, P.E. & Skyes, R.N. (1998) (Eds) Practical aspects of memory; Current research and issues (Vol.2) John Wiley, New York.
7. Brown J. (1976), Recall and recognition, London.
8. Piaget, J. (1970), Science of Education and The Psychology of child, New York : Orion Press.
9. Hurlock, Elizabeth B. (2007), Child Development, Tata Mc Grow-Hill Publishing Company Ltd. New Delhi
10. xqIrk] ,l-ih-] xqIrk] vydk] ¼2007½] mPprj f'k{kk euksfoKku] 'kkjnk iqLrd Hkou] bykgkckn
11. ikBd] ih-Mh-] ¼2007½] f'k{kk euksfoKku] fouksn iqLrd eafnj] vkxjk
12. eaxy] ,l-ds-]¼2008½]f'k{kk euksfoKku] fizafVl gkWy vkWQ bf.M;k izkbosV fyfeVsM]ubZ fnYyh
13. ewjtkuh tkudh] ukjax] n'kZu dkSj ,oa ef.kdk eksgu] cky fodkl dk euksfoKku] viksyks izdk'ku] t;iqj
14. ;kno] fl;kjke] ¼2008½]vf/kxedrkZ dk fodkl ,oa f'k{k.k vf/kxe izfØ;k] 'kkjnk iqLrd Hkou] bykgkckn

Semester I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 102	English Literature **(Poetry and Drama)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

1. **To enable the students to know about Elizabethan and Romantic Poetry.**
2. **To make them aware about Indian Poetry.**
3. **To make them familiar with the dramatic art.**
4. **4-To acquaint them with some literary terms and Figures of Speech of these genres.**

Unit I: One Act Plays

A- Bishop's Candlesticks- NormanMckinnell

B- The Dear Departed- Stanley Hongton

Unit II: English and Indian-English Poems

A-All the World Is a Stage- William Shakespeare.

B- Death the Leveler- James Shirley.

C-The Solitary Reaper- William Wordsworth.

D- Where the Mind is Without Fear- Rabindranath Tagore.

E- Indian Weavers- Sarojini Naidu.

Unit III: Play- Tughlaq- GirishKarnad.

Unit IV: Literary Terms and Figures of Speech:

Alliteration, Simile, Metaphor, Pun, Personification, Paradox, Oxymoron, Antithesis, Heroic Couplet, Transferred Epithet, Sonnet, Lyric, Ballad, And Rhyme.

Outcomes:

1-The students can understand poetry, One-Act Play and Drama.

2-They can learn the difference between the Figures of Speech and Literary Terms.

Suggested Reading :

1. Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.
2. Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3. Paper-I: Poetry and Drama, Jain Vishva Bharti Institute, Ladnun, 2016.
4. Poet's Pen: (Ed.) Homi p Dustoor. Oxford University Press.
5. Tughlaq- GirishKarnad. Oxford University Press. New Delhi.
6. Contemporary Indian poetry in English: (Ed.) Saleem Peerandina. MacMillan, New Delhi.

Semester I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 104	History **(प्राचीन भारत का इतिहास)** **(प्रारंभ से 1206 ई. तक)**	**Any Three** **CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को प्राचीन भारतीय इतिहास का ज्ञान प्रदान करना।
2. विभिन्न कलाओं की मुख्य विशेषताओं से परिचित करवाना।
3. विद्यार्थियों के प्राप्त इतिहास के ज्ञान को प्रतियोगी परिक्षाओं के लिये उपयोगी बनाना।

इकाई–1

प्राचीन भारतीय इतिहास की जानकारी के प्रमुख स्त्रोत–पुरातात्विक, साहित्यिक एवं विदेशी यात्रियों के वृत्तान्त। जैन स्त्रोत–आगम ग्रन्थ। सिन्धुघाटी सभ्यता–खोज, विस्तारक्षेत्र, कालक्रम, नगर योजना, आर्थिक स्थिति, सामाजिक स्थिति एवं पतन।

इकाई –2

वैदिक सभ्यता–ऋग्वैदिक काल एवं उत्तरवैदिक काल–मूल निवास, स्थान, राजनैतिक, आर्थिक एवं सामाजिक स्थिति। सोलह महाजनपदों का उदय। मौर्य वंश–चन्द्रगुप्त मौर्य का उदय एवं उपलब्धियां, अशोक का धम्म, मौर्य प्रशासन, मौर्य साम्राज्य का पतन।

इकाई–3

सातवाहन वंश–गौतमी पुत्र शातकर्णी की उपलब्धियाँ। कुषाण वंश–कनिष्क प्रथम की उपलब्धियाँ। सातवाहन–कुषाणकालीन सांस्कृतिक अध्ययन। गुप्तवंश–जानकारी के स्त्रोत, राजनीतिक इतिहास एवं प्रशासन।

इकाई–4

गुप्तकालीन संस्कृति (इतिहास का स्वर्णकाल)–कला, साहित्य, एवं विज्ञान की उन्नति। गुप्तोत्तर भारत–हर्षवर्धन की राजनीतिक एवं सांस्कृतिक उपलब्धियां। राजपूत राज्यों के पतन के उत्तरदायी कारण।

उपलब्धियाँ–

1. विद्यार्थी गौरवशाली प्राचीन भारतीय इतिहास को जान पायेंगे।
2. स्थापत्य कला का तुलनात्मक अध्ययन कर पायेंगे।
3. इतिहास का ज्ञान प्राप्त कर प्रतियोगी परीक्षाओं में सफलता प्राप्त कर पायेंगे।

पुस्तक / संन्दर्भ ग्रंथः

1. झा, द्विजेन्द्र एवं के.एम., श्रीमाली–प्राचीन भारत का इतिहास, कार्यान्वयन निदेशालय, दिल्ली विश्वविद्यालय, दिल्ली।
2. शर्मा, कृष्णगोपाल, शर्मा, मुरारीलाल एवं जैन, हुकुमचंद–भारत का इतिहास, अजमेरा बुक कम्पनी।
3. पाण्डे, डॉ. विमल चन्द्र–प्राचीन भारत का राजनीतिक एवं सांस्कृतिक इतिहास, सेन्ट्रल पब्लिशिंग हाऊस, इलाहाबाद।
4. थापर, रोमिला–भारत का इतिहास, राजकमल प्रकाशन, नई दिल्ली।
5. श्रीवास्तव, कृष्णचन्द्र–प्राचीन भारत का इतिहास तथा संस्कृति, यूनाईटेड बुक डिपो, इलाहाबाद।
6. Basham, A.L. – A cultural history of India.
7. Kosambi, D.D. – An Introduction to the study of Indian History

Semester I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 105	Political Science **(राजनीति विज्ञान के मूल आधार)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को राजनीति विज्ञान के आधारभूत सिद्धान्तों की जानकारी देना।
2. विद्यार्थियों को राजनीति विज्ञान की विभिन्न अवधारणाओं से परिचित करवाना।
3. विद्यार्थियों की प्रतियोगी परीक्षाओं में तर्क शक्ति बढ़ाना।

इकाई–1

राजनीति विज्ञान का पारम्परिक एवं अभिनव दृष्टिकोण, व्यवहारवाद एवं उत्तर–व्यावहारवाद।

इकाई–2

राज्य : प्रकृति, राज्य का सावयव सिद्धान्त, लोक कल्याणकारी राज्य की अवधारणा।

इकाई–3

राजनीतिक व्यवस्था, राजनीतिक विकास, राजनीतिक आधुनिकीकरण, राजनैतिक दल, दबाव समूह, प्रतिनिधित्व के सिद्धान्त।

इकाई–4

राजनीतिक विचारधाराएँ : उदारवाद, आदर्शवाद, मार्क्सवाद, लोकतांत्रिक समाजवाद एवं अराजकतावाद।

उपलब्धियाँ–

1. विद्यार्थी राजनीति विज्ञान के आधारभूत सिद्धान्तों को जान सकेंगे।
2. विभिन्न अवधारणाओं के तुलनात्मक अध्ययन से वैज्ञानिक दृष्टिकोण का विकास कर सकेंगे।
3. परम्परागत एवं आधुनिक राजनीतिक सिद्धान्तों की जानकारी प्राप्त कर सकेंगे।

पाठ्यपुस्तकें / संदर्भ ग्रंथ–

1. G. Catlin : A Study of the Principles of Politics, London and New Tork, Oxford University Press, 1930.
2. Sir, E. Barker : Principles of Social and Political Theory, Calcutta, Oxford University, Press, 1976
3. M. Carnoy : The State and Political Theory, Princeton NJ, Princenton University, Press, 1984.
4. N.P. Barry : Introduction to Modern Political Theory, London, Macmillan, 1995
5. आर.सी. अग्रवाल–राजनीति शास्त्र के मूल आधार, एस. चांद एण्ड कम्पनी, नई दिल्ली।
6. ए.सी. कपूर–राजनीति विज्ञान के सिद्धान्त, एस. चांद एण्ड कम्पनी, नई दिल्ली।
7. बी.आर. पुरोहित–राजनीति विज्ञान के मूल सिद्धान्त, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर।
8. पुखराज जैन–राजनीति के मूल आधार, साहित्य भवन पब्लिकेशन्स, आगरा।
9. बी.एल. फड़िया–राजनीति विज्ञान के मूल आधार, कॉलेज बुक हाउस, जयपुर।

Semester I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 106	Sociology **(Principales of Sociology)**	Any Three **CE**	**4**	**30**	**70**	**100**

Objectives:

- To enable the students to understand the meaning, nature and origion of sociology.
- To acquaint the learners with the concept of culture, society, community, institution, social structure.
- To enable the lerners to understnad the dynamics in sociology.
- To enable the learners to understand the theories of social change.

Unit - I Introduction to Sociology

- Origin of Sociology
- The Meaning and Nature of Sociology.
- The Sociological PerspEctive, The Scientific and Humanistic PersoEctive Study.
- The use of Sociology, Introduction of Applied Sociology

Unit - II Basic Concepts in Sociology

- Basic Concept : Culture, Society, Community, Institution, Association, Socila Stucture, Social Group, Status and Role

Unit - III Dynamics in Sociology

- Socialization - Meaning and Theories (Sigmund freud, G. H. Mead)
- Relation between Individual and Society
- Social Stratification : Meaning and Forms and Theories (Functional and Marxist)
- Social Mobility : Meaning and Forms

Unit - IV Theories of Social Change

- Social Control : Norms/Values, Types and Agency
- Social Change : Meaning and Type (Linear and Cyclical)
- Social Change : Theories of Ogburn, Sorokin and Karl Marx

Learning Outcomes: After completion the course student would be able to:

- Understand the meaning, nature and origion of sociology.
- Acquaint the learners with the concept of culture, society, community, institution, social structure.
- Learn the dynamics in sociology.
- Understand the theories of social change.

Reference :

1. आहुजा, राम एवं आहुजा, मुकेश 2008, समाजशास्त्र विवेचना एवं परिप्रेक्ष्य, पावत पब्लि. जयपुर,
2. दोषी, एस.एल. एवं जैन, पी. सी., 2006, समाजशास्त्र, नई दिशाएँ, जयपुर, रावत पब्लिकेशन्स,
3. सिंघी, नरेन्द्र कुमार एवं गोस्वामी, वसुधाकर 2007, समाजशास्त्र विवेचन, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर
4. सिंह, जे.पी. 2008, समाजशास्त्र : अवधारणाएँ एवं सिद्धान्त, प्रेंटिस हॉल ऑफ इण्डिया प्राइवेट लिमिटेड, नई दिल्ली

5. सिंह, जे.पी. 2008, आधुनिक भारत में सामाजिक परिवर्तन, प्रेंटिस हॉल ऑफ इण्डिया प्राइवेट लिमिटेड, नई दिल्ली
6. Beteille, Andre Zooz : Sociology : Esay on Approach and Method, New Delhi, OUP
7. GiddensAnthony 2005, Sociology, London, Polity Press.
8. Rawat, H.K. 2007, Sociology, Basic Concepts, Rawat Publications, Japur
9. Rawat, H.K. 2013, Contemporary sociology, Basic Concepts, Rawat Publ., Japur
10. Schaefer, Richard T. and Rober P. Lamm 1999, Sociology, New Delhi, Tata Mac Graw Hill.

Semester I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 107	Geography **(Physical Geography)**	Any Three **CE**	**4**	**30**	**50+20 (Practical) 70**	**100**

Objectives:

1. To make aware of physical Geography in Detail.
2. Knowledge about interior layers of Earth.
3. Deep Knowledge about all the layers of Atmosphere.

Unit-I

a. Definition and scope of physical Geography.
b. Origin of the earth: Tidal Hypothesis of James Jeans and Big Bang theory.
c. Interior of the earth: Structure, Composition & Zones.
d. Origin of the continent and oceans: Wegner's Theory of Continental drift and Plate tectonics.

Unit- II

a. Theories of mountain building: Geosynclines Origin Theory of Kober.
b. Isostasy: Concept and Views of Airy and Pratt.
c. Weathering: Physical, Chemical and Biological
d. Drainage pattern and Cycle of erosion: Davis & Penck.

Unit - III

a. Composition and Structure of the atmosphere.
b. Atmospheric temperature: Insulation and heat budget.
c. Air masses: Source region and classification of air masses.
d. Climate Classification by W. Koppen.

Unit - IV

a. Relief of the Ocean basins.
b. Distribution of Temperature and Salinity of oceans.
c. Ocean Currents and Tides.
d. Coral reefs: Conditions of growth, types and origin according to Darwin and Murray.

PRACTICAL

a. Scale: Plain, Diagonal, Comparative.
b. Enlargement, Reduction & Combination of maps.
c. Representation of Relief.
d. Weather Instruments: Thermometer, Barometer, Hygrometers, Rain gauge & Wind vane.
e. Weather symbols and interpretation of Indian weather maps.
f. Chain tape survey.

Learning Outcomes: After completion the course student would be able to:

1. Knowledge about three branches of physical Geography: Geomorphology, Climatology and Oceanography.
2. Get Aware about the reasons of many natural disasters & knowledge to overcome that.
3. Get aware about the atmosphere in which they are living.

Reference:

1. सविन्द्रसिंह : भौतिक भूगोल, वसुन्धरा प्रकाशन, गोरखपुर
2. शर्मा एच.एस. : ''भौतिक भूगोल'' पंचशील प्रकाशन, जयपुर
3. चतुर्भुज मामोरिया एवं जैन : भौतिक भूगोल एवं जीव मण्डल, साहित्य भवन आगरा
4. वीरेन्द्र सिंह चौहान : भौतिक भूगोल, रस्तोगी पब्लिकेशन्स, मेरठ

Semester I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 109	Home Science **(Food and Nutrition)**	Any Three **CE**	**4**	**30**	**70**	**100**

Objective:

- Concept and classification of food, nutrients, vitamins and energy metabolism.
- Meal planning for families and individuals.
- Nutritional requirements, related problems and need based dietary guidelines.
- Methods of cooking, their advantages & disadvantages and effect on nutritive value and improving methods to maintain nutritional quality of foods.
- Difference between normal and therapeutic nutrition.
- Recommended dietary allowances and their effect on health.

Unit - I Nutrition and Energy Metablism

a) Concept and Types of Nutrition
b) Classification and Functions of Food
c) Functions , sources, Effect of deficiency & Daily allowances of :
   Macro nutrients: Carbohydrates, Proteins & Fats
   Micro Nutrients: Minerals, Calcium, Iron, Iodine, Fluorine, Vitamins
d) Energy Metabolism: Measurement of Energy, BMR and factors affecting BMR, Energy requirement and factors affecting energy requirement, Water Balance

Unit - II Food, Diet and Dietary Guidlines

a) Basic terminology used in food preparation
b) Basic Food Groups, Food Composition, Nutritional Contribution & Selection Factors for the following : Cereals & Millets, Pulses, Fruits, Vegetables, Milk & Milk Products, Nuts & Oil seeds, Meat, Fish & Poultry, Eggs, Sugars, Condiments & Spices
c) Role of Beverages and appetizers in diet : a) Stimulating b) Refreshing c) Nutrition
d) Meal planning: Goals, Factors & Significance
e) Nutritional requirements, related problems and dietary guidelines for: Pregnancy, Lactation, Infancy, Childhood, Adolescents, Adults and Elderly person

Unit - III Cooking and Nutritional Quality

a) Methods of cooking, their advantages & disadvantages and effect on nutritive value-
   Retention of Nutritive value of foods during preparation, Food Adulteration –
   meaning & common adulterants in food, Food poisoning
b) Improving Nutritional Quality of Foods: Germination, Fermentation, Supplementation, Substitution, Fortification & Enrichment
c) Role of Conveniences food : Ready to use foods, Protein Supplements

Unit - IV Therapeutic Nutrition and related problems

a) Therapeutic Nutrition: Modification of normal diet to therapeutic diet
b) Dietary management for obesity, underweight, diseases of the gastrointestinal tract-Diarrhorea, Constipation, Indigestion, Fever, Jaundice, Diabetes, Hypertension
c) Nutritional problems of public health importance and their management: Protein Energy Malnutrition, Anemia, Flurosis, Vitamin A deficiency, Iodine deficiency disorder

Practicals

Methods of cooking

- Preparation of any four dishes using the following methods:
  Boling, Steaming, Simmering, Frying (Shallow and deep), Baking, Roasting
- Preparation of Beverages, Cereal cookery, Legumes and pulses, Dry and baked vegetables, milk and milk products, Soups, salads
- Savory food preparation and sweets

Learning Outcomes: After completion the course student would be able to:

- Classification of food, nutrients, vitamins and energy metabolism.
- Explain Meal planning for families and individuals.
- Understand Nutritional requirements, related problems and need based dietary guidelines.
- Explain Methods of cooking, their advantages & disadvantages and effect on nutritive value and improving methods to maintain nutritional quality of foods.
- Difference between normal and therapeutic nutrition.
- Recommended dietary allowances and their effect on health.

References Books:

1. Srilakshmi, B. (2011) Dietetics, New Age International Publishers, New Delhi
2. Srilakshmi, B. Food Science, New Age International Publishers, New Delhi
3. Swaminathan, MS(2010) Aahar evam Poshan, NR Brothers, My Hospital Marg, Indore
4. Bamji MS, Krishnaswamy K, Brahman GNV (2009) Text book of Human Nutrition, 3rd Edition, Oxford and IBH publishing co. pvt. Ltd.
5. Chadha R and Mathur P (2015) Nutrition: A Lifecycle Approach, Orient Black Swan, Delhi
6. Wardflaw and Insel MG, Insel PM (2004) Perspectives in Nutrition, Mosby
7. Khanna K, Gupta S, Seth R, Mehna R, Rekhi T (2004) The Art and Science of Cooking: A practical manual, Elite Publishing House Pvt. Ltd.

Unit - IV Therapeutic Nutrition and related problems

a) Therapeutic Nutrition: Modification of normal diet to therapeutic diet
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Practicals

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Learning Outcomes: After completion the course student would be able to:

- Classification of food, nutrients, vitamins and energy metabolism.
- Explain Meal planning for families and individuals.
- Understand Nutritional requirements, related problems and need based dietary guidelines.
- Explain Methods of cooking, their advantages & disadvantages and effect on nutritive value and improving methods to maintain nutritional quality of foods.
- Difference between normal and therapeutic nutrition.
- Recommended dietary allowances and their effect on health.

References Books:

1. Srilakshmi, B. (2011) Dietetics, New Age International Publishers, New Delhi
2. Srilakshmi, B. Food Science, New Age International Publishers, New Delhi
3. Swaminathan, MS(2010) Aahar evam Poshan, NR Brothers, My Hospital Marg, Indore
4. Bamji MS, Krishnaswamy K, Brahman GNV (2009) Text book of Human Nutrition, 3rd Edition, Oxford and IBH publishing co. pvt. Ltd.
5. Chadha R and Mathur P (2015) Nutrition: A Lifecycle Approach, Orient Black Swan, Delhi
6. Wardflaw and Insel MG, Insel PM (2004) Perspectives in Nutrition, Mosby
7. Khanna K, Gupta S, Seth R, Mehna R, Rekhi T (2004) The Art and Science of Cooking: A practical manual, Elite Publishing House Pvt. Ltd.

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 201	Assessment For Learning	**CC**	**4**	**30**	**70**	**100**

Objectives:

- To describe the role of assessment in education.
- To distinguish among measurement, assessment and evaluation.
- To explain different forms of assessment that aid student learning.
- To use wide range of assessment tools, techniques and construct these appropriately.
- To evolve realistic, comprehensive and dynamic assessment procedures.
- To calculate item difficulty and discrimination power of a test item.
- To prepare a good achievement test on any school subject.
- To realize the importance of continuous and comprehensive evaluation in the process of students learning.

Course contents:

Unit I - Assessment and Evaluation in Education

a) Concept of measurement, assessment and evaluation
b) Types,Need, scope and relevance of evaluation
c) Principles of assessment and evaluation
d) Test, scale and measurement
e) Types of scale : nominal, ordinal, interval and ratio

Unit II -Tools and Techniques of Assessment and Evaluation

a) Characteristics of a good measuring instrument
b) Achievement test: steps of construction of achievement test – Teacher made and Standardized test
c) Types of test items and its construction : subjective test items and Objectivess test item
d) Diagnostic test construction and preparation of remedial materials
e) Analysis of test items – item difficulty level and item discrimination power

Unit III -Trends in Assessment

a) Continuous and Comprehensive Evaluation
b) Marking system vs Grading system
c) Semester system (C B C S) Chioce Based Credit System
d) Open book examination and question bank

Unit IV - Basic Statistics in Evaluation

a) Measure of Central Tendency:
    - Mean
    - Median
    - Mode

b) Measure of variability

- Range
- Quartile Deviation
- Average Deviation
- Standard Deviation

Assignment & Practical Work (Any Two)

- Prepare an achievement test of any school subject of secondary school.
- Write two Assignment Work with in the content
- Construct a remedial material for school students in any content problems.
- Select, analyses and try- out a sample tool/test with item discrimination power.

Learning Outcomes: After completion of this course students would able to:

- Describe the role of assessment in education.
- Distinguish measurement, assessment and evaluation.
- Explain different forms of assessment that aid student learning.
- Use wide range of assessment tools, techniques and construct these appropriately.
- Evolve realistic, comprehensive and dynamic assessment procedures.
- Calculate item difficulty and discrimination power of a test item.
- Prepare a good achievement test on any school subject.
- Realize the importance of continuous and comprehensive evaluation in the process of students learning.

References:

1. Agrawal, J C. (1997), Essential of Examination System, Evaluation, Test and Measuremrnt. New Delhi: Vikas Publishing House Pvt. Lt..
2. Banks, S.R. (2005), Classroom Assessment: Issues and Practices. Boston: Allyn & Bacon.
3. Blooms, B.S. (1956), Taxonomy of Educational Objectives. New York: Longman Green and Company.
4. Cooper, D. (2007), Talk About Assessment, Strategy and Tools to Improve Learning. Toronto: Thomson Nelson.
5. Earl, L.M. (2006), Assessment of Learning: Using Classroom Assessment to Maximize Student Learning. Thousand Oaks, California: Corwin Press.
6. Gronlund, N.E. (2003), Assessment of Student Achievement. Boston: Allyn & Bacon.
7. Kaplan, R.M. & SaccuzzoD.P. (2000), Psychological Testing, Principles, Application& Issues. California: Wordsworth.
8. Linn, R.L. & Gronlund, N.E. (2000), Measurement and Assessment in Teaching. London: Merrill Prentice Hall.
9. Noll, N.H. S cannell, D.P. & Craig, RC. (1979), Introduction to Educational Measurement. Boston: Houghton Miffin.
10. Macmillan, J.H. (1997), Classroom Assessment, Principles and Practice for EffEctive Instruction. Boston: Allyn and Bacon.
11. Hopkins, KD. (1998). Educational and Psychological Measurement and Evolution. Boston: Allyn and Bacon.

12. Chohen, R.J., Swerdlik, M.E., & Phillips, S.M. (1996), Psychological testing and Assessment. An Introduction to the Test and Measurement. California: Mayfield Publishing Co.
13. National Council of Educational Research and Training (2005), National Curriculum Framework, New Delhi: NCERT
14. National Council of Educational Research and Training (2006). Position paper: Examination Reform. New Delhi: NCERT
15. National Council of Educational Research and Training (2008). Source Book on Assessment for class I-V: Social Science. New Delhi: NCERT

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 202	Learning And Teaching	**CC**	**4**	**30**	**70**	**100**

Objectives:

- To acquire the basic knowledge of learning and Teaching.
- To understand the implications of educaiton.
- To develop various methods of teaching.
- To understand the various application of educaiton.

Course Contents:

Unit -I Basics of Learning

a) Learning: concept, Nature and characteristics.
b) Factors Affecting Learning.
c) Laws and Types of Learning.
d) Cognitive Learning- Peaget, Bruner.
e) Transfer of Learning

Unit-II : Theories of Learning and their Educational Implications.

a) Trial and Error theory.
b) Classical conditioning theory.
c) Operant conditioning theory.
d) Insight Theory of Learning.
e) Social Learning theroy (Bandura)

Unit-III Concept variables and models of Teaching

a) Teaching: concept, Nature and characteristers.
b) Variables of Teaching and their functions.
c) Factors Affecting Teaching and Teaching process.
d) Relationship between teaching and Learining.
e) Teaching model- concept, functions, sources and elements.

Unit-IV Theories and Application of Teaching

a) Levels of Teaching - memory, understanding and ReflEctive.
b) Teaching theories-concept, need, types and utility.
c) Analyzing Teaching in Deverse classrooms.
d) Teaching as a complex activity.
e) Teaching as a profession.

Assignment & Practical Work

- One Assignment Work on any topic related with above Unit.
- One Practical Work on any topic related with above Unit.

24. शर्मा गणपतराम, व्यास हरिश्चन्द्र, (2007), अधिगम–शिक्षण और मनोसामाजिक आधार, राजस्थान ग्रन्थ अकादमी, जयपुर.
25. शर्मा, जे.डी. (2008), मनोविज्ञान की पद्धतियां एवं सिद्धान्त, विनोद पुस्तक मंदिर, आगरा
26. सुरेश भटनागर, (2008), शिक्षा मनोविज्ञान तथा शिक्षण शास्त्र,, विनोद पुस्तक मन्दिर, आगरा,

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 201	Hindi Literature **कथा साहित्य (उपन्यास एवं कहानी)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को नवीन गद्य विधा, उपन्यास एवं कहानी से परिचित कराना।
2. विद्यार्थियों में कहानी लेखन कौशल विकसित करना।
3. विद्यार्थियों को गद्य समीक्षा कौशल में निपुण बनाना।

इकाई I

1. हिन्दी गद्य साहित्य का उद्भव एवं विकास
2. उपन्यास एवं कहानी विधा का उद्भव एवं विकास तथा प्रमुख गद्य विधाओं का सामान्य परिचय
3. प्रमुख उपन्यासकार एवं कहानीकार तथा उनकी प्रमुख रचनाएँ

इकाई II

1. गबन(उपन्यास) प्रेमचन्द–अरिहन्त प्रकाशन सोजतीगेट जोधपुर

इकाई III

निर्धारित कहानियाँ–

1. परदा– यशपाल
2. इनाम – जैनेन्द्र कुमार
3. सेव और देव– अज्ञेय

इकाई IV

निर्धारित कहानियाँ–

1. परमात्मा का कुत्ता – मोहन राकेश
2. बिरादरी बाहर – राजेन्द्र यादव
3. उसने कहा था – पं. चंद्रधर शर्मा गुलेरी
4. परिन्दे – निर्मल वर्मा

उपलब्धियाँ–

1. विद्यार्थी उपन्यास एवं कहानी साहित्य की विस्तृत जानकारी प्राप्त कर विभिन्न लेखन शैलियों से परिचित होंगे।
2. विद्यार्थी स्वयं कहानी लेखन का अभ्यास कर सकेंगे।

पाठ्यपुस्तक / संदर्भग्रंथ

1 कथा संचय, सं. दुर्गा प्रसाद अग्रवाल, यूनिवर्सिटी बुक हाउस, नई दिल्ली
2 हिन्दी उपन्यासः लक्ष्मीसागर वार्ष्णेय, राधाकृष्ण प्रकाशन नई दिल्ली
3 हिन्दी कहानीः स्वरूप और संवेदना–राजेन्द्र यादव, नेशनल पब्लिशिंग हाउस नई दिल्ली
4 कहानीः नई कहानी– नामवरसिंह, लोकभारती प्रकाशन, इलाहाबाद
5 हिन्दी साहित्य का इतिहास नगेन्द्र मयूर पेपर बैक्स नोएडा
6 हिन्दी कहानीः अन्तरंग पहचान रामदरश मिश्र नेशनल पब्लिशिंग हाउस नई दिल्ली
7 हिन्दी उपन्यासः एक अंतर्यात्रा– रामदरश मिश्र राजकमल प्रकाशन नई दिल्ली

8 कथाकार वृंदावन लाल वर्मा– शशिभूषण सिंहल, हरियाणा साहित्य अकादमी चंडीगढ़

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 202	English Literature (**Prose and Fiction**)	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

1. To enable the students to compose stories.
2. To make them familiar with prose and Narrative art.
3. To acquaint them with some literary terms of these genres.

Unit I: Short Stories

A. The Refugee- Pearl S. Buck.
B. The Luncheon- William Somerset Maugham.
C. The Babus of Nayanjore- Rabindranath Togore.
D. The Axe- R.K. Narayan.

Unit II: English Essays

A. OfStudies- Francis Bacon.
B. Dream Children: A Reverie- Charles Lamb
C. On National Prejudices- Oliver Goldsmith
D. On the Pleasures of No Longer Being Very Young- G.K. Chesterton.

Unit III: Novel- Animal Farm.

Unit IV: Literary Terms and Figures of Speech:

Essay, Elements of Short Story, Myth, Legend, Folk Tale, Aphoristic Style,

Outcomes:

1. The students can understand Essay, Short Story and Novel.
2. They can learn the difference between the Figures of Speech and Literary Terms.

Suggested Reading:

1. Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.
2. Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3. A Choice of Short Stories. (Ed.) Shakti Batra. OUP, New Delhi.
4. Forms of English Prose. Oxford University Press, New Delhi.
5. Animal Farm. George Orwell. Orient Longman.

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 203	Sanskrit Literature (संस्कृत व्याकरण एवं साहित्य) (लघु सिद्धांत कौमुदी)	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. शब्दों के स्त्रिलिंगी प्रत्ययों का ज्ञान करवाना।
2. अव्ययों का ज्ञान करवाना।
3. शेमुषी में व्याकरण एवं साहित्य का समन्वयात्मक ज्ञान करवाना।

इकाई–1 लघु सिद्धांत कौमुदी

1. सुबन्त (अजन्त स्त्रीलिंग से सुबन्त तक)
2. अव्यय प्रकरण (सू. 216–372)
3. स्त्री प्रकरण (सू. 1244–1272)

इकाई–2 रचनानुवाद कौमुदी (पाठ 11 से 20)

इकाई–3 शेमुषी, छन्द एवं अलंकार

1. अनुवाद
2. लघुत्तरात्मक प्रश्न
3. श्लोक रचना

   चयनित छन्द– अनुष्टुप, इन्द्रव्रजा, उपेन्द्रव्रजा, शिखरिणी

   चयनित अलंकार– अनुप्रास, यमक, श्लेष, उपमा एवं दृष्टान्त

इकाई–4 अभिधान चिन्तामणि (श्लोक 31 से 60)

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. स्त्रिलिंग शब्दों के निर्माण की प्रक्रिया का ज्ञान होगा।
2. अव्ययों का सामान्य ज्ञान होगा।
3. सरल संस्कृत संभाषण का अभ्यास होगा।

पाठ्य पुस्तक/संदर्भ ग्रंथ :

1. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
2. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
3. शेमुषी, युवाचार्य महाश्रमण, जैन विश्व भारती, लाडनूं
4. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी
5. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे
6. संस्कृत वाक्य रचना बोध, लेखक–आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
7. सरल वाक्य रचना बोध, मुनि श्री श्रीचंद, जैन विश्व भारती, लाडनूं
8. अनुवाद चन्द्रिका, डॉ. ब्रह्मानंद त्रिपाठी, चौखम्बा प्रकाशन, वाराणसी
9. व्याकरण रचनानुवाद, डॉ. बाबूराम त्रिपाठी, महालक्ष्मी प्रकाशन, आगरा
10. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 204	History **(भारतीय संस्कृति के मूलाधार)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को भारतीय संस्कृति की विशेषताओं से परिचित करवाना।
2. बौद्ध एवं जैन धर्म के सिद्धान्तों एवं शिक्षाओं को समझाना।
3. वर्ण, आश्रम, पुरुषार्थ, संस्कार आदि के महत्त्व को समझाना।
4. कालिदास, तुलसीदास, राजाराममोहनराय, महात्मा गांधी, आचार्य तुलसी, आदि की उपलब्धियों से परिचित करवाना।

इकाई–1

भारतीय संस्कृति की मुख्य विशेषताएं, सिंधु धर्म की मुख्य विशेषताएं, भगवान महावीर का जीवन परिचय एवं प्रमुख शिक्षायें, महात्मा गौत्तम बुद्ध का जीवन एवं शिक्षाएं। वैदिक धर्म की मुख्य विशेषताएं।

इकाई–2

वर्ण व्यवस्था, आश्रम व्यवस्था, पुरुषार्थ चतुष्टय, 16 संस्कार–उपनयन एवं विवाह संस्कार के विशेष संदर्भ में, प्राचीन काल में शिक्षा के केन्द्र– तक्षशिला और नालन्दा। रामायण एवं महाभारतकालीन भारतीय संस्कृति।

इकाई–3

कालीदास एवं तुलसीदास का जीवन एवं उनकी रचनाएँ। सैन्धवकालीन कला की प्रमुख विशेषताएं, मौर्यकालीन कला की मुख्य विशेषताएं, गुप्तकालीन मन्दिर स्थापत्य कला एवं प्रमुख मंदिर, जैन कला की विशेषताएं।

इकाई–4

भक्ति आंदोलन और उसका भारतीय संस्कृति पर प्रभाव, महात्मा गांधी का अहिंसा एवं सत्याग्रह की विचारधारा। आचार्य तुलसी का जीवन परिचय एवं उनके सामाजिक, सांस्कृतिक विचारों का योगदान।

उपलब्धियाँ

1. विद्यार्थी भारतीय संस्कृति की विशेषताओं को समझकर उनको आत्मसात् कर अपने व्यक्तित्व का विकास कर सकेंगे।
2. बौद्ध और जैन धर्म की शिक्षाओं को समझकर उनको अपने जीवन में अपनाकर अपने व्यक्तित्व का विकास एवं आदर्श समाज की स्थापना में योगदान कर पायेंगे।
3. कालिदास, तुलसीदास, राजाराममोहनराय, आचार्य तुलसी, रविन्द्रनाथ टैगोर आदि के जीवन से प्रेरणा प्राप्त कर पायेंगे।

पाठ्यपुस्तक/संदर्भ ग्रंथ :

1. भारतीय संस्कृति के मूलाधार–शर्मा एवं व्यास, पंचशील प्रकाशन, जयपुर
2. भारतीय संस्कृति का इतिहास–कालीशंकर
3. भारतीय कला–के.डी. वाजपेयी
4. भारतीय कला–वासुदेव शरण अग्रवाल, पृथ्वी प्रकाशन, वाराणसी
5. भारतीय संस्कृति–एस.एल. नागौरी, बोहरा प्रकाशन, जयपुर

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 206	Sociology **(Indian Society)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectivess:

- To enable the learners to sociological understanding of Indian Society.
- To enable the learners to understand the structure and compositions of Indian Society.
- To enable the learners to understand the basic Institutions of Indian Society
- To enable the learners to understand challange and problems in Indian Society

Unit - I Sociological Understanding of Indian Society

a) Textual and Field-view Traditions : G.S. Ghurge and M.N. Srinivas
b) Civilization and the Marxiam Tradition : N.K. Bose and D.P. Mukerji
c) Concept of Varna, Ashram, Dharma, Karma and Pursharth
d) Cultural and Ethnic Diversity : Histotically Embedded Diversity in RespEct of Language and Religious Beliefs

Unit - II The Structure and Compositions of Indian Society

a) Rural, Urban, Tribe
b) Rural-Urban Linkages
c) Weaker Section
d) Dalits Women and Minoroties

Unit - III Basic Institutions of Indian Society

a) Family
b) Marriage
c) Kinship
d) Cast and Class : Meaning, Features
e) Processes of Social Change : Sanskritization

Unit - IV Challenge and Problem Before Indian Society

a) Casteism
b) Communication
c) Regionalism
d) Crime Against Women and Chidrens

Learning Outcomes: After completion of this course students would able to:

- Explain sociological understanding of Indian Society.
- Understand the structure and compositions of Indian Society.
- Understand the basic Institutions of Indian Society
- Understand challange and problems in Indian Society

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4. Atal Yogesh 2008, Changing Indian Society, Rawat Publications, Jaipur

5. Sharma K.L. 2007, Indian Social Structure and Change, Rawat Publications, Jaipur
6. आहुजा, राम 2009, भारतीय सामाजिक व्यवस्था, रावत पब्लिकेशन्स, जयपुर
7. दोषी, एस.एल. 2009, भारतीय सामाजिक विचारक, रावत पब्लिकेशन्स, जयपुर
8. शर्मा के. एल. 2006, भारतीय सामाजिक संरचना एवं परिवर्तन, रावत पब्लिकेशन्स, जयपुर
9. दोषी, एस.एल. एवं जैन पी.सी. 2002, भारतीय समाज, नेशनल पब्लिकेशन्स हाउस, जयपुर
10. पटेल, तुलसी 2011, भारत में परिवार : संरचना एवं व्यवहार, रावत पब्लिकेशन्स, जयपुर

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 207	Geography **(Geography of Rajasthan)**	**Any Three CE**	**4**	**30**	**50+20 (Practical) 70**	**100**

Objectivess:
- ❖ Giving Deep Knowledge about climate conditions of Rajasthan.
- ❖ Knowledge about human resources of Rajasthan.
- ❖ Knowledge regarding industries of Rajasthan.

Unit-I
a) Physiographic division of Rajasthan.
b) Climate
c) Drainage System
d) Natural vegetation

Unit-II
a) Soils of Rajasthan
b) Agriculture: Type and Distribution of major crops
c) Irrigation: Indira Gandhi Canal Project Chambal valley Project, Mahi Bajaj Sagar Project.
d) Tourism in Rajasthan.

Unit- III
a) Drought and Desertification
b) Industries: Textile, Sugar, Cement, Marble and Granite, Fertilizers, Zinc and Copper Smelting,
c) Power & Energy resource
d) Trade & Transport Development of Tourism.

Unit- IV
a) Population - number, growth, rural and urban male and female population, literacy status, occupational structure.
b) Schedule tribes- Bhils, Meena and Garasias
c) Settlement Pattern - Type and Building Materials.
d) Rural/Urban Settlement Patterns.

Practical
- Representation of statistical data though diagrams: Multiple Bar Diagram, Simple Pyramid Diagrams : REctangular Diagram, Wheel or Pie-Diagram, Spherical Diagrams, Play lineargraph, Climograph.
- Measures of Central Tendency : Arithmetic mean, mode, median (Direct Method)

Objectivess: After completion the course student would be able to:
- ❖ Expalin the climate conditions of Rajasthan.

5. Sharma K.L. 2007, Indian Social Structure and Change, Rawat Publications, Jaipur
6. आहुजा, राम 2009, भारतीय सामाजिक व्यवस्था, रावत पब्लिकेशन्स, जयपुर
7. दोषी, एस.एल. 2009, भारतीय सामाजिक विचारक, रावत पब्लिकेशन्स, जयपुर
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10. पटेल, तुलसी 2011, भारत में परिवार : संरचना एवं व्यवहार, रावत पब्लिकेशन्स, जयपुर

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 207	Geography **(Geography of Rajasthan)**	**Any Three CE**	**4**	**30**	**50+20 (Practical) 70**	**100**

Objectivess:
- ❖ Giving Deep Knowledge about climate conditions of Rajasthan.
- ❖ Knowledge about human resources of Rajasthan.
- ❖ Knowledge regarding industries of Rajasthan.

Unit-I
a) Physiographic division of Rajasthan.
b) Climate
c) Drainage System
d) Natural vegetation

Unit-II
a) Soils of Rajasthan
b) Agriculture: Type and Distribution of major crops
c) Irrigation: Indira Gandhi Canal Project Chambal valley Project, Mahi Bajaj Sagar Project.
d) Tourism in Rajasthan.

Unit- III
a) Drought and Desertification
b) Industries: Textile, Sugar, Cement, Marble and Granite, Fertilizers, Zinc and Copper Smelting,
c) Power & Energy resource
d) Trade & Transport Development of Tourism.

Unit- IV
a) Population - number, growth, rural and urban male and female population, literacy status, occupational structure.
b) Schedule tribes- Bhils, Meena and Garasias
c) Settlement Pattern - Type and Building Materials.
d) Rural/Urban Settlement Patterns.

Practical
- Representation of statistical data though diagrams: Multiple Bar Diagram, Simple Pyramid Diagrams : REctangular Diagram, Wheel or Pie-Diagram, Spherical Diagrams, Play lineargraph, Climograph.
- Measures of Central Tendency : Arithmetic mean, mode, median (Direct Method)

Objectivess: After completion the course student would be able to:
- ❖ Expalin the climate conditions of Rajasthan.

Learning Outcomes: After completion of this course students would able to:

- ❖ Acquire knowledge and understanding of learning and Teaching.
- ❖ Understand the theories of learning.
- ❖ Develop the skill of active engagement of students in teaching learning activity.
- ❖ Investigate differences and connections between learning in school and learning outside school.
- ❖ Inculcate the knowledge of teaching and its process.
- ❖ Understand learners, learning process and school.

References:

1. Baron, R.A., and Byrne D., (2002), Social Psychology, (10th Ed.), Prentice Hall of India Private Limited, New Delhi.
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3. Browne, J.D. (1970), Development of Educational Technology in college of Education, councils in Education Press.
4. Cooper, I.M. (1960), Classroom Teaching Skills, D.C. Heathco, Toronto, 1960.
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20. ikBd] ih-Mh-] ¼2007½] f'k{kk euksfoKku] fouksn iqLrd eafnj] vkxjk
21. eaxy] ,l-ds-] ¼2008½] f'k{kk euksfoKku] fizafVlZ gkWy vkWQ bf.M;k izkbosV] ubZ fnYyh-
22. oekZ] izhfr] JhokLro Mh-,u-] ¼2008½] vk/kqfud lkekU; euksfoKku] vxzoky ifCyds'ku] vkxjk-
23. ;kno] fl;kjke] ¼2008½] vf/kxedrkZ dk fodkl ,oa f'k{k.k vf/kxe izfØ;k] 'kkjnk iqLrd Hkou] bykgkckn

24. 'kekZ x.kirjke] O;kl gfj'pUnz] ¼2007½] vf/kxe&f'k{k.k vkSj eukslkekftd vk/kkj] jktLFkku xzUFk vdkneh] t;iqj-
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26. lqjs'k HkVukxj] ¼2008½] f'k{kk euksfoKku rFkk f'k{k.k 'kkL=]] fouksn iqLrd efUnj] vkxjk]

Semester II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 209	Home Science **(Family Resource Management)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectivess:

- To understand the meaning of resources management and concepts related to management.
- To apply managerial process to management of time, energy and money.
- To understand saving investment and credit pattern of family.
- To increase awareness about consumer problems, rights, responsibilities & protEction laws.

Unit I Housing

a) Housing and Family: Functions, needs & scope.
b) Principles of house planning: aspEct, prospEct, grouping of room, roominess, privacy, orientation, flexibility, aesthetics Economy, ventilation services
c) Site selEction: Vegetation- size, soil type drainage, orientation
d) Kitchen planning: planning, importance of counters, storage and heights

Unit II Interior designing

a) Principles and elements of arts and design as related to interior dEcoration with spECific reference to color and light
b) Floor dEcoration with use of elementary art, Table setting & etiquettes
c) Furniture: Types of furniture, selEction, use and care
d) Flower DEcoration: Basic equipments, vases and containers preparing plant material, shaping an arrangement

Unit III Resource management

a) Meaning, definition and importance of home management
b) Process of management : Planning, organization, implementation, controlling and evaluation
c) Introduction to motivational factor: Meaning and types of values, goals, standards, dECision making
d) Time management: Time cost, time norms, peak loads, work curve and rest periods, process of managing time
e) Energy management: Process, body mEChanics, work simplification, Ergonomics

Unit IV Consumer problems and Waste management

a) Consumer problems, rights and responsibilities
b) Seeking redress to consumer problems with spECial reference to consumer courts
c) Household waste & its management by 3R
d) SelEction and care of household equipment related to waste management
e) Swachh Bharat Abhiyaan: Goals, significance and programmes in reference to waste management

Assignment Work (Any one)

- To prepare a Project report related to techniques of waste management.
- To prepare a file related to patterns and furnishing of interior designing.

- To prepare a scrap book related to flower dEcoration and kitchen planning models.
- To prepare a Project report on different approaches of resource management.

Learning Outcomes: After completion of the course student would be able to:

- ❖ Understand the meaning of resources management and concepts related to management.
- ❖ Managerial process to management of time, energy and money.
- ❖ Understand saving investment and credit pattern of family.
- ❖ Increase awareness about consumer problems, rights, responsibilities & protEction laws.

References:

1. Agarwal, S. (2009) Grih prabandh Manual, Shivam book house, Jaipur
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Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 301	Understanding Discipline and Subjects	Any one **CE**	**4**	**30**	**70**	**100**

Objectives:

- To make aware the students about the diciplines and its characteristics.
- To give Introduction of Kalidas, Tulsidas and Shakespeare
- To understand the scientific idea of science education.
- To apply the thought of social science language in their day to day life.

Course Contents:

Unit- I Language and Disciplines

a) Meaning of discipline
b) Characteristics of a discipline
c) Inter- disciplinary approach

Unit- II Language and Disciplines

a) History of language development (Hindi, Sanskrit and English)
b) Language technology
c) Language lab
d) Phonetics science
e) Introduction of Kalidas, Tulsidas and Shakespeare

Unit- III Social Science and Discipline

a) History and game cricket
b) History of woman empowerment
c) New trends cultural in society
d) Political socialization
e) Article of democratic problems (Terrorism, corruption &kola-Brokers)

Unit- IV Science and Disciplines

a) Life sketch of scientists (Dalton, Rutherford, Newton, Mendal and Homi Jahangir Bhabha)
b) Science and sound
c) Nutrition and balanced diet
d) Human diseases
e) Electricity and light

Assignment & Practical Works : (Any Two)

- Write Any one Assignment Work
- Write a short note on Importance of Language in teacher
- Read and review an article

- Prepare a report on creative writing

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand language of various discipline.
- ❖ Develop expression of various language areas.
- ❖ Acquire scientific study of language phonetics.
- ❖ Know the scientific idea of science education.
- ❖ Apply the thought of social science language in their day today life.
- ❖ Develop interdisciplinary approach of language (Hindi/Sanskrit/English).

References :

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Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 302	Innovative Methods	Any one **CE**	**4**	**30**	**70**	**100**

Objectives:

- To introduce students about the concepts of innovations in teaching.
- To understand the idea of various subject methods.

Course Contents:

Unit- I Concept of Innovation.

d) Innovation : Meaning, Definition
e) Characteristics of Innovation
f) Methods : concept, Objectives
g) Meathods Characteristics and Utility

Unit- II Methods of Social science

f) Time line method
g) Source method
h) Biographical method
i) Socialized RECitation method

Unit- III Methods of Science

f) Demonstration method
g) Experimental/ Laboratoury method
h) Heuristic method
i) Project method

Unit- IV Methods of Language

f) LEcture method
g) Inductive and Deductive
h) Supervised study method
i) Brain Storming

Assignment & Practical Works : (Any Two)

f) Demonstration method
g) Experimental/ Laboratoury method
h) Heuristic method
i) Project method

Unit- IV Methods of Language

f) LEcture method
g) Inductive and Deductive
h) Supervised study method
i) Brain Storming

Assignment & Practical Works : (Any Two)

- Write any one Assignment Work
- Write a short note on Importance of Language in teacher
- Read and review an article
- Prepare a report on creative writing

Learning Outcomes: After completion of this course students would able to:

- Develop knowledge of various innovative methods.
- Understand the idea of methods.

Suggested Readings:

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Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 301	Hindi Literature **(रीतिकालीन काव्य)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को रीतिकालीन काव्य से परिचित करवाना।
2. विद्यार्थियों को विभिन्न कवियों की काव्यशैली की जानकारी देना।
3. विद्यार्थियों को विभिन्न कवियों की भाषाशैली से परिचित करवाना।

इकाई I

1. रीतिकालः परिस्थितियाँ नामकरण, रीतिकालीन साहित्य का वर्गीकरण, प्रमुख प्रवृत्तियां, प्रमुख रचनाकार एवं उनकी रचनाएं

इकाइ II

- रीतिरस तरंगिणीः ऑक्सफोर्ड बुक डिस्ट्रीब्यूटर्स, जयपुर निर्धारित कवि एवं काव्यांश

क. केशवदास–1. सरस्वती वंदना 2. रामवंदना 3. पंचवटी वर्णन 4. हनुमान लंका गमन 5. सीतादर्शन 6. सीता हनुमान संवाद 7. हनुमान रावण संवाद 8. हनुमान रामचर्चा 9. रामरावण युद्ध 10. रावण वध

ख. बिहारी – दोहे (1, 3, 10, 11, 14, 16, 22, 27, 29, 32)

2. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई III

- रीतिरस तरंगिणीः ऑक्सफोर्ड बुक डिस्ट्रीब्यूटर्स, जयपुर निर्धारित कवि एवं काव्यांश

क. घनानंद – सुजान प्रेम

ख. देव– जीवन सार सुधा

ग. सेनापति– ऋतुवर्णन, श्लेषवर्णन, श्रृगांर वर्णन

2. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई IV

- रीतिरस तरंगिणीः ऑक्सफोर्ड बुक डिस्ट्रीब्यूटर्स, जयपुर निर्धारित कवि एवं काव्याशं

1. क. भूषण–शिवाजी का शौर्य,छत्रसाल प्रताप

ख. मतिराम–दानवीर महिमा, भक्तिभाव,प्रकृतिवर्णन

ग. वृंद–सतसई

2. निर्धारित कवियों की काव्यगत विशेषताएं

उपलब्धियाँ–

1. विद्यार्थी विभिन्न कवियों की लेखनशैली से परिचित होकर अपना मत प्रस्तुत कर सकेंगे।
2. विद्यार्थी रीतिकालीन काव्य का परिचय प्राप्त कर स्वयं काव्य रचना का प्रयास कर सकेंगे।

पाठ्यपुस्तक/संदर्भ ग्रंथः–

1. रीतिरस तरंगिणी, ऑक्सफोर्ड बुक डिस्ट्रीब्यूटर्स, जयपुर
2. रीतिकाव्य की भूमिका–डॉ नगेन्द्र नेशनल पब्लिशिंग हाउस, नई दिल्ली
3. हिन्दी साहित्य का वृहद इतिहास (16 खण्ड) संपादक डॉ नगेन्द्र प्रचारिणी सभा काशी
4. हिन्दी साहित्य की भूमिका–आचार्य हजारी प्रसाद द्विवेदी हिन्दी ग्रंथ रत्नाकर, मुंबई
5. हिन्दी साहित्य का अतीत(भाग 2) –आचार्य विश्वनाथ प्रसाद मिश्र वाणी प्रकाशन नई दिल्ली
6. हिन्दी साहित्य का इतिहास; रीतिकाल–आचार्य रामचन्द्र शुक्ल नागरी प्रचारिणी सभा काशी

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 302	English Literature **(Poetry and Drama)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

1- To enable the students to compose poems.

2- To make them familiar with Romantic and Victorian Poetry, Indian Poetry and Drama.

3- To acquaint them with some literary terms of these genres.

Unit I: Indian Poetry

A- Night of the Scorpion: Nissim Ezekiel.

B- Servants: Gieve Patel.

C- A Bomb Site: AdilJussawala.

D- The Queen's Rival: Sarojini Naidu.

Unit II: English Poetry

A- Elegy Written in a Country Churchyard: Thomas Gray.

B- The World is too Much With Us: William Wordsworth.

C- Dover Beach: Matthew Arnold.

D- Prospice: Robert Browning.

E- Crossing the Bar: Alfred Lord Tennyson.

Unit III: Drama: As you Like It- William Shakespeare.

Unit IV: Literary Terms: Elegy, Sonnet, Ode, Epic, Dramatic Monologue, Comedy, Soliloquy, Aside.

A Social and Literary Background to the Writers Prescribed.

Outcomes:

1- The students can understand the changing nature of Literature through ages.

2- They will become familiar with various forms of verse and dramatic art.

Suggested Reading:

1. Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.
2. Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3. Poet's Pen. Homi p. Dustoor. Oxford University Press, New Delhi.
4. Paper I (Poetry) Jain Vishva Bharti University, Ladnun.
   As You Like It. William Shakespeare.

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 303	Sanskrit Literature **संस्कृत व्याकरण एवं साहित्य (लघुसिद्धान्त कौमुदी)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. नाटक एवं महाकाव्य की शैली का अवबोध करवाना।
2. कारक से शब्दरूप की विभक्तियों का ज्ञान करवाना।
3. समास के द्वारा शब्दों के निर्माण की विधि सिखाना।

इकाई 1. लघुसिद्धांतकौमुदी

क. कारक प्रकरण (सूत्र 888 से 903 तक)

ख. समास प्रकरण (सूत्र 904 से 993 तक)

ग. तद्धित प्रकरण (चातुरर्थिका तक) (सूत्र 994 –1064 तक)

इकाई 2. रचनानुवाद कौमुदी (पाठ 21 से 30)

इकाई 3. रघुवंशम् (द्वितीय सर्ग) एवं स्वप्नवासदत्तम्

C- A Bomb Site: AdilJussawala.

D- The Queen's Rival: Sarojini Naidu.

Unit II: English Poetry

A- Elegy Written in a Country Churchyard: Thomas Gray.

B- The World is too Much With Us: William Wordsworth.

C- Dover Beach: Matthew Arnold.

D- Prospice: Robert Browning.

E- Crossing the Bar: Alfred Lord Tennyson.

Unit III: Drama: As you Like It- William Shakespeare.

Unit IV: Literary Terms: Elegy, Sonnet, Ode, Epic, Dramatic Monologue, Comedy, Soliloquy, Aside.
A Social and Literary Background to the Writers Prescribed.

Outcomes:

1- The students can understand the changing nature of Literature through ages.

2- They will become familiar with various forms of verse and dramatic art.

Suggested Reading:

1. Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.
2. Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3. Poet's Pen. Homi p. Dustoor. Oxford University Press, New Delhi.
4. Paper I (Poetry) Jain Vishva Bharti University, Ladnun.
   As You Like It. William Shakespeare.

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 303	Sanskrit Literature संस्कृत व्याकरण एवं साहित्य (लघुसिद्धान्त कौमुदी)	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. नाटक एवं महाकाव्य की शैली का अवबोध करवाना।
2. कारक से शब्दरूप की विभक्तियों का ज्ञान करवाना।
3. समास के द्वारा शब्दों के निर्माण की विधि सिखाना।

इकाई 1. लघुसिद्धांतकौमुदी

क. कारक प्रकरण (सूत्र 888 से 903 तक)

ख. समास प्रकरण (सूत्र 904 से 993 तक)

ग. तद्धित प्रकरण (चातुरर्थिका तक) (सूत्र 994 –1064 तक)

इकाई 2. रचनानुवाद कौमुदी (पाठ 21 से 30)

इकाई 3. रघुवंशम् (द्वितीय सर्ग) एवं स्वप्नवासदत्तम्

रघुवंशम् – 1. चरित्र चित्रण 2. श्लोकार्थ

स्वप्नवासदत्तम् – 1. चरित्र चित्रण 2. अनुवाद 3. कथा सारांश

इकाई–4. अभिधान चिन्तामणि (छठा काण्ड, श्लोक 61 से 90)

उपलब्धियाँ–

1. नाटक पठन से संभाषण कला का ज्ञान होगा।
2. विभक्ति संबंधी ज्ञान में अशुद्धि नहीं रहेगी।
3. श्लोक रचना आदि में समास का कार्यकारी ज्ञान होगा।

पाठ्य पुस्तक/संदर्भ ग्रन्थः

1. स्वप्नवासदत्तम्, महाकवि भास, व्याख्याकार डॉ. रूपनारायण त्रिपाठी, हंसा प्रकाशन, जयपुर, 2006
2. रघुवंशम् द्वितीय सर्ग–महाकवि कालिदास संपादक–डॉ. रविकान्तमणि, हंसा प्रकाशन, जयपुर, 2007
3. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
4. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
5. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी
6. लघु सिद्धान्त कौमुदी, महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
7. लघु सिद्धान्त कौमुदी, टीकाकार–राजेन्द्र चौधरी, रामनारायण वेणीप्रसाद, इलाहाबाद
8. लघु सिद्धान्त कौमुदी, भैमी व्याख्या, आचार्य भीमसेन शास्त्री
9. रचनानुवाद कौमुदी, डॉ. कपिलदेव द्विवेदी आचार्य, विश्वविद्यालय प्रकाशन, वाराणसी
10. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे
11. कालू कौमुदी, मुनि चौथमल, जैन विश्व भारती, लाडनूं

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 304	History **(मध्यकालीन भारत का इतिहास)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. मध्यकालीन भारत के इतिहास से परिचित करवाना।
2. अकबर की महानता से परिचित करवाना।
3. मुगलकालीन कला से परिचित करवाना।

इकाई–I

भारत में तुर्की साम्राज्य की स्थापना–कुतुबुद्दीन ऐबक, इल्तुतमिश, रजिया। दिल्ली सल्तनत में बलबन की महत्त्वपूर्ण उपलब्धियाँ एवं योगदान, अलाउद्दीन खिलजी–साम्राज्य विस्तार, प्रशासनिक नीति, बाजार नियन्त्रण प्रणाली एवं जनता पर प्रभाव।

इकाई II

मोहम्मद बिन तुगलक की नवीन योजनाएं एवं प्रभाव, फिरोज तुगलक की धार्मिक एवं सार्वजनिक नीति, दक्षिण भारत में विजयनगर साम्राज्य का उत्थान, उपलब्धियां एवं पतन। सल्तनतकालीन प्रशासन।

रघुवंशम् – 1. चरित्र चित्रण 2. श्लोकार्थ

स्वप्नवासदत्तम् – 1. चरित्र चित्रण 2. अनुवाद 3. कथा सारांश

इकाई–4. अभिधान चिन्तामणि (छठा काण्ड, श्लोक 61 से 90)

उपलब्धियाँ–

1. नाटक पठन से संभाषण कला का ज्ञान होगा।
2. विभक्ति संबंधी ज्ञान में अशुद्धि नहीं रहेगी।
3. श्लोक रचना आदि में समास का कार्यकारी ज्ञान होगा।

पाठ्य पुस्तक/संदर्भ ग्रन्थः

1. स्वप्नवासदत्तम्, महाकवि भास, व्याख्याकार डॉ. रूपनारायण त्रिपाठी, हंसा प्रकाशन, जयपुर, 2006
2. रघुवंशम् द्वितीय सर्ग–महाकवि कालिदास संपादक–डॉ. रविकान्तमणि, हंसा प्रकाशन, जयपुर, 2007
3. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
4. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
5. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी
6. लघु सिद्धान्त कौमुदी, महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
7. लघु सिद्धान्त कौमुदी, टीकाकार–राजेन्द्र चौधरी, रामनारायण वेणीप्रसाद, इलाहाबाद
8. लघु सिद्धान्त कौमुदी, भैमी व्याख्या, आचार्य भीमसेन शास्त्री
9. रचनानुवाद कौमुदी, डॉ. कपिलदेव द्विवेदी आचार्य, विश्वविद्यालय प्रकाशन, वाराणसी
10. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे
11. कालू कौमुदी, मुनि चौथमल, जैन विश्व भारती, लाडनूं

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 304	History **(मध्यकालीन भारत का इतिहास)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. मध्यकालीन भारत के इतिहास से परिचित करवाना।
2. अकबर की महानता से परिचित करवाना।
3. मुगलकालीन कला से परिचित करवाना।

इकाई–I

भारत में तुर्की साम्राज्य की स्थापना–कुतुबुद्दीन ऐबक, इल्तुतमिश, रजिया। दिल्ली सल्तनत में बलबन की महत्त्वपूर्ण उपलब्धियाँ एवं योगदान, अलाउद्दीन खिलजी–साम्राज्य विस्तार, प्रशासनिक नीति, बाजार नियन्त्रण प्रणाली एवं जनता पर प्रभाव।

इकाई II

मोहम्मद बिन तुगलक की नवीन योजनाएं एवं प्रभाव, फिरोज तुगलक की धार्मिक एवं सार्वजनिक नीति, दक्षिण भारत में विजयनगर साम्राज्य का उत्थान, उपलब्धियां एवं पतन। सल्तनतकालीन प्रशासन।

इकाई III

मुगल साम्राज्य की स्थापना–बाबर, हुमाँयु। शेरशाह सूरी का उत्कर्ष एवं प्रशासन प्रबंध। अकबर–साम्राज्य विस्तार, सुदृढ़ीकरण, राजपूत नीति, धार्मिक नीति का मूल्यांकन।

इकाई IV

मुगल दरबार में नूरजहां जुन्टा गुट की भूमिका। औरंगजेब की राजपूत नीति, दक्षिण नीति एवं असफलता के कारण। शिवाजी का उत्कर्ष एवं शासन प्रबंध।

मुगलकालीन–स्थापत्य कला, शासन प्रबंध एवं पतन के कारण।

उपलब्धियाँ–

1. विद्यार्थी मध्यकालीन भारतीय इतिहास के प्राप्त ज्ञान का उपयोग प्रतियोगी परीक्षाओं में कर पायेंगे।
2. विद्यार्थी मुगलकालीन संस्कृति, शासन प्रबंध आदि से परिचित हो पायेंगे।
3. मुगल कला के विश्लेषणात्मक अध्ययन से विद्यार्थियों में कला के तुलनात्मक अध्ययन की क्षमता बढेगी।

पाठ्यपुस्तक/सन्दर्भ ग्रंथः

1. सेंगर, शैलेन्द्र– मध्यकालीन भारत का इतिहास, अटलांटिक पब्लिशर्स, जयपुर, 2005
2. भार्गव, डॉ. वी.एस.–मध्यकालीन भारतीय इतिहास, रिसर्च पब्लिकेशन, जयपुर।
3. वर्मा, हरिश्चन्द्र–मध्यकालीन भारतीय इतिहास, भाग–1 एवं 2, हिन्दी माध्यम कार्यान्वयन निदेशालय, नई दिल्ली।
4. गुप्ता व पेमाराम–मध्यकालीन भारत का इतिहास, क्लासिक पब्लिकेशन हाउस, जयपुर

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 305	Political Science **(प्रमुख राजनीतिक व्यवस्थायें)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को विश्व के प्रमुख संविधानों की जानकारी देना।
2. विद्यार्थियों को संघात्मक एवं एकात्मक संविधानों से अवगत कराना।
3. लिखित एवं अलिखित संविधानों के बारे में बताना।
4. विद्यार्थियों की प्रतियोगी परीक्षाओं में तर्क शक्ति बढ़ाना।

इकाई I

ब्रिटेन का संविधान–प्रमुख विशेषताएं, संवैधानिक परम्परायें (अभिसमय) सम्राट एवं राजमुकुट, मन्त्रिमण्डल एवं प्रधानमंत्री, स्पीकर का पद, संसद–कॉमन सभा एवं लार्ड सभा

इकाई II

संयुक्त राज्य अमेरिका संविधान–प्रमुख विशेषताएं, शक्ति पृथक्करण का सिद्धांत, अमेरिकी संघ व्यवस्था, राष्ट्रपति का पद, कांग्रेस–प्रतिनिधि सभा एवं सीनेट, सर्वोच्च न्यायालय

इकाई III

इकाई III

मुगल साम्राज्य की स्थापना–बाबर, हुमाँयु। शेरशाह सूरी का उत्कर्ष एवं प्रशासन प्रबंध। अकबर–साम्राज्य विस्तार, सुदृढ़ीकरण, राजपूत नीति, धार्मिक नीति का मूल्यांकन।

इकाई IV

मुगल दरबार में नूरजहां जुन्टा गुट की भूमिका। औरंगजेब की राजपूत नीति, दक्षिण नीति एवं असफलता के कारण। शिवाजी का उत्कर्ष एवं शासन प्रबंध।

मुगलकालीन–स्थापत्य कला, शासन प्रबंध एवं पतन के कारण।

उपलब्धियाँ–

1. विद्यार्थी मध्यकालीन भारतीय इतिहास के प्राप्त ज्ञान का उपयोग प्रतियोगी परीक्षाओं में कर पायेंगे।
2. विद्यार्थी मुगलकालीन संस्कृति, शासन प्रबंध आदि से परिचित हो पायेंगे।
3. मुगल कला के विश्लेषणात्मक अध्ययन से विद्यार्थियों में कला के तुलनात्मक अध्ययन की क्षमता बढेगी।

पाठ्यपुस्तक/सन्दर्भ ग्रंथः

1. सेंगर, शैलेन्द्र– मध्यकालीन भारत का इतिहास, अटलांटिक पब्लिशर्स, जयपुर, 2005
2. भार्गव, डॉ. वी.एस.–मध्यकालीन भारतीय इतिहास, रिसर्च पब्लिकेशन, जयपुर।
3. वर्मा, हरिश्चन्द्र–मध्यकालीन भारतीय इतिहास, भाग–1 एवं 2, हिन्दी माध्यम कार्यान्वयन निदेशालय, नई दिल्ली।
4. गुप्ता व पेमाराम–मध्यकालीन भारत का इतिहास, क्लासिक पब्लिकेशन हाउस, जयपुर

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 305	Political Science **(प्रमुख राजनीतिक व्यवस्थायें)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को विश्व के प्रमुख संविधानों की जानकारी देना।
2. विद्यार्थियों को संघात्मक एवं एकात्मक संविधानों से अवगत कराना।
3. लिखित एवं अलिखित संविधानों के बारे में बताना।
4. विद्यार्थियों की प्रतियोगी परीक्षाओं में तर्क शक्ति बढ़ाना।

इकाई I

ब्रिटेन का संविधान–प्रमुख विशेषताएं, संवैधानिक परम्परायें (अभिसमय) सम्राट एवं राजमुकुट, मन्त्रिमण्डल एवं प्रधानमंत्री, स्पीकर का पद, संसद–कॉमन सभा एवं लार्ड सभा

इकाई II

संयुक्त राज्य अमेरिका संविधान–प्रमुख विशेषताएं, शक्ति पृथक्करण का सिद्धांत, अमेरिकी संघ व्यवस्था, राष्ट्रपति का पद, कांग्रेस–प्रतिनिधि सभा एवं सीनेट, सर्वोच्च न्यायालय

इकाई III

स्विस संविधान–प्रमुख विशेषताएं, मौलिक अधिकार एवं स्विस संघ व्यवस्था, संसद, संघीय परिषद्, संघीय सर्वोच्च न्यायालय, प्रत्यक्ष प्रजातंत्र।

इकाई IV

जनवादी चीन का संविधान–प्रमुख विशेषताएं, राष्ट्रीय जन कांग्रेस, राष्ट्रपति एवं राज्यपरिषद्, चीन का साम्यवादी दल।

उपलब्धियाँ–

1. विद्यार्थी विभिन्न देशों के संविधानों को विस्तृत रूप से जान सकेंगे।
2. विभिन्न देशों के संविधानों का तुलनात्मक अध्ययन कर सकेंगे।
3. परम्परागत एवं आधुनिक संविधानों के दृष्टिकोण को समझ सकेंगे।
4. विभिन्न संविधानों में संशोधनों की जानकारी प्राप्त कर सकेंगे।

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1.Ogg & Zink : Modern Foreign Governments.
2. Menelly : Contemporary Government Japan. Houghton Muffin,1963
3. V.D. Mahajan : Modern Constitutions.
4. H. Finer : Theory and Practice of Modern Government, London.
5. A.H. Brich : British System of Government.
6. पुखराज जैन–प्रमुख राजव्यवस्थायें, साहित्य भवन, पब्लिकेशन्स, आगरा
7. बी.एल. फडिया–प्रमुख राजनीतिक व्यवस्थायें, कॉलेज बुक हाउस, जयपुर
8. आर.सी.अग्रवाल–विश्व के प्रमुख संविधान, एस.चन्द एण्ड कम्पनी, नई दिल्ली

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 306	Sociology **(Social Research Method)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To develop and under standing about the concept of research in social science.
- To develop skill in pro paring a good research proposal and research design.
- To include the idea of different bases of research in the field of sociology.
- To Understand about the use of different types of research tools and techniques.
- To appraise critically about research work in social science field.

Unit - I Scientific Study of Social Phenomena

- The Scientific Method
- Steps in Scoial Research
- Objectives and Subjectivity in Social Science
- Positivism and Empiricism in Sociology
- Hypothesis : Meaning, Types

Unit - II Types of Research in Social Science

- Meaning, Scope and Significance of Social Survey and Social Research

स्विस संविधान–प्रमुख विशेषताएं, मौलिक अधिकार एवं स्विस संघ व्यवस्था, संसद, संघीय परिषद्, संघीय सर्वोच्च न्यायालय, प्रत्यक्ष प्रजातंत्र।

इकाई IV

जनवादी चीन का संविधान–प्रमुख विशेषताएं, राष्ट्रीय जन कांग्रेस, राष्ट्रपति एवं राज्यपरिषद्, चीन का साम्यवादी दल।

उपलब्धियाँ–

1. विद्यार्थी विभिन्न देशों के संविधानों को विस्तृत रूप से जान सकेंगे।
2. विभिन्न देशों के संविधानों का तुलनात्मक अध्ययन कर सकेंगे।
3. परम्परागत एवं आधुनिक संविधानों के दृष्टिकोण को समझ सकेंगे।
4. विभिन्न संविधानों में संशोधनों की जानकारी प्राप्त कर सकेंगे।

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1.Ogg & Zink : Modern Foreign Governments.
2. Menelly : Contemporary Government Japan. Houghton Muffin,1963
3. V.D. Mahajan : Modern Constitutions.
4. H. Finer : Theory and Practice of Modern Government, London.
5. A.H. Brich : British System of Government.
6. पुखराज जैन–प्रमुख राजव्यवस्थायें, साहित्य भवन, पब्लिकेशन्स, आगरा
7. बी.एल. फडिया–प्रमुख राजनीतिक व्यवस्थायें, कॉलेज बुक हाउस, जयपुर
8. आर.सी.अग्रवाल–विश्व के प्रमुख संविधान, एस.चन्द एण्ड कम्पनी, नई दिल्ली

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 306	Sociology **(Social Research Method)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To develop and under standing about the concept of research in social science.
- To develop skill in pro paring a good research proposal and research design.
- To include the idea of different bases of research in the field of sociology.
- To Understand about the use of different types of research tools and techniques.
- To appraise critically about research work in social science field.

Unit - I Scientific Study of Social Phenomena

- The Scientific Method
- Steps in Scoial Research
- Objectives and Subjectivity in Social Science
- Positivism and Empiricism in Sociology
- Hypothesis : Meaning, Types

Unit - II Types of Research in Social Science

- Meaning, Scope and Significance of Social Survey and Social Research

- ❖ Types of Research :
  - Basic and Applied
  - Historical and Empirical
  - Descriptive, Exploratory, Experimental

Unit - III Research Methods and Techniques

- ❖ Quantitative and Qualitative Methods
- ❖ Quantitative Techniques : Observation, Case Study Content Analysis
- ❖ Qualitative Techniques : Survey, Questionnaire, Schedule and Interview

Unit - IV Classification and Presentation fo Data

- ❖ Sources of Data : Primary and Secondary
- ❖ Tabular and Diagramatic Presentation of Data : Tables, Graphs, Histograms
- ❖ Measures of central tendency : Mean, Mode, Median

Learning Outcomes: After compition the course students would be able to:

- ❖ Develop and under standing about the concept of research in social science.
- ❖ Develop skill in pro paring a good research proposal and research design.
- ❖ Include the idea of different bases of research in the field of sociology.
- ❖ Understand about the use of different types of research tools and techniques.
- ❖ Appraise critically about research work in social science field.

Reference:

1. Bryman, Alan 1988 Quality and Quantity in Social Research, Londan, Unwin Hyman
2. Garrett, Henry 1981, Statistics in Psychology and Education, David Mekay : Indian
3. Jayaram, N. 1989, Sociology, Methods and Theory, Madras, Macmillias
4. Kothari C.R., 1989, Research Methodology : Methods and Techniques, Bangalore, Wileg Eastern
5. Young P.V., 1988, Scientific Social Surveys and Research

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 307	Geography **(Human Geography)**	**Any Three CE**	**4**	**30**	**50+20 Practical) 70**	**100**

Objectivess-

1. To make students aware about human Geography.
2. To make aware about Population Distribution & Human Development.
3. To make students aware about schools & principles of Human Geography.

Unit-I

a) Definition and scope of Human Geography.
b) Its relation with other Subjects.
c) Schools of Human Geography : determinism, possibilism and neo-determinism.
d) Fundamental principles of Human Geography : Principle of activity, Principle of terrestrial unity.

Unit-II

a) Races of man kind :- Criteria of classification and distribution according to G. Taylor
b) Migration zone Theory by Griffith Taylor
c) Factors of evolution of human races

- ❖ Types of Research :
  - Basic and Applied
  - Historical and Empirical
  - Descriptive, Exploratory, Experimental

Unit - III Research Methods and Techniques

- ❖ Quantitative and Qualitative Methods
- ❖ Quantitative Techniques : Observation, Case Study Content Analysis
- ❖ Qualitative Techniques : Survey, Questionnaire, Schedule and Interview

Unit - IV Classification and Presentation fo Data

- ❖ Sources of Data : Primary and Secondary
- ❖ Tabular and Diagramatic Presentation of Data : Tables, Graphs, Histograms
- ❖ Measures of central tendency : Mean, Mode, Median

Learning Outcomes: After compition the course students would be able to:

- ❖ Develop and under standing about the concept of research in social science.
- ❖ Develop skill in pro paring a good research proposal and research design.
- ❖ Include the idea of different bases of research in the field of sociology.
- ❖ Understand about the use of different types of research tools and techniques.
- ❖ Appraise critically about research work in social science field.

Reference:

1. Bryman, Alan 1988 Quality and Quantity in Social Research, Londan, Unwin Hyman
2. Garrett, Henry 1981, Statistics in Psychology and Education, David Mekay : Indian
3. Jayaram, N. 1989, Sociology, Methods and Theory, Madras, Macmillias
4. Kothari C.R., 1989, Research Methodology : Methods and Techniques, Bangalore, Wileg Eastern
5. Young P.V., 1988, Scientific Social Surveys and Research

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 307	Geography **(Human Geography)**	**Any Three CE**	**4**	**30**	**50+20 Practical) 70**	**100**

Objectivess-

1. To make students aware about human Geography.
2. To make aware about Population Distribution & Human Development.
3. To make students aware about schools & principles of Human Geography.

Unit-I

a) Definition and scope of Human Geography.
b) Its relation with other Subjects.
c) Schools of Human Geography : determinism, possibilism and neo-determinism.
d) Fundamental principles of Human Geography : Principle of activity, Principle of terrestrial unity.

Unit-II

a) Races of man kind :- Criteria of classification and distribution according to G. Taylor
b) Migration zone Theory by Griffith Taylor
c) Factors of evolution of human races

d) Tribes in the world, Habitat, Occupation & Social Organization : Pigmies, Bushmen, Eskimos and Khirgiz.

Unit-III

a) Distribution of Tribes in India. Habitat, Economic Activities and Social Organization of Bhil, Naga, Toda and Santhal.
b) Early Economic activities of mankind : Food gathering, Hunting, Fishing & Shifting cultivation.
c) World distribution, Concept of over population, optimum population and zero population growth.
d) MigrationInternal and International, General laws of Migration

Unit-IV

a) Concept of human development and population problems and policy of India.
b) Rural, Urban settlement-origin of towns, patterns of cities.
c) Functional classification of cities, zoning of cities, Christaller's theory.
d) Urbanization and Problems : slums, town planning, concept and principles.

Practical :

a. Methods of Relief Representation: Hachure', Contours, layer tint, BM, Spot height, Trachograhic Method.
b. Drawing of Profiles: Serial, Composites and Superimposed.
c. Prismatic Compass Survey: Instrument required for prismatic compass survey
d. Prismatic Compass Survey: Radiation and intersection method.
e. CorrEction of closing error with Bowditch rule.

Outcomes-

1. Having Knowledge of human geography & its principles, students can adjust & adapt themselves with different cultures prevailing.
2. Comes to know about problems regarding overpopulation, migration& steps to solve them.
3. Deep knowledge about people residing in urban & rural areas, their problems & solutions.

Suggested Readings :

1. Blache Vidal de la: Manav Bhugol ke Siddhant (In Hindi)
2. कौशिक, एस.डी. : मानव भूगोल के सरल सिद्धान्त, रस्तोगी पब्लिकेशन्स, मेरठ
3. हूसैन, माजिद : मानव भूगोल, रावत पब्लिकेशन्स

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 308	Economics **(Economics of Development and Planning in India)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To enable to understand the Economics of development.
- To enable to understant the Rostow'n Theory of Historical stage of Growth.
- To enable to understand the Economics planing in mixed Economy.
- To enable to understand the Indian planning stystem.

Unit I Economic Development Meaning and Measurement

a) Meaning of vicious circle
b) Capital formation and Human Resource Development
c) Resource Mobilization

d) Tribes in the world, Habitat, Occupation & Social Organization : Pigmies, Bushmen, Eskimos and Khirgiz.

Unit-III

a) Distribution of Tribes in India. Habitat, Economic Activities and Social Organization of Bhil, Naga, Toda and Santhal.
b) Early Economic activities of mankind : Food gathering, Hunting, Fishing & Shifting cultivation.
c) World distribution, Concept of over population, optimum population and zero population growth.
d) MigrationInternal and International, General laws of Migration

Unit-IV

a) Concept of human development and population problems and policy of India.
b) Rural, Urban settlement-origin of towns, patterns of cities.
c) Functional classification of cities, zoning of cities, Christaller's theory.
d) Urbanization and Problems : slums, town planning, concept and principles.

Practical :

a. Methods of Relief Representation: Hachure', Contours, layer tint, BM, Spot height, Trachograhic Method.
b. Drawing of Profiles: Serial, Composites and Superimposed.
c. Prismatic Compass Survey: Instrument required for prismatic compass survey
d. Prismatic Compass Survey: Radiation and intersection method.
e. CorrEction of closing error with Bowditch rule.

Outcomes-

1. Having Knowledge of human geography & its principles, students can adjust & adapt themselves with different cultures prevailing.
2. Comes to know about problems regarding overpopulation, migration& steps to solve them.
3. Deep knowledge about people residing in urban & rural areas, their problems & solutions.

Suggested Readings :

1. Blache Vidal de la: Manav Bhugol ke Siddhant (In Hindi)
2. कौशिक, एस.डी. : मानव भूगोल के सरल सिद्धान्त, रस्तोगी पब्लिकेशन्स, मेरठ
3. हूसैन, माजिद : मानव भूगोल, रावत पब्लिकेशन्स

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 308	Economics **(Economics of Development and Planning in India)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To enable to understand the Economics of development.
- To enable to understant the Rostow'n Theory of Historical stage of Growth.
- To enable to understand the Economics planing in mixed Economy.
- To enable to understand the Indian planning stystem.

Unit I Economic Development Meaning and Measurement

a) Meaning of vicious circle
b) Capital formation and Human Resource Development
c) Resource Mobilization

Unit II Theories of Development

a) Rostow's Theory of Historical Stage of Growth
b) Balanced and Unbalanced Growth
c) Choice of Technique : Capital intensive and Labour Intensive.

Unit III Economic Planning

a) Meaning, Need, Objectives and relevance
b) Planning under mixed Economy, Prerequisites of effEctive Planning
c) The Indian Planning system : Planning commission Plan formulation and Evaluation.

Unit IV Appraisal of Planning in India

a) Summary review of Achievements and Short coming with respEct to Agriculture and Industry.
b) Changing Role of Public Sector
c) Salient Feature of Current Five Year Plan of India.

Learning Outcomes: After completion the course students would be able to:

- Enable to understand the Economics of development.
- Understant the Rostow'n Theory of Historical stage of Growth.
- Enable to understand the Economics planing in mixed Economy.
- Understand the Indian planning stystem.

Reference :

1. Thirlwall, A.F. (2004), Growth & Development, wiled Palgave Mc. Millan.
2. Seth, M.L. : Theory and Practice of Economics Planning, S.Chand & Co. New Delhi.
3. Meir & Baldwin : Economics Development Theory, History & Policy.
4. Planning Commission, Government of India : Current five Year Plan
5. झिगन, एम.एल. रू विकास एवं नियोजन का अर्थशास्त्र, वृन्दा प्रकाशन, नई दिल्ली।
6. सेठ, एम.एल. : आर्थिक नियोजन के सिद्धान्त एवं व्यवहार एस.चांद एण्ड कम्पनी, नई दिल्ली

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 309	Home Science **(Human Development)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand Concept, scope and foundation of human development
- To Different life span stages related to human development
- To Major developmental task, problems and support services related to human development
- To famalier with types of families and their related challenges in references to physical, motor and socio- emotional development

Unit I Human Development

a) Concept , nature and scope of human development as a field of study
b) Principles and stages of development
c) Role of heredity, environment , learning, and maturation in development

- Write any one Assignment Work
- Write a short note on Importance of Language in teacher
- Read and review an article
- Prepare a report on creative writing

Learning Outcomes: After completion of this course students would able to:

- ❖ Develop knowledge of various innovative methods.
- ❖ Understand the idea of methods.

Suggested Readings:

1. flag] d.kZ] ¼2008½] 'kSf{kd rduhdh ,oa izcU/k] y[kheiqj & [khjh] xksfoUn izdk'ku
2. 'kekZ] lanhi ,oa ikjhd] vydk ¼2007½] 'kSf{kd rduhdh ,oa d{kk&d{k izcU/k] f'k{kk izdk'ku] t;iqj
3. dqyJs"B] ,l-ih- ¼2005½] 'kSf{kd rduhdh ds ewy vk/kkj] fouksn iqLrd eafnj, vkxjk
4. Hillard R.I. (1973),Writing for T.V. and Radio N.Y.Hastings House
5. Philips, Lewis (1971), Educational Television Guide Book N.Y. : Mc.Graw
6. Cassire. Henry R. (1962), Television Teaching Today Paris, UNESCO

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 309	Home Science (**Human Development)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand Concept, scope and foundation of human development
- To Different life span stages related to human development
- To Major developmental task, problems and support services related to human development
- To famalier with types of families and their related challenges in references to physical, motor and socio- emotional development

Unit I Human Development

a) Concept , nature and scope of human development as a field of study
b) Principles and stages of development
c) Role of heredity, environment , learning, and maturation in development
d) Factors affEcting development

Unit II Development in Adolescence : Development from conception to adolescence:

a) Physical development
b) Motor development
c) Socio emotional development
d) Language and cognitive development

Unit III Family and Developmental Tasks

a) Importance and Objectivess of early childhood education, impact of deprivation and early stimulation
b) Families: Concept, types and functions, changing roles and challenges faced by Indian families
c) Understanding spECial children, their classification and related problems

d) Major developmental tasks, achievements and problems of adulthood and aging

Unit IV Developmental stages and support system

a) Early childhood care and its scope, problems and significance
b) Adolescence: Activities for personality development at school, family and college level
c) Need , care and support services for aging individuals
d) Old age home & Day care center : Need, management and scope in society
e) Guidance and counseling services in school and college for students

Practicals: Any two of the following:

- Anthropometric measurement of children from birth to 6 years plotting and interpretation of data as per WHO norms.
- Organizing and conducting play and creative activities of children in a nursery school.
- Focus group discussion with adolescents to understand their aspirations, educational and career choices.
- Prepare a scrap book on relevant issues of human development.
- Market survey of story books, toys and playing instruments in references to quality, cost, durability etc.

Learning outcomes : After studying this course students will able to learn-

- Concept, scope and foundation of human development
- Different life span stages related to human development
- Major developmental task, problems and support services related to human development
- Types of families and their related challenges in references to physical, motor and socio- emotional development

References:

1. Santrock JW (2007) Lifespan Development, Tata McGraw Hill New Delhi 3rd Ed.
2. Bee H (1995) The developing child, Harper Collins College Publisher
3. Berk L (2006) Child development, Allyn & Bacon. New York
4. Rice F (1992) Human Development: A Life Span Approach , Prentice Hall
5. Vidhya Bhusan and Sachdeva (2000) Introduction to Sociology

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 401	Gender, School and Society	**CC**	**4**	**30**	**70**	**100**

Objectives:

- To understand the modern concept of society, organization & gender sensitivity.
- To aware about the dimension of development of school administration.
- To develop basic understanding & familiarity with key concept, society, social problem, social relationship and new trends
- To develop knowledge of the role of different NGO & organizations.

Course Contents:

Unit- I Role of Society & Organization in Gender sensitivity.

a) Gender Equity : Concept, Needs, Problem and solution
b) Nature of Society
c) Women Commission
d) Right to Education

Unit- II Dimensions of Development of School

a) Administration – Structure of Centre and State education.
b) Head-Master – Merits, work, Duties and Leadership.
c) Ideal Teacher – Personality and Qualification
d) Modern school , Library, Laboratory, and Hostel
e) Outline of Co-Curricular Activities in School.

Unit- III Present Education & Society

a) Role of education in different Areas (Family, school, and society).
b) Present Social Problems (unemployment, Students indiscipline, Poverty, Illiteracy, Health & Nutrition)Concept, cause, and Solution
c) Education and Society Relationship

Unit- IV Role of organization in Gender sensitivity, society, and school

a) NGO – (meaning and Role)
b) Role of present Social – worker
c) Govt. Planning
d) Role of Religious Organization

Assignment & Practical Works :

- Study of any one significant Problems of a secondary school. Prepare report detail – it's possible Causes and Solutions
- One Assignment Work solve.
- Critically Evaluate of the different Activities of any one school.
- Case study of any N.G.O working locally.

Learning Outcomes: After completion of this course students would able to:

- ❖ Sensitize students about different social & national level problems at school level.
- ❖ Remedies regarding gender discrimination, government schemes and Right to Education.
- ❖ Implement their knowledge to plan community awareness programmes to sensitize weaker section of society.
- ❖ Understanding relationship between education and society as well as NGO's.
- ❖ Utilize their administrative skill to manage different administrative activities at school level.

References :

1. dq'kokgk] iq"iyrk ,oa lDlSuk] dud] ¼2006½] 'kSf{kd izca/ku ,oa laxBu] vkLFkk izdk'ku] t;iqj
2. pkScs] lj;w izlkn] ¼1990½] f'k{kk ds lekt'kkL=h; vk/kkj] fouksn iqLrd eafnj] vkxjk
3. ik.Ms;] jke'kDy ¼2008½] mHkjrs gq, Hkkjrh; lekt esa f'k{kk] fouksn iqLrd eafnj] vkxjk
4. c?ksyk] ,p- ,l- flag] ¼2007½] 'kSf{kd izca/ku ,oa laxBu] jktLFkku izdk'ku] t;iqj
5. HkVukxj] lqjs'k ¼1996½] 'kSf{kd izca/k o f'k{kk dh leL;k,a] lw;kZ ifCyds'ku] esjB
6. of'k"B] ds- ds- ¼1985½] fo|ky; laxBu ,oa Hkkjrh; lekt dh f'k{kk dh leL;k,a] yk;d cqd fMiks] esjB
7. 'kekZ] vkj- ,- ¼1995½] fo|ky; laxBu ,oa f'k{kk iz'kklu] lw;kZ ifCyds'ku] esjB
8. 'kekZ] vks- ih-] xqIrk] 'kksHkk ¼2008½] mHkjrs gq, Hkkjrh; lekt esa f'k{kk] fouksn iqLrd eafnj] vkxjk
9. lqf[k;k] ,l- ih-] ¼2008½] fo|ky; iz'kklu ,oa laxBu] fouksn iqLrd eafnj] vkxjk
10. www.gender.com.ac.uk.
11. www.genderstuddies.org.
12. www.genderparddigm.com./publication/html

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 402	Reading and Reflecting on Texts (EPC)	**CC**	**2**	**15**	**35** **Practical & Viva-Voce**	**50**

Objectives:

- To develop basic Communication Skills.
- To promote Creative Writing among students.
- To acquire the knowledge of art of Speaking.

Course Contents:

Unit- I Reading Comprehension

a) Explain with stage of any self expression of any one guest.
b) Enlist errors in reading among school students.
c) Review of any one books with reading.
d) Write the educational essence of any five stories and morale thought with reading.

- Fine Arts/ Painting
- Skill of Playing musical instrument
- Food Shef
- Handicraft

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 401	Hindi Literature **गद्य साहित्य (निबन्ध नाटक एवं एकांकी)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को नाटक, एकांकी एवं निबंध साहित्य की सामान्य जानकारी देना।
2. हिन्दी के प्रमुख गद्य साहित्यकारों का परिचय देना।
3. हिन्दी की प्रमुख गद्य शैलियों का ज्ञान प्रदान करना।
4. विद्यार्थियों में गद्य लेखन क्षमता का विकास करना।

इकाई–I

1. गद्य विधा : निबन्ध,नाटक एवं एकांकी का स्वरूप एवं तात्विक विवेचन
2. निबन्ध : उद्भव एवं विकास, प्रमुख रचनाकार एवं उनकी रचनायें।
3. नाटक : उद्भव एवं विकास, प्रमुख रचनाकार एवं उनकी रचनायें।
4. एकांकी : उद्भव एवं विकास, प्रमुख रचनाकार एवं उनकी रचनायें।

इकाई–II

निम्नलिखित निबंधकारों के चयनित निबंध

1. चेतना का संस्कार – संपादक विश्वनाथ तिवारी, वाणी प्रकाशन, नई दिल्ली:निर्धारित निबंध एवं निबंधकार
   क. होली है–प्रतापनारायण मिश्र
   ख. बनाम लॉड कर्जन– बाल मुकुन्द गुप्त
   ग. श्रद्धा–भक्ति – रामचन्द्र शुक्ल
   घ. अशोक के फूल– आचार्य हजारीप्रसाद द्विवेदी
   ङ. मेरे राम का मुकुट भीग रहा है– डॉ विद्यानिवास मिश्र

इकाई–III

1. ध्रुवस्वामिनी (नाटक) जयशंकर प्रसाद, मलिक एण्ड कम्पनी, जयपुर

इकाई–IV

1. धरोहर–संपादक डॉ रामचरण महेन्द्र, बुक लैण्ड पब्लिशर्स, लाल जी सांड का रास्ता जयपुर
   निर्धारित एकांकी एवं उनके रचनकार
   क. डॉ रामकुमार वर्मा – दीपदान
   ख. सेठ गोविन्ददास– धरोहर
   ग. हमीदुल्ला– हरितगन्धा
   घ. देवीलाल सामर– वीर बल्लू

उपलब्धियाँ–

1. विद्यार्थी प्रमुख साहित्यकारों की रचनाओं से प्रेरणा पाकर अपने लेखन कौशल का अभ्यास कर सकेंगे।
2. विद्यार्थी गद्य की विभिन्न शैलियों का ज्ञान प्राप्त कर स्वयं की लेखनशैली का विकास कर सकेंगे।
3. विद्यार्थी स्वयं गद्य लेखन की ओर अग्रसर हो सकेंगे।

पाठ्यपुस्तक/संदर्भ ग्रंथ

1. हिन्दी साहित्य का इतिहास– डॉ नगेन्द्र, मयूर पेपर बैक्स नोएडा
2. हिन्दी नाटक–डॉ. बच्चन सिंह, राधाकृष्ण, प्रकाशन नई दिल्ली

3. प्रसाद के नाटक– डॉ. सिद्धनाथ कुमार, अनुपम प्रकाशन, पटना
4. हिन्दी का गद्य साहित्य– डॉ. रामचन्द्र तिवारी, विश्वविद्यालय प्रकाशन, वाराणसी

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 402	English Literature **(Prose and Fiction)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objective :

1. To enable the students to compose Stories.
2. To make them familiar with English Essay, Short Stories and Partition Fiction.
3. To acquaint them with some literary terms of these genres.

Unit I: Short Stories

A- A Cup of Tea: Katherine Mansfield.
B-The Open Window: Saki.
C- The Gift of Magi: O' Henry.
D-How Much Land Does A Man Need: Leo Tolstoy.

Unit II: English Essay

A- A Bachelor's Complaint of the Behavior of Married People: Charles Lamb.
B- On the Rule of the Road: A.G. Gardiner.
C- From Religion to Vocation: AcharyaMahapragya.
D- The Civilization of Today- C.E.M. Joad.

Unit III: Novel: Train to Pakistan- Khushwant Singh.

Unit IV: Literary Terms: Novel, Novella, Partition Novel, Science Fiction, Satire.

Outcomes:

A. The students can understand the changing nature of Literature through ages.
B. They will become familiar with various forms of prose and narrative art.

Suggested Reading:

1. Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.
2. Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3. Popular Short Stories. Oxford University Press, New Delhi.
4. Forms of English Prose. Oxford University Press, New Delhi.
5. Train to Pakistan. Khushwant Singh. Orient Longman.
6. Oxford Dictionary of Literary Terms.

3. प्रसाद के नाटक– डॉ. सिद्धनाथ कुमार, अनुपम प्रकाशन, पटना
4. हिन्दी का गद्य साहित्य– डॉ. रामचन्द्र तिवारी, विश्वविद्यालय प्रकाशन, वाराणसी

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 402	English Literature **(Prose and Fiction)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objective :

1. To enable the students to compose Stories.
2. To make them familiar with English Essay, Short Stories and Partition Fiction.
3. To acquaint them with some literary terms of these genres.

Unit I: Short Stories

A- A Cup of Tea: Katherine Mansfield.
B-The Open Window: Saki.
C- The Gift of Magi: O' Henry.
D-How Much Land Does A Man Need: Leo Tolstoy.

Unit II: English Essay

A- A Bachelor's Complaint of the Behavior of Married People: Charles Lamb.
B- On the Rule of the Road: A.G. Gardiner.
C- From Religion to Vocation: AcharyaMahapragya.
D- The Civilization of Today- C.E.M. Joad.

Unit III: Novel: Train to Pakistan- Khushwant Singh.

Unit IV: Literary Terms: Novel, Novella, Partition Novel, Science Fiction, Satire.

Outcomes:

A. The students can understand the changing nature of Literature through ages.
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Suggested Reading:

1. Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.
2. Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3. Popular Short Stories. Oxford University Press, New Delhi.
4. Forms of English Prose. Oxford University Press, New Delhi.
5. Train to Pakistan. Khushwant Singh. Orient Longman.
6. Oxford Dictionary of Literary Terms.

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 403	Sanskrit Literature संस्कृत व्याकरण एवं साहित्य (लघुसिद्धांतकौमुदी)	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. वाक्य निर्माण का अभ्यास कराना।
2. अनुवाद की विधा का प्रशिक्षण देना
3. तद्धित शब्दों की विधि समझाना।

इकाई–1 तद्धित प्रकरण (शैषिका अधिकार से स्वार्थिका तक) (सूत्र 1065 से 1243 तक)

इकाई–2 रचनानुवाद कौमुदी (पाठ 31 से 40)

इकाई–3 अभिज्ञान शाकुन्तलम्

1. दो श्लोकों की सप्रसंग व्याख्या
2. चरित्र चित्रण
3. एक समीक्षात्मक प्रश्न
4. दो सूक्तियों की व्याख्या

इकाई–4 सिन्दूरप्रकर (1 से 50) एवं अभिधान चिन्तामणि (छठा काण्ड, श्लोक 91 से 120)

1. दो श्लोको की सप्रसंग व्याख्या
2. प्रकरण का सारांश

अभिधान चिन्तामणि

1. दो श्लोक पूर्ति
2. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. वाक्य निर्माण की प्रक्रिया का ज्ञात होगा।
2. शब्द कोश का ज्ञान बढ़ेगा।

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1. अभिज्ञान शाकुन्तलम्, महाकवि कालिदास, व्याख्याकार यनदुन्दन मिश्र, चौखम्बा पब्लिशर्स, वाराणसी, 1999
2. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
3. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
4. सिन्दूरप्रकर, आचार्य सोमप्रभ, संपादक–मुनि राजेन्द्र कुमार, जैन विश्वभारती, लाडनूं
5. अभिधान चिन्तामणि–चौखम्बा विद्या भवन
6. लघु सिद्धान्त कौमुदी, महेशसिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
7. लघु सिद्धान्त कौमुदी, टीकाकार–राजेन्द्र चौधरी, रामनारायण वेणीप्रसाद, इलाहाबाद
8. लघु सिद्धान्त कौमुदी, भैमी व्याख्या, आचार्य भीमसेन शास्त्री
9. अभिधान चिन्तामणि–चौखम्बा विद्या भवन दिल्ली
10. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 404	History **(राजस्थान के इतिहास का सर्वेक्षण)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को राजस्थान के इतिहास से परिचित करवाना।
2. दुर्ग वास्तुकला से परिचित करवाना।
3. महाराणा कुंभा, महाराणा प्रताप व मानसिंह की उपलब्धियों से परिचित करवाना।
4. किसान आन्दोलन, प्रजामण्डल आन्दोलन व राजस्थान के एकीकरण से परिचित करवाना।

इकाई– I

राजस्थान के पूर्व पाषाण युग की रूपरेखा, मुख्यतः कालीबंगा, आहड़ एवं बैराठ के पुरातात्विक स्थलों के संदर्भ में, पृथ्वीराज तृतीय की महत्त्वपूर्ण उपलब्धियॉ एवं साम्राज्य विस्तार। राजपूत राज्यों में सामन्तवाद की विषेषताएं

इकाई– II

ब्रिटिश प्रभुसत्ता के समय में राजपूत जागीरदारों की स्थिति में परिवर्तन, मालदेव के अधीन मारवाड राज्य का उत्कर्ष, दुर्ग वास्तुकला– विशेषतः चित्तौड, रणथंभोर और आमेर के संदर्भ में। महाराणा कुंभा की राजनीतिक एवं सांस्कृतिक उपलब्धियाँ, महाराणा प्रताप का मुगलों से संघर्ष।

इकाई– III

आमेर के मानसिंह द्वारा मुगल सहयोग। धार्मिक आन्दोलन मीरा एवं दादू दयाल के विशेष संदर्भ में। राजपूताना में मराठों के हस्तक्षेप के कारण एवं परिणाम। राजस्थान में 1857 के विद्रोह के कारण एवं परिणाम।

इकाई– IV

राजस्थान में राजनैतिक जागरण के कारण। बिजोलिया किसान आंदोलन। 1818 की संधियों के सम्पन्न होने की परिस्थितियां एवं परिणाम विशेषतया मेवाड, मारवाड, और कोटा राज्यों के संदर्भ में। राजस्थान राज्य का निर्माण 1948 ई.– 1956 ई.।

उपलब्धियाँ–

1. विद्यार्थी राजस्थान के गौरवशाली इतिहास से परिचित हो पायेंगे।
2. महाराणा कुंभा, महाराणा प्रताप, मीरां, दादू दयाल आदि के जीवन से प्रेरणा प्राप्त कर अपने व्यक्तित्व का विकास कर सकेंगे।
3. राजस्थान के एकीकरण के विभिन्न चरणों से परिचित हो पायेंगे।
4. राजस्थान के इतिहास के अध्ययन से विद्यार्थी प्रतियोगी परीक्षाओं में सफलता प्राप्त कर पायेंगे।

पाठ्यपुस्तक/सन्दर्भ ग्रंथः

1. व्यास, आर.पी–राजस्थान का बृहद् इतिहास भाग प्रथम एवं द्वितीय, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर।
2. सक्सेना, के.एम.–राजस्थान में राजनैतिक जागरण, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर।
3. भार्गव, डॉ. वी.एस.– राजस्थान का इतिहास, रिसर्च पब्लिकेशन, जयपुर।
4. शर्मा, डॉ. गोपीनाथ– राजस्थान का इतिहास, शिवलाल अग्रवाल एण्ड कम्पनी, आगरा।
5. शर्मा हरिशंकर एवं पावा, सरोज–राजस्थान का इतिहास, जयपुर पब्लिकेशन, जयपुर।
6. Ratnavat, Syam singh – History and Culturel of Rajasthan.

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 405	Political Science **(भारतीय राजनीतिक व्यवस्था)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. भारतीय राजनीतिक व्यवस्था की जानकारी देना।
2. शासन की विभिन्न संस्थाओं से परिचित कराना।
3. भारत की वर्तमान बदलती राजनैतिक दशा एवं दिशा का बोध करवाना।
4. विद्यार्थियों की प्रतियोगी परीक्षाओं में तर्क शक्ति बढ़ाना।

इकाई– I

भारत षासन अधिनियम 1919 (द्वैध शासन के विशेष सन्दर्भ में) तथा भारत शासन अधिनियम 1935 प्रान्तीय स्वायत्ता के विशेष सन्दर्भ में

इकाई– II

संविधान का निर्माण : संविधान सभा में प्रमुख मुद्दे, विषेषताएं, संघव्यवस्था की प्रकृति, मौलिक अधिकार, राज्य नीति के निदेशक सिद्धांत।

इकाई– III

संघीय कार्यपालिका (राष्ट्रपति, प्रधानमंत्री एवं मन्त्रिपरिषद्) संघीय संसद, सर्वोच्च न्यायालय एवं न्यायिक पुनरावलोकन।

इकाई– IV

राज्यों का शासन : राज्यपाल, मुख्यमंत्री एवं मन्त्रिपरिषद, राज्यविधान मण्डल, भारतीय राजनीतिक व्यवस्था की प्रमुख चुनौतियां : क्षेत्रियतावाद एवं राजनीति का अपराधीकरण।

उपलब्धियाँ–

1. ब्रिटिश सरकार के विभिन्न अधिनियमों की जानकारी प्राप्त कर सकेंगे।
2. शासन की विभिन्न संस्थाओं का तुलनात्मक अध्ययन कर सकेंगे।
3. केन्द्रिय स्तर से लेकर राज्यों की राजनीति की जानकारी प्राप्त कर सकेंगे।

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1. Ogg & Zink : Modern Foreign Governments.
2. Menelly :Contemporary Government Japan. Houghton Muffin, 1963
3. V.D. Mahajan : Modern Constitutions.
4. H.Finer : Theory and Practice of Modern Government, London.
5. A.H. Brich :British System of Government.
6. पुखराज जैन–प्रमुख राजव्यवस्थायॅ, साहित्य भवन, पब्लिकेशन्स, आगरा
7. बी.एल. फडिया–प्रमुख राजनीतिक व्यवस्थायैं, कॉलेज बुक हाउस, जयपुर,
8. आर.सी.अग्रवाल–विश्व के प्रमुख संविधान, एस.चान्द एण्ड कम्पनी, नई दिल्ली
9. वीरकेश्वर प्रसाद सिंह–विश्व के प्रमुख संविधान, ज्ञानदा प्रकाशन, नई दिल्ली

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 406	Sociology **(Social Problems in Contemporary India)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To enable the students to understand the conceptual in contemporary India.
- To enable the students to understand the structural problems in contemporary India
- To enable the students to understand the disorganizational problemsin contemporary India.
- To enable the students to understand the development problems in contemporary.

Unit - I Social Problems : Some Conceptual Issues

- Social Problems and Social Disorganization : Meaning and Relations
- Social Problems : Theoretical PerspEctive
- Social Problems : Types and Factors

Unit - II Structural Problems in Contemporary India

- Rural Problems, Gender Disparity
- Communalism and the problems of minorities
- Problems of Devrived Social categories : Scheduled castes and scheduled Tribes

Unit - III Disorganizational Problems in contemporary India

- Crime, Juvenile, Delinquency
- Corruption, Drug addition
- Terrorism, Casteism

Unit - IV Development problems in contemporary India

- Poverty, Unemployment
- Illiteracy, Environmental pollution
- Problems of Slums, Development Induced Displacement

Learning Outcomes:

- Enable the students to understand the conceptual in contemporary India.
- Understand the structural problems in contemporary India
- Understand the disorganizational problemsin contemporary India.
- Understand the development problems in contemporary.

Reference :

- Ahuja, Ram, 2014, Social Problems in India, Rawat Publication, Jaipur
- Beteille, Andre, 1974, Social Inequality, New Delhi, OUP
- Guha Ramchandra, 1994, Sociology and Dilemma of Development, New Delhi OUP
- Kothary, Rajni (Ed), 1973, Cast in Indian Politics
- आहुजा, राम 2009, भारतीय सामाजिक व्यवस्था, रावत पब्लिकेशन्स, जयपुर
- दोषी, एस.एल. 2009, भारतीय सामाजिक विचारक, रावत पब्लिकेशन्स, जयपुर

- शर्मा के. एल. 2006, भारतीय सामाजिक संरचना एवं परिवर्तन, रावत पब्लिकेशन्स, जयपुर
- दोषी, एस.एल. एवं जैन पी.सी. 2002, भारतीय समाज, नेशनल पब्लिकेशन्स हाउस, जयपुर
- पटेल, तुलसी 2011, भारत में परिवार : संरचना एवं व्यवहार, रावत पब्लिकेशन्स, जयपुर

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 407	Geography **(Economic Geography)**	**Any Three CE**	**4**	**30**	**50+20 (Practical) 70**	**100**

Objectivess-

1. To make students aware about concept of Economic geography, Economic activities & their impact on the enviroment.
2. Knowledge about various resources : Natural, Soil, Mineral & Energy.
3. Knowledge about agencies (WTO, GATT) engaged in promoting trade & services.

Unit - I

a) Definition and Scope of Economic geography.
b) Development of Economic geography. Its relation with other subjects.
c) Economic Activities : Primary, Secondary and Tertiary.
d) Impact of Economic activities on the environment.

Unit - II

a) Natural Resources : Meaning and classification of resources, Water & Forest.
b) Soil Resources : Structure of soil, and soil erosion.
c) Mineral Resource : Type, Distribution & Production of iron ore. Lead & Zinc
d) Energy Resources : Types, Distribution and Production of coal and Petroleum.

Unit- III

a) Agriculture : Physical and socio - cultural environment influencing crop production.
b) Agriculture classification : D.Whittleseys Classification.
c) Spatial distribution, production and international trade of rice & wheat, cotton and rubber, tea & coffee
d) Water Transport : Suez canal, panama canal, North Atlantic routes.

Unit – IV

a) Manufacturing Industry : Meaning & Types.
b) Industrial location Theory : A Weber's and smith.
c) Distribution & production of Iron and Steel & cotton textile industry.
d) Agencies : GATT, WTO, OPEAK AND EROPEAN UNION.

Practical

a) Basic Statistical Methods.
   i) Frequency distribution and its Presentation.
   ii) Measures of Central tendency: - Arithmetic Mean, Mode & Median (DirEct Method)
   iii) Standard deviation method & Coefficient of variation.
b) Representation of statistical data through Diagrams : - One Dismensional, Two Dimensional, Three Dimensional.
c) Representation of statistical data through graphs: Poly linear graph, Climogarph and Hythergraph.

Outcomes - After completion the course students would be able to:

1. Explain activities of trade & services will affEct the environment. This may lead to the path of Green Environment.
2. Know availability of various resources availble, their proper utilisation is possible.
3. Contribute their efforts towards promoting trade in which our country is having self-sufficiency.

- शर्मा के. एल. 2006, भारतीय सामाजिक संरचना एवं परिवर्तन, रावत पब्लिकेशन्स, जयपुर
- दोषी, एस.एल. एवं जैन पी.सी. 2002, भारतीय समाज, नेशनल पब्लिकेशन्स हाउस, जयपुर
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Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 407	Geography **(Economic Geography)**	**Any Three CE**	**4**	**30**	**50+20 (Practical) 70**	**100**

Objectivess-

1. To make students aware about concept of Economic geography, Economic activities & their impact on the enviroment.
2. Knowledge about various resources : Natural, Soil, Mineral & Energy.
3. Knowledge about agencies (WTO, GATT) engaged in promoting trade & services.

Unit - I

a) Definition and Scope of Economic geography.
b) Development of Economic geography. Its relation with other subjects.
c) Economic Activities : Primary, Secondary and Tertiary.
d) Impact of Economic activities on the environment.

Unit - II

a) Natural Resources : Meaning and classification of resources, Water & Forest.
b) Soil Resources : Structure of soil, and soil erosion.
c) Mineral Resource : Type, Distribution & Production of iron ore. Lead & Zinc
d) Energy Resources : Types, Distribution and Production of coal and Petroleum.

Unit- III

a) Agriculture : Physical and socio - cultural environment influencing crop production.
b) Agriculture classification : D.Whittleseys Classification.
c) Spatial distribution, production and international trade of rice & wheat, cotton and rubber, tea & coffee
d) Water Transport : Suez canal, panama canal, North Atlantic routes.

Unit – IV

a) Manufacturing Industry : Meaning & Types.
b) Industrial location Theory : A Weber's and smith.
c) Distribution & production of Iron and Steel & cotton textile industry.
d) Agencies : GATT, WTO, OPEAK AND EROPEAN UNION.

Practical

a) Basic Statistical Methods.
   i) Frequency distribution and its Presentation.
   ii) Measures of Central tendency: - Arithmetic Mean, Mode & Median (DirEct Method)
   iii) Standard deviation method & Coefficient of variation.
b) Representation of statistical data through Diagrams : - One Dismensional, Two Dimensional, Three Dimensional.
c) Representation of statistical data through graphs: Poly linear graph, Climogarph and Hythergraph.

Outcomes - After completion the course students would be able to:

1. Explain activities of trade & services will affEct the environment. This may lead to the path of Green Environment.
2. Know availability of various resources availble, their proper utilisation is possible.
3. Contribute their efforts towards promoting trade in which our country is having self-sufficiency.

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 502	Contemporary India and Education	**CC**	**4**	**30**	**70**	**100**

Objectives:

- To know the concept and nature of Educaiton.
- To know the social mobility and social skill.
- To understand the various committee and commission.
- To educate about the recent policies of Education.

Course Contents:

Unit-I Concept and Nature of Education

a) Education : Concept, Nature, Objectivess and Functions
b) Role and problems of education in nation building
c) Current educational provisions of education in India (One year)
d) Educational thoughts of Indians thinkers (Vivekanand and Mahatma Gandhi)

Unit-II Social Aspects of Education

a) Sociology in education : Concept, Functions and Contribution
b) Social change : Meaning, Definition, Factors and Effects of Education
c) Social mobility
d) Education and culture
e) Role of education in development of social skills.

Unit-III Progressive Development of Education in Terms of Commissions and Committees

a) Characteristics of ancient, medieval and british period of education.
b) Radhakrishna Commission of Education (1948)
c) Mudaliyer Commission of Education (1952)
d) Kothari Commission of Education(1964)
e) National education policy (1968 and 1986)
f) Revised national education policy (1992)

Unit : IV Programmes for Education

a) Issues and problems in prevailing education system at National and State level
b) Right to Education Act 2009
c) Sarva Shiksha Abhiyan and Mid day Meal Programme
d) Rashtriya Madhyamik Shiksha Abhiyan
e) Education as related to social equity and equality of educational opportunities

Assignment & Practical Works : (Any Two)

- Write the educational contribution of any one Indian Thinker.
- Prepare a Assignment Work on how we can inculcate values in the present system of education.
- Prepare a structure of education since ancient period to present time.
- Concept of education in Emerging Indian Society as relevant to school children's
- Development of moral attitude through self management

Learning Outcomes: After completion of this course students would able to:

- ❖ Know social aspects of education and develop educational perspective.
- ❖ Solve prevailing problems of education in India.
- ❖ Understand the purpose, function and Role of education in nation building.
- ❖ Understand knowledge of the Indian education system as it has evolved from the past, as it is today.
- ❖ Understand the concept, principle of sustainable development and core concept of educational thinkers.
- ❖ Know social equity and equality of educational opportunities.

References :

1. Crown, R.G. (1965),A Society of Education, Engineering patterns of class, status and power in the public school, New York : Appleton-century crofts.
2. Durkhem, S. (1956), Education and Sociology of Education, New York : The Free Press of Glenoce.
3. Gore, M.S., et. al. (1967), Papers in the sociology of Education in India, New Delhi, NCERT.
4. Hanseu, D.A. et. al (1965), On Education : Sociological PerspEctive. New York :John Wiley and Sons.
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12. सिन्हा, मंजरी, सिन्धु, आई. एस., (2007), विकासोन्मुख भारतीय समाज में शिक्षा तथा शिक्षक की भूमिका, विनोद पुस्तक मंदिर, आगरा

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 501	Hindi Literature **(आधुनिक काव्य एवं काव्यशास्त्र)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को आधुनिक काव्य से परिचित करवाना।
2. विद्यार्थियों को विभिन्न कवियों की काव्यशैली की जानकारी देना।
3. विद्यार्थियों को काव्यशास्त्र की सामान्य जानकारी देना।

Assignment & Practical Works : (Any Two)

- Write the educational contribution of any one Indian Thinker.
- Prepare a Assignment Work on how we can inculcate values in the present system of education.
- Prepare a structure of education since ancient period to present time.
- Concept of education in Emerging Indian Society as relevant to school children's
- Development of moral attitude through self management

Learning Outcomes: After completion of this course students would able to:

- ❖ Know social aspects of education and develop educational perspective.
- ❖ Solve prevailing problems of education in India.
- ❖ Understand the purpose, function and Role of education in nation building.
- ❖ Understand knowledge of the Indian education system as it has evolved from the past, as it is today.
- ❖ Understand the concept, principle of sustainable development and core concept of educational thinkers.
- ❖ Know social equity and equality of educational opportunities.

References :

1. Crown, R.G. (1965),A Society of Education, Engineering patterns of class, status and power in the public school, New York : Appleton-century crofts.
2. Durkhem, S. (1956), Education and Sociology of Education, New York : The Free Press of Glenoce.
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5. चौबे, सरयूप्रसाद, (2005), शिक्षा के समाजशास्त्रीय आधार, विनोद पुस्तक मंदिर, आगरा
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Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 501	Hindi Literature **(आधुनिक काव्य एवं काव्यशास्त्र)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को आधुनिक काव्य से परिचित करवाना।
2. विद्यार्थियों को विभिन्न कवियों की काव्यशैली की जानकारी देना।
3. विद्यार्थियों को काव्यशास्त्र की सामान्य जानकारी देना।

इकाई–I

1. आधुनिक काव्य की सामान्य प्रवृत्तियां, प्रमुख काव्य धाराएँ– भारतेन्दु युग, द्विवेदी युग, छायावाद, प्रगतिवाद, प्रयोगवाद, नई कविता, समकालीन कविता की प्रमुख प्रवृत्तियां, रचनाकार एवं उनकी रचनाएँ।
2. वीर सतसई– सूर्यमल्लमीसण संपादक कन्हैयालाल सहल, ईश्वरदान आसिया, पतराम गौड– राजस्थानी ग्रंथागार, जोधपुर से निर्धारित काव्यांश
   (क) सूर्यमल्ल मीसण–वीर सतसई (प्रथम 20 दोहे)
3. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई–II

हिन्दी काव्य संग्रह–संपादक हेमराज मीणा, मीरा सरीन केन्द्रीय हिन्दी संस्थान, आगरा से निर्धारित कवि एवं काव्यांश

1. (क) मैथिलीशरण गुप्त– 1. सखी बसंत से कहां गये वे 2. भारत भारती
   (ख) जयशंकर प्रसाद– 1. चिंता
   (ग) सूर्यकांत त्रिपाठी निराला– 1. जूही की कली 2. बादल राग
2. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई–III

हिन्दी काव्य संग्रह– संपादक हेमराज मीणा, मीरा सरीन केन्द्रीय हिन्दी संस्थान, आगरा से निर्धारित कवि एवं काव्यांश

1. (क) महादेवी वर्मा–(1) मैं नीर भरी दुख की बदली (2) पंथ होने दो अपरिचित (3) मधुर–मधुर मेरे दीपक जल
   (ख) अज्ञेय– (1) हिरोशिमा (2) कलगी बाजरे की (3) यह दीप अकेला
2. रश्मिरथी –रामधारीसिंह दिनकर, लोकभारती प्रकाशन, इलाहाबाद से निर्धारित काव्यांश
   (क) रामधारीसिंह दिनकर, रश्मिरथी (पंचम सर्ग)
3. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई–IV

1. काव्य लक्षण, काव्य हेतु, काव्य प्रयोजन,काव्य भेद
2. रस का स्वरूप, रस के अवयव, रस के भेद
3. अलंकार– सामान्य परिचय, निर्धारित अलंकार–अनुप्रास, यमक, श्लेष, वक्रोक्ति, उपमा, रूपक, भ्रांतिमान, संदेह , उत्प्रेक्षा, विरोधाभास
4. छंद–सामान्य परिचय,निर्धारित छंद–दोहा, सोरठा, चौपाई, रोला, इन्द्रवज्रा, मंदाक्रान्ता, उपेन्द्रवज्रा, मदिरासवैया,मत्तगयन्त सवैया, दुर्मिल सवैया, मन हरण, देव घनाक्षरी
5. काव्य गुण एवं काव्य दोष : निर्धारित काव्य दोष–श्रुति कटुत्व, च्युत संस्कृति, ग्राम्यत्व, अश्लीलत्व, अप्रतीत्व, क्लिष्टत्व, न्यूनपदत्व, अधिकपदत्व, पुनरूक्तव, अक्रमत्व, दुष्क्रमत्व
6. शब्द शक्तियां

उपलब्धियाँ–

1. विद्यार्थी विभिन्न कवियों की लेखनशैली से परिचित होकर अपना मत प्रस्तुत कर सकेंगे।
2. विद्यार्थी आधुनिक काव्य का परिचय प्राप्त कर स्वयं काव्य रचना का प्रयास कर सकेंगे।
3. विद्यार्थी स्वयं को भावी प्रतियोगिता परीक्षाओं के लिये तैयार कर सकेंगे।
4. विद्यार्थी काव्यशास्त्र का ज्ञान प्राप्त करेगें।

पाठ्यपुस्तक/संदर्भ ग्रंथ

1. जयशंकर प्रसाद, आचार्य नंद दुलारे वाजपेयी, भारती भंडार, इलाहाबाद
2. निराला की साहित्य साधना (भाग 1,2,3) डॉ रामविलास शर्मा, राजकमल प्रकाशन, नई दिल्ली
3. छायावाद : पुनर्मूल्यांकन सुमित्रानदंन पंत, लोकभारती प्रकाशन, इलाहाबाद
4. कविता के नये प्रतिमान–डॉ नामवरसिंह राजकमल प्रकाशन, नई दिल्ली
5. अज्ञेय और आधुनिक रचना समस्या, डॉ रामस्वरूप चतुर्वेदी, लोक भारती प्रकाशन, इलाहाबाद
6. हिन्दी साहित्य का इतिहास–संपादक डॉ नगेन्द्र मयूर पेपर बैक्स, नोयडा
7. हिन्दी साहित्य का इतिहास–आचार्य रामचन्द्र शुक्ल नागरी प्रचारिणी सभा, काशी
8. आधुनिक साहित्य की प्रवृतियाँ– डॉ नामवरसिंह, लोकभारती प्रकाशन, इलाहाबाद
9. काव्यशास्त्र– भागीरथ मिश्र, विश्वविद्यालय प्रकाशन, वाराणसी
10. हिन्दी काव्य सिद्धान्त– रामबाबू ज्योति, राजस्थान प्रकाशन, जयपुर
11. काव्यशास्त्र– डॉ. भागीरथ मिश्र, विश्वविद्यालय प्रकाशन, वाराणसी
12. काव्य प्रदीप– रामबहोरी शुक्ल, हिन्दी भवन प्रकाशन, दिल्ली
13. भारतीय काव्यशास्त्र– निशा अग्रवाल, लोक भारती प्रकाशन, नई दिल्ली
14. साहित्य शास्त्र– डॉ. ओमप्रकाश गुप्त, डॉ. गौवर्धन बंजारा, पार्श्व प्रकाशन, अहमदाबाद

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 502	English Literature **(Poetry and Drama)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

1. To enable the students to compose poems.
2. To familiarize them with Modern Poetry and Problem Play.
3. To acquaint them with the literary terms related to the genres.

Unit I: Indian Poetry in English.

1. Enterprise: Nissim Ezekiel
2. A River: A.K. Ramanujan
3. Railroad Reveries: K.N. Daruwala
4. Lakshman: Toru Dutt

Unit II: English Poetry

1. My last Duchess: Browning
2. Pied Beauty: G.M. Hopkins
3. The Second Coming: W.B. Yeats
4. The journey of the Magi: T.S. Eliot

Unit III: One Act Plays

1. Refund: KritzKarinthy
2. The Never-Never Nest: Cedric Mount.

Unit IV: Drama - A Doll's House: Henrik Ibsen.

Outcome:

1. The students can understand the changing nature of Literature through ages.
2. They will become familiar with various forms of verse and dramatic art.
3. They will be highly motivated to read other compositions and related genres.

Suggested Reading:

1. Prasad, B. A Background to the Study of English Literature.Macmillan, 2004.
2. 2.A Doll's House- Henrick Ibsen. MacMillan India Press, Madras.
3. 3: Poet's Pen: (Ed.) Homi P.Dustoor. Oxford University Press.
4. 4: Contemporary Indian poetry in English: (Ed.) SaleemPeerandina. MacMillan, New Delhi.
5. 5: Forms of English Prose. Oxford University Press, New Delhi.

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 503	Sanskrit Literature **संस्कृत व्याकरण एवं साहित्य (लघुसिद्धांत कौमुदी)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. धातुरूप से संस्कृत भाषा की क्रिया संबंधी जानकारी देना।
2. धातुओं के विभिन्न रूपों की जानकारी देना।
3. खण्डकाव्य की विधि से अवगत करवाना।

इकाई–1 लघुसिद्धान्त कौमुदी को भ्वादि गण से जुहोत्यादि गण तक (सूत्र 373 से 628 तक)

1. सूत्रार्थ
2. रूपसिद्धि
3. धातु रूपावली

इकाई–2 रचनानुवाद कौमुदी (पाठ 41 से 50)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

इकाई–3 संस्कृत साहित्य का इतिहास

(क) वैदिक साहित्य– वेदांग, उपनिषद् साहित्य
(ख) महाकाव्य– रामायण (वाल्मिकी) महाभारत (वेदव्यास), अश्वघोष, कालिदास, माघ, भारवि, प्रमुख जैन महाकाव्य– वरांगचरित, वर्द्धमानचरित, पार्श्वनाथ
(ग) गद्य काव्य– कादम्बरी, तिलक मंजरी, गद्य चिन्तामणि, शिवराजविजय
(घ) नाटक साहित्य– भास, कालिदास, शूद्रक, भवभूति
(च) स्तोत्र साहित्य– वैदिक, जैन एवं बौद्ध परम्परा के प्रमुख स्तोत्र

1. दो प्रश्न/दो टिप्पणी

इकाई–4 अश्रुवीणा (50 श्लोक) एवं अभिधान चिन्तामणि नाममाला (121 से 150)

अश्रुवीणा – 1. दो श्लोकों की सप्रसंग व्याख्या 2. एक सामान्य प्रश्न

अभिधान चिन्तामणि – 1. दो श्लोक पूर्ति 2. दो शब्दों के संस्कृत में पर्यायवाची 3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. विभिन्न धातुओं के अर्थ आदि की जानकारी प्राप्त होगी।
2. संस्कृत की ऐतिहासिकता की जानकारी प्राप्त होगी।
3. काव्य रचना की नवीन विद्या का ज्ञान होगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थ :

1. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
2. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
3. अश्रुवीणा, आचार्य महाप्रज्ञ, सम्पादक डॉ. हरिशंकर पाण्डेय, जैन विश्वभारती, लाडनूं
4. अभिधान चिन्तामणि, चौखम्बा प्रकाशन, वाराणसी
5. संस्कृत साहित्य का इतिहास, आचार्य बलदेव उपाध्याय, शारदा निकेतन, वाराणसी
6. संस्कृत साहित्य का संक्षिप्त इतिहास, वाचस्पति गरोला, वाराणसी
7. संस्कृत साहित्य का नवीन इतिहास, कृष्ण चैतन्य, चौखम्बा प्रकाशन, वाराणसी
8. संस्कृत वाङ्मय कोश–श्रीधर भास्कर वर्णेकर
9. संस्कृत के विकास मे जैन कवियों का योगदान–डॉ. नेमीचन्द्र शास्त्री

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 504	History (आधुनिक भारत का इतिहास)	**Any Three** **CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को आधुनिक भारतीय इतिहास का ज्ञान प्रदान करना।
2. ब्रिटिश भू–राजस्व व्यवस्था से परिचित करवाना।
3. भारतीय पुनर्जागरण का ज्ञान प्रदान करना।
4. राष्ट्रीय आन्दोलन के महत्त्व को बताना।
5. भारतीय संविधान की जानकारी प्रदान करना।

ईकाई–1

बंगाल में ब्रिटिश सत्ता की स्थापना। प्रशासनिक परिवर्तन (1772–1793 ई)। पानीपत का तृतीय युद्ध–कारण एवं परिणाम। आंग्ल मराठा संघर्ष–मराठों की असफलता के कारण। ब्रिटिश सत्ता के अधीन नवीन भू–राजस्व व्यवस्था–स्थायी बंदोबस्त, महलवाडी व्यवस्था एवं रैयत्तवाडी व्यवस्था एवं किसानों पर प्रभाव।

ईकाई–2

1857 का विद्रोह– कारण, प्रकृति एवं परिणाम। भारतीय पुनर्जागरण– राजा राममोहन राय, दयानन्द सरस्वती एवं स्वामी विवेकानन्द का सामाजिक एवं धार्मिक क्षेत्र में योगदान। भारतीय राष्ट्रीयता के उदय के कारण। भारतीय राष्ट्रीय कांग्रेस की स्थापना।

इकाई–4 अश्रुवीणा (50 श्लोक) एवं अभिधान चिन्तामणि नाममाला (121 से 150)

अश्रुवीणा – 1. दो श्लोकों की सप्रसंग व्याख्या 2. एक सामान्य प्रश्न

अभिधान चिन्तामणि – 1. दो श्लोक पूर्ति 2. दो शब्दों के संस्कृत में पर्यायवाची 3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. विभिन्न धातुओं के अर्थ आदि की जानकारी प्राप्त होगी।
2. संस्कृत की ऐतिहासिकता की जानकारी प्राप्त होगी।
3. काव्य रचना की नवीन विद्या का ज्ञान होगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थ :

1. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
2. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
3. अश्रुवीणा, आचार्य महाप्रज्ञ, सम्पादक डॉ. हरिशंकर पाण्डेय, जैन विश्वभारती, लाडनूं
4. अभिधान चिन्तामणि, चौखम्बा प्रकाशन, वाराणसी
5. संस्कृत साहित्य का इतिहास, आचार्य बलदेव उपाध्याय, शारदा निकेतन, वाराणसी
6. संस्कृत साहित्य का संक्षिप्त इतिहास, वाचस्पति गरोला, वाराणसी
7. संस्कृत साहित्य का नवीन इतिहास, कृष्ण चैतन्य, चौखम्बा प्रकाशन, वाराणसी
8. संस्कृत वाङ्मय कोश–श्रीधर भास्कर वर्णेकर
9. संस्कृत के विकास मे जैन कवियों का योगदान–डॉ. नेमीचन्द्र शास्त्री

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 504	History (आधुनिक भारत का इतिहास)	**Any Three** **CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को आधुनिक भारतीय इतिहास का ज्ञान प्रदान करना।
2. ब्रिटिश भू–राजस्व व्यवस्था से परिचित करवाना।
3. भारतीय पुनर्जागरण का ज्ञान प्रदान करना।
4. राष्ट्रीय आन्दोलन के महत्त्व को बताना।
5. भारतीय संविधान की जानकारी प्रदान करना।

ईकाई–1

बंगाल में ब्रिटिश सत्ता की स्थापना। प्रशासनिक परिवर्तन (1772–1793 ई)। पानीपत का तृतीय युद्ध–कारण एवं परिणाम। आंग्ल मराठा संघर्ष–मराठों की असफलता के कारण। ब्रिटिश सत्ता के अधीन नवीन भू–राजस्व व्यवस्था–स्थायी बंदोबस्त, महलवाडी व्यवस्था एवं रैयत्तवाडी व्यवस्था एवं किसानों पर प्रभाव।

ईकाई–2

1857 का विद्रोह– कारण, प्रकृति एवं परिणाम। भारतीय पुनर्जागरण– राजा राममोहन राय, दयानन्द सरस्वती एवं स्वामी विवेकानन्द का सामाजिक एवं धार्मिक क्षेत्र में योगदान। भारतीय राष्ट्रीयता के उदय के कारण। भारतीय राष्ट्रीय कांग्रेस की स्थापना।

ईकाई–3

भारत सरकार के अधिनियम एवं उनकी मुख्य विशेषताएँ–1909, 1919 एवं 1935 के अधिनियमों के विशेष सन्दर्भ में। 1920 से 1947 के मध्य भारतीय स्वतन्त्रता आंदोलन–असहयोग आन्दोलन, सविनय अवज्ञा आंदोलन एवं भारत छोड़ो आंदोलन।

ईकाई–4

साम्प्रदायिक राजनीति का विकास। भारत का विभाजन और भारत की स्वतन्त्रता में सहायक तत्त्व। भारतीय संविधान एवं मुख्य विशेषताएं।

उपलब्धियाँ–

1. ब्रिटिश शासन के सकारात्मक एवं नकारात्मक प्रभाव का विश्लेषणात्मक अध्ययन कर पायेंगे।
2. राजाराममोहनराय, दयानंद सरस्वती एवं स्वामी विवेकानंद आदि के जीवन से प्रेरणा प्राप्त कर अपने व्यक्तित्व का विकास कर पायेंगे।
3. भारतीय संविधान एवं राष्ट्रीय आंदोलन के आदर्शों से प्रेरणा प्राप्त कर पायेंगे।

पाठ्यपुस्तक / संदर्भ ग्रंथ :

1. भार्गव, डॉ. वी.एस.–आधुनिक भारत का इतिहास रिसर्च पब्लिकेशन, जयपुर।
2. नागौरी, डॉ.एस.एल.–आधुनिक भारत का राजनैतिक, सामाजिक एवं सांस्कृतिक इतिहास।
3. शुक्ल, रामलखन–आधुनिक भारत का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, नई दिल्ली।
4. ग्रोवर, बी.एल. एवं यशपाल–आधुनिक भारत का इतिहास।
5. चन्द्रा, विपिन–आधुनिक भारत।
6. सरकार, सुमित–आधुनिक भारत।

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 505	Political Science **(पाश्चात्य प्रतिनिधि राजनीति विचारक)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को पाश्चात्य राजनीतिक विचारकों की विचारधाराओं से अवगत कराना।
2. विभिन्न विचारकों के दर्शन की वर्तमान में प्रासंगिकता बताना।
3. विभिन्न विचारकों का तुलनात्मक अध्ययन कर विद्यार्थियों को नये आयाम देना।

इकाई–1

प्लेटो : न्याय सिद्धांत, साम्यवाद का सिद्धांत, शिक्षा सिद्धांत एवं आदर्श राज्य का सिद्धांत, अरस्तु प्रथम वैज्ञानिक विचारक, दासता और नागरिकता सम्बधी विचार

इकाई–2

थॉमस एक्वीनास प्रमुख राजनीतिक विचार एवं कानून का सिद्धांत, मैकियावली के प्रमुख राजनीतिक विचार एवं प्रथम आधुनिक राजनीतिक विचारक के रूप में

इकाई–3

थॉमस हाब्स, जॉन लॉक एवं जीन जैक्स रूसो का सामाजिक समझौता सिद्धांत और उनके विचारों का तुलनात्मक अध्ययन।

इकाई–4

जैरेमी बैंथम तथा उसका उपयोगितावाद का सिद्धांत, जे. एस. मिल के स्वतंत्रता सम्बन्धी विचार और बैन्थम के उपयोगितावाद में उसके द्वारा प्रस्तावित संशोधन, कार्ल मार्क्स : इतिहास की आर्थिक व्याख्या, वर्ग संघर्ष का सिद्धान्त।

उपलब्धियाँ–

1. विद्यार्थी पाश्चात्य विचारकों के दर्शन को जान सकेंगे।
2. विद्यार्थी प्राचीनकाल, मध्यकाल एवं आधुनिक काल में बदलते विचारकों के दर्शन को जान सकेंगे।
3. विद्यार्थी राज्य की उत्पत्ति के सिद्धान्तों को समझ सकेंगे।

पाठ्यपुस्तक/संदर्भ ग्रंथः

1- Hacker : Political Theory
2- G.H. Sabine : History of Political Theory
3- C.Wayper : Political Thought
4- Foster : Masters of Political Thought Vol. I
5- Jones : Masters of Political Thohght Vol.II
6- Lancaster : Masters of Political Thought Vol. III
7- Sukhbir Singh : A History of Western Political Thought- Vol. I and II
8. के. एन. वर्मा–पाश्चात्य राजनीतिक विचारधाराएं, भाग 1–3
9. बी.एल. फडिया–प्रमुख प्रतिनिधिक पाश्चात्य राजनीतिक विचारक, कॉलेज बुक हाउस, जयपुर
10. पुखराज जैन–प्रमुख पाश्चात्य राजनीतिक विचारक, साहित्य भवन, पब्लिकेशन्स, आगरा

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 506	Sociology **(Foundation of Sociological Thought)**	**Any Three CE**	**4**	**30**	**70**	**100**

Learning out comes

- To enable the students to understand the emergence of sociology.
- To enable the students to understand the classical sociological tradition.
- To enable the students to understand the contemprorary sociological Tradition.
- To enable the students to understand the Indian sociological tradition.

UNit - I Emergence of Sociology

- Transition from Social Philosophy to Sociology
- The IntellEctual Cntext
- Enlighteninent - The Social Econimical and Political Forces

Unit - II Classical Sociological Tradition

- Karl Marx : DialEctical Meterialism, class Struggle
- E-mile Durkheim : Social Fact, Division of Labour and suicide
- Max Weber : Social action, Types of Authority

Unit III Contemporary Sociological Tradition

- Jurgen Habermas, Legitmatation crisis, communicative action
- Antonio, Gramsci : Hegemony, Civil Society
- Anthony Giddens : Modernity, Structure and Agency

Unit - Indian Sociological Tradition

- D.P. Mukherji : Diversity, DialEcties of Tradition
- A.R. Desai : Nationlism, Path of Development
- G.S. Ghurye : Indian Sadhus, Cast, Class and occupation, Social tension

Outcomes: After completion the course student would be able to:

- Understand the emergence of sociology.
- Understand the classical sociological tradition.
- Explain the contemprorary sociological Tradition.
- Understand the Indian sociological tradition.

Reference :

- Aron, Raymond 1967, Main currents in sociological thought Harmonds worth Middle Sex, Penguin Book
- Barnes H.E. 1959, Introduction to History of Sociology Chicago, The University of Chicago Press
- Coser, Lewis A, 1979 , Master of Sociological Thought, New York
- Singh, Yogendra 1986, Indian Sociology Social Conditioning and Emerging Trends, New Delhi
- Mukherjee, R. K., Sociology and Indian Society, ICSSR, Vol. I to IV
- Sambhulal Doshi & P. C. Jain : Karl Marx, Nex Bebat, Imail Durkheem (In Hindi)
- दोषी एवं जैन, प्रमुख समाजशास्त्रीय विचारक काम्टे से मर्टन तक

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 507	Geography **(Geography of India)**	**Any Three CE**	**4**	**30**	**50+20 (Practical) 70**	**100**

Objectivess -

1. To make students aware about the geography of their country.
2. To make aware about the soil, climate, vegetation, agriculture, minerals, drainage system of India.
3. To give knowledge regarding population, Transport, Tourism and religion of India.

Unit - I

a) Introduction: Location; Neighboring countries and frontiers.
b) India: A land of diversities; Unity within diversities.
c) Physiographic division; Himalayan region.
d) The Great Plains of India; Peninsular plateau.

Unit III Contemporary Sociological Tradition

- ❖ Jurgen Habermas, Legitmatation crisis, communicative action
- ❖ Antonio, Gramsci : Hegemony, Civil Society
- ❖ Anthony Giddens : Modernity, Structure and Agency

Unit - Indian Sociological Tradition

- ❖ D.P. Mukherji : Diversity, DialEcties of Tradition
- ❖ A.R. Desai : Nationlism, Path of Development
- ❖ G.S. Ghurye : Indian Sadhus, Cast, Class and occupation, Social tension

Outcomes: After completion the course student would be able to:

- ❖ Understand the emergence of sociology.
- ❖ Understand the classical sociological tradition.
- ❖ Explain the contemprorary sociological Tradition.
- ❖ Understand the Indian sociological tradition.

Reference :

- Aron, Raymond 1967, Main currents in sociological thought Harmonds worth Middle Sex, Penguin Book
- Barnes H.E. 1959, Introduction to History of Sociology Chicago, The University of Chicago Press
- Coser, Lewis A, 1979 , Master of Sociological Thought, New York
- Singh, Yogendra 1986, Indian Sociology Social Conditioning and Emerging Trends, New Delhi
- Mukherjee, R. K., Sociology and Indian Society, ICSSR, Vol. I to IV
- Sambhulal Doshi & P. C. Jain : Karl Marx, Nex Bebat, Imail Durkheem (In Hindi)
- दोषी एवं जैन, प्रमुख समाजशास्त्रीय विचारक काम्टे से मर्टन तक

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 507	Geography **(Geography of India)**	**Any Three CE**	**4**	**30**	**50+20 (Practical) 70**	**100**

Objectivess -

1. To make students aware about the geography of their country.
2. To make aware about the soil, climate, vegetation, agriculture, minerals, drainage system of India.
3. To give knowledge regarding population, Transport, Tourism and religion of India.

Unit - I

a) Introduction: Location; Neighboring countries and frontiers.
b) India: A land of diversities; Unity within diversities.
c) Physiographic division; Himalayan region.
d) The Great Plains of India; Peninsular plateau.

Unit – II

a) Coastal plains and Islands.
b) Drainage systems of India.
c) Climate: Summer and winter Season.
d) Soil: Type, distribution & characteristics.

Unit – III

a) Vegetation: Type and their distribution.
b) Agriculture: Major crops and their distribution (Wheat, Rice & Tea).
c) Minerals: Distribution of Minerals & Minerals Belts – Iron ore & Coal.
d) Industrial regions of India.

Unit – IV

a) Transport & Trade : Ports and foreign Trade.
b) Population: Distribution & Density of population, Sex Ratio & Literacy rate.
c). Tourism - Component of Tourism, Types & Tourism Resources.
d). Resources Region of India

Practical

a) Distribution map : General rules and method of drawing map.
b) Presentation Socio – Economic data, Qualitative methods : Chorochromatic method, Pictrorial method, Choroschematic method.
c) Quantitative method : Choropleth, Isopleth, Dot method.
d) Plain table survey : Instruments required for plain table survey.
e) Plain Table survey : Radiation & intersection method.

Outcomes-

1. Students after having knowledge of overall climate conditions, can adapt themselves at various parts of country.
2. Can contribute to the Economic growth of the country.
3. Steps may be taken for proper utilisation of resources and controlling population, a major problem.

Suggested Books :

1. गौड कृपाशंकर : भारत की भौगोलिक समीक्षा, हिन्दी प्रचार पुस्तकालय, वाराणसी
2. मामोरिया चतुर्भुज : भारत का आर्थिक भूगोल, आगरा बुक स्टोर, आगरा
3. तिवारी विश्वनाथ : भारत का वृहद् भूगोल, रामप्रसाद एण्ड सन्स, आगरा
4. चौहान, वीरेन्द्रसिंह : विशाल भारत, रस्तोगी एण्ड कम्पनी, मेरठ
5. चौहान, तेजसिंह : भारत का भूगोल, विज्ञान प्रकाशन, जयपुर

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 508	Economics **(History of Economics Thought)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To enable the student teachers to understand the importance of Economics Thought.
- To enable the student teachers to understand the thought of utopian Socialists.
- To enable the student teachers to understand the Austrian School of Economics Thought.
- To enable the student teachers to understand the Indian Economics Thought.

Unit – II

a) Coastal plains and Islands.
b) Drainage systems of India.
c) Climate: Summer and winter Season.
d) Soil: Type, distribution & characteristics.

Unit – III

a) Vegetation: Type and their distribution.
b) Agriculture: Major crops and their distribution (Wheat, Rice & Tea).
c) Minerals: Distribution of Minerals & Minerals Belts – Iron ore & Coal.
d) Industrial regions of India.

Unit – IV

a) Transport & Trade : Ports and foreign Trade.
b) Population: Distribution & Density of population, Sex Ratio & Literacy rate.
c). Tourism - Component of Tourism, Types & Tourism Resources.
d). Resources Region of India

Practical

a) Distribution map : General rules and method of drawing map.
b) Presentation Socio – Economic data, Qualitative methods : Chorochromatic method, Pictrorial method, Choroschematic method.
c) Quantitative method : Choropleth, Isopleth, Dot method.
d) Plain table survey : Instruments required for plain table survey.
e) Plain Table survey : Radiation & intersection method.

Outcomes-

1. Students after having knowledge of overall climate conditions, can adapt themselves at various parts of country.
2. Can contribute to the Economic growth of the country.
3. Steps may be taken for proper utilisation of resources and controlling population, a major problem.

Suggested Books :

1. गौड कृपाशंकर : भारत की भौगोलिक समीक्षा, हिन्दी प्रचार पुस्तकालय, वाराणसी
2. मामोरिया चतुर्भुज : भारत का आर्थिक भूगोल, आगरा बुक स्टोर, आगरा
3. तिवारी विश्वनाथ : भारत का वृहद् भूगोल, रामप्रसाद एण्ड सन्स, आगरा
4. चौहान, वीरेन्द्रसिंह : विशाल भारत, रस्तोगी एण्ड कम्पनी, मेरठ
5. चौहान, तेजसिंह : भारत का भूगोल, विज्ञान प्रकाशन, जयपुर

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 508	Economics **(History of Economics Thought)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To enable the student teachers to understand the importance of Economics Thought.
- To enable the student teachers to understand the thought of utopian Socialists.
- To enable the student teachers to understand the Austrian School of Economics Thought.
- To enable the student teachers to understand the Indian Economics Thought.

Unit I : History of Economics Thought

a) Meaning and Importance of History of Economics Thought.
b) History of Economic Analysis and Economic History.
c) Mercantilism, Main Characteristics
d) Physiocracy : Main Economic Ideas

Unit II : Theory of value

a) Adam Simith, Ricardomill, Austrian School (menger, wieser)
b) Marginal Utilligy School - (Gossen, Jevons)
c) New-Classical School (marshall)
d) The Extension of Classical Ideas of Value the socialists.

Unit III : Eolution of Socialistic Though

a) Utoplan Socialism (Saint, Simon, Charies Furierns Robert Owen.)
b) Scientific Socialism (Karl Marx)
c) Development of Ideas on Capital : Adam Smith and his early crities.
d) Continental Economists - Keynes and karl Marx.

Unit IV : Rent Theory and Indian Economic Though

a) Rent Theory - The for mulation of the Rent-Malthus, Ricardo and the theories Extension of Rent.
b) The Theories of Interest and Profit.
c) Early Indian Economic Ideas : Kautilya.
d) Modern Economic Ideas : Ranade, Naroji M.N. Rai, Gandhi Ji.

Outcomes: After completion the course student would be able to:

1. Understand the geography of their country.
2. Explain the soil, climate, vegetation, agriculture, minerals, drainage system of India.
3. Know regarding population, Transport, Tourism and religion of India.

Reference :

1. Gideand Rist : History of Economic Doctrines
2. Haney, L.N. History of Economic Thought
3. Eric Roll : History of Economic Thought
4. Anosh, B.N. and Ghosh, R.R. Concise History of Economic Thought (Himalaya Publishing House, Delhi.
5. वैश्य. एम.सी. ''आर्थिक विचारों का इतिहास
6. हजेला, टी.एन. : आर्थिक विचारों का इतिहास
7. श्रीवास्तव, एस.के. आर्थिक विचारों का इतिहास (हिन्दी/अंग्रेजी)

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 509	Home Science (**Advance Family resource management**)	**Any Three CE**	**4**	**30**	**70**	**100**

Assignment & Practical Works : (Any Two)

- Write the educational contribution of any one Indian Thinker.
- Prepare a Assignment Work on how we can inculcate values in the present system of education.
- Prepare a structure of education since ancient period to present time.
- Concept of education in Emerging Indian Society as relevant to school children's
- Development of moral attitude through self management

Learning Outcomes: After completion of this course students would able to:

- ❖ Know social aspects of education and develop educational perspective.
- ❖ Solve prevailing problems of education in India.
- ❖ Understand the purpose, function and Role of education in nation building.
- ❖ Understand knowledge of the Indian education system as it has evolved from the past, as it is today.
- ❖ Understand the concept, principle of sustainable development and core concept of educational thinkers.
- ❖ Know social equity and equality of educational opportunities.

References :

1. Crown, R.G. (1965),A Society of Education, Engineering patterns of class, status and power in the public school, New York : Appleton-century crofts.
2. Durkhem, S. (1956), Education and Sociology of Education, New York : The Free Press of Glenoce.
3. Gore, M.S., et. al. (1967), Papers in the sociology of Education in India, New Delhi, NCERT.
4. Hanseu, D.A. et. al (1965), On Education : Sociological PerspEctive. New York :John Wiley and Sons.
5. चौबे, सरयूप्रसाद, (2005), शिक्षा के समाजशास्त्रीय आधार, विनोद पुस्तक मंदिर, आगरा
6. त्रिपाठी, शालिग्राम, (2008), शिक्षा सिद्धान्त, कनिष्क पब्लिशर्स डिस्ट्रीब्यूटर्स, अंसारी रोड़, नई दिल्ली
7. पाण्डेय, रामशक्ल, (2008), उभरते हुए भारतीय समाज में शिक्षा, विनोद पुस्तक मंदिर, आगरा
8. पाठक, पी. डी., (2008), भारतीय शिक्षा और उसकी समस्याएँ, विनोद पुस्तक मंदिर, आगरा
9. पाठक एवं त्यागी, (2008), शिक्षा के सिद्धान्त, विनोद पुस्तक मंदिर, आगरा
10. पाण्डेय, रामशक्ल, (2007), शिक्षा के मूल सिद्धान्त, विनोद पुस्तक मंदिर, आगरा
11. शर्मा, ओ. पी., गुप्ता शोभा, (2008), उभरते हुए भारतीय समाज में शिक्षा, विनोद पुस्तक मंदिर, आगरा
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Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 501	Hindi Literature **(आधुनिक काव्य एवं काव्यशास्त्र)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को आधुनिक काव्य से परिचित करवाना।
2. विद्यार्थियों को विभिन्न कवियों की काव्यशैली की जानकारी देना।
3. विद्यार्थियों को काव्यशास्त्र की सामान्य जानकारी देना।

इकाई–I

1. आधुनिक काव्य की सामान्य प्रवृत्तियां, प्रमुख काव्य धाराएँ– भारतेन्दु युग, द्विवेदी युग, छायावाद, प्रगतिवाद, प्रयोगवाद, नई कविता, समकालीन कविता की प्रमुख प्रवृत्तियां, रचनाकार एवं उनकी रचनाएँ।
2. वीर सतसई– सूर्यमल्लमीसण संपादक कन्हैयालाल सहल, ईश्वरदान आसिया, पतराम गौड– राजस्थानी ग्रंथागार, जोधपुर से निर्धारित काव्यांश
   (क) सूर्यमल्ल मीसण–वीर सतसई (प्रथम 20 दोहे)
3. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई–II

हिन्दी काव्य संग्रह–संपादक हेमराज मीणा, मीरा सरीन केन्द्रीय हिन्दी संस्थान, आगरा से निर्धारित कवि एवं काव्यांश

1. (क) मैथिलीशरण गुप्त– 1. सखी बसंत से कहां गये वे 2. भारत भारती
   (ख) जयशंकर प्रसाद– 1. चिंता
   (ग) सूर्यकांत त्रिपाठी निराला– 1. जूही की कली 2. बादल राग
2. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई–III

हिन्दी काव्य संग्रह– संपादक हेमराज मीणा, मीरा सरीन केन्द्रीय हिन्दी संस्थान, आगरा से निर्धारित कवि एवं काव्यांश

1. (क) महादेवी वर्मा–(1) मैं नीर भरी दुख की बदली (2) पंथ होने दो अपरिचित (3) मधुर–मधुर मेरे दीपक जल
   (ख) अज्ञेय– (1) हिरोशिमा (2) कलगी बाजरे की (3) यह दीप अकेला
2. रश्मिरथी –रामधारीसिंह दिनकर, लोकभारती प्रकाशन, इलाहाबाद से निर्धारित काव्यांश
   (क) रामधारीसिंह दिनकर, रश्मिरथी (पंचम सर्ग)
3. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई–IV

1. काव्य लक्षण, काव्य हेतु, काव्य प्रयोजन,काव्य भेद
2. रस का स्वरूप, रस के अवयव, रस के भेद
3. अलंकार– सामान्य परिचय, निर्धारित अलंकार–अनुप्रास, यमक, श्लेष, वक्रोक्ति, उपमा, रूपक, भ्रांतिमान, संदेह , उत्प्रेक्षा, विरोधाभास
4. छंद–सामान्य परिचय,निर्धारित छंद–दोहा, सोरठा, चौपाई, रोला, इन्द्रवज्रा, मंदाक्रान्ता, उपेन्द्रवज्रा, मदिरासवैया,मत्तगयन्त सवैया, दुर्मिल सवैया, मन हरण, देव घनाक्षरी
5. काव्य गुण एवं काव्य दोष : निर्धारित काव्य दोष–श्रुति कटुत्व, च्युत संस्कृति, ग्राम्यत्व, अश्लीलत्व, अप्रतीत्व, क्लिष्टत्व, न्यूनपदत्व, अधिकपदत्व, पुनरूक्तव, अक्रमत्व, दुष्क्रमत्व
6. शब्द शक्तियां

उपलब्धियाँ–

1. विद्यार्थी विभिन्न कवियों की लेखनशैली से परिचित होकर अपना मत प्रस्तुत कर सकेंगे।
2. विद्यार्थी आधुनिक काव्य का परिचय प्राप्त कर स्वयं काव्य रचना का प्रयास कर सकेंगे।
3. विद्यार्थी स्वयं को भावी प्रतियोगिता परीक्षाओं के लिये तैयार कर सकेंगे।
4. विद्यार्थी काव्यशास्त्र का ज्ञान प्राप्त करेगें।

पाठ्यपुस्तक/संदर्भ ग्रंथ

1. जयशंकर प्रसाद, आचार्य नंद दुलारे वाजपेयी, भारती भंडार, इलाहाबाद
2. निराला की साहित्य साधना (भाग 1,2,3) डॉ रामविलास शर्मा, राजकमल प्रकाशन, नई दिल्ली
3. छायावाद : पुनर्मूल्यांकन सुमित्रानदंन पंत, लोकभारती प्रकाशन, इलाहाबाद
4. कविता के नये प्रतिमान–डॉ नामवरसिंह राजकमल प्रकाशन, नई दिल्ली
5. अज्ञेय और आधुनिक रचना समस्या, डॉ रामस्वरूप चतुर्वेदी, लोक भारती प्रकाशन, इलाहाबाद
6. हिन्दी साहित्य का इतिहास–संपादक डॉ नगेन्द्र मयूर पेपर बैक्स, नोयडा
7. हिन्दी साहित्य का इतिहास–आचार्य रामचन्द्र शुक्ल नागरी प्रचारिणी सभा, काशी
8. आधुनिक साहित्य की प्रवृतियाँ– डॉ नामवरसिंह, लोकभारती प्रकाशन, इलाहाबाद
9. काव्यशास्त्र– भागीरथ मिश्र, विश्वविद्यालय प्रकाशन, वाराणसी
10. हिन्दी काव्य सिद्धान्त– रामबाबू ज्योति, राजस्थान प्रकाशन, जयपुर
11. काव्यशास्त्र– डॉ. भागीरथ मिश्र, विश्वविद्यालय प्रकाशन, वाराणसी
12. काव्य प्रदीप– रामबहोरी शुक्ल, हिन्दी भवन प्रकाशन, दिल्ली
13. भारतीय काव्यशास्त्र– निशा अग्रवाल, लोक भारती प्रकाशन, नई दिल्ली
14. साहित्य शास्त्र– डॉ. ओमप्रकाश गुप्त, डॉ. गौवर्धन बंजारा, पार्श्व प्रकाशन, अहमदाबाद

Semester V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 502	English Literature **(Poetry and Drama)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

1. To enable the students to compose poems.
2. To familiarize them with Modern Poetry and Problem Play.
3. To acquaint them with the literary terms related to the genres.

Unit I: Indian Poetry in English.

1. Enterprise: Nissim Ezekiel
2. A River: A.K. Ramanujan
3. Railroad Reveries: K.N. Daruwala
4. Lakshman: Toru Dutt

Unit II: English Poetry

1. My last Duchess: Browning
2. Pied Beauty: G.M. Hopkins
3. The Second Coming: W.B. Yeats
4. The journey of the Magi: T.S. Eliot

Unit- II Writing composition & Action Plan

a) RECite 10 poem / verse/ stanza and write it.
b) Prepare an action plan and organize accordingly.
c) Proof reading.
d) Prepare list of innovative vocebulary for speaking. (50 words).

Objectives:

- ❖ To develop basic Communication Skills.
- ❖ To promote Creative Writing among students.
- ❖ To acquire the knowledge of art of Speaking.

Assignment & Practical Works : (Any Two)

- One Assignment Work on any topic related to above units.
- Prepare a plan and organize any two activities related to above units.
- Demonstrate different type of speaking.
- To identify the causes of ineffective speech and remedies for it.

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 403	Drama and Arts in Education (EPC)	**CC**	**2**	**15**	**35 Practical & Viva-Voce**	**50**

Objectives:

- ❖ To develop skills of role playing and acting.
- ❖ To acquire the knowledge and develop skill of arts, painting and playing musical Instruments.

Course Contents:

Unit- I Write a Drama Script

a) Prepare a Drama for any Social issues (Class VI to XI)
b) Role playing for different scene of Drama
c) To know different types of Drama

Unit- II Fine Arts, materials and its relevancy (Any two works)

a) Mehendi, Drawing
b) Rangoli/Model Preparation
c) Poster Painting

Learning Outcomes: After completion of this course students would able to:

- ❖ Develop skills of role playing and acting.
- ❖ Acquire the knowledge and develop skill of arts, painting and playing musical Instruments.

Assignment & Practical Works : (Any Two)

- Prepare any one Assignment Work related to above units.
- Plan and organize any two activities related to above units.
- Prepare Arts and crafts with un usual material
- Prepare Fine Arts with paper
- Hand made ArchitEcture
- Soft toys (Teddy bear)
- Dance Art
- Fine Arts/ Painting
- Skill of Playing musical instrument
- Food Shef
- Handicraft

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 602	Pre- Internship	**CC**	**4**	**100** Pre- Internship		**100**

Pre-internship distribution (4 Weeks)

Objectives:

- ❖ To acquire the knowledge of internship.
- ❖ To understand skill focused teaching.
- ❖ To develop ability of comprehensive school teaching.
- ❖ To understand and organize various school activities.

Sr. No. **Contents**

1. **Skills Fouced Teaching**
   - ➢ Introduction
   - ➢ Questioning

- Demsstration Lesson Plan
- Lesson based on Various Approaches Method, such as --
  - Co-operative Learning
  - Activities Based Apprach
  - Team Teaching
  - Project Method
  - Brain Storming
  - Task Based
  - Programme Instruction etc.

3. Unit Plan, Blue Print, Achivement Test and Use of Teaching Aids

4. School Activities
   - Physical
   - Cultural
   - Leteraty
   - Yoga Exceress

Learning Outcomes: After completion of this course students would able to:

- Acquire the knowledge of internship.
- Understand skill focused teaching.
- Develop ability of comprehensive school teaching.
- Understand and organize various school activities

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 601	Hindi Literature **(हिन्दी भाषा एवं काव्यांग विवेचन)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थी को प्रयोजनमूलक हिन्दी के बारे में जानकारी देना।
2. विद्यार्थी को पत्र लेखन शैली से अवगत कराना तथा कार्यालयी पत्र लेखन में निपुण बनाना।
3. अनुवाद विज्ञान की जानकारी देकर भावी अनुवादक तैयार करना।
4. पारिभाषिक शब्दावली की जानकारी प्रदान कर भावी पीढ़ी को तैयार करना।

इकाई I

1. प्रयोजन मूलक हिन्दी– आवश्यकता और स्वरूप
2. प्रयोजन मूलक हिन्दी की विशेषताएँ
3. प्रयोजन मूलक हिन्दी की प्रयुक्तियाँ एवं प्रयोगात्मक क्षेत्र।
4. राजभाषा हिन्दी– स्वरूप तथा संविधान में हिन्दी।

इकाई II

1. पत्र–लेखन की विशेषताएँ
2. पत्र–लेखन के निर्देश एवं पत्र के अंग
3. व्यावसायिक और सामाजिक पत्र
4. सरकारी पत्र का ढांचा तथा सरकारी पत्र की विशेषताएँ

इकाई III

1. अनुवाद– अर्थ एवं स्वरूप
2. अनुवाद के प्रकार
3. अनुवाद की प्रक्रिया
4. अनुवाद की समस्या
5. अनुवादक के गुण

इकाई IV

1. पारिभाषिक शब्दावली– परिभाषा और आवश्यकता
2. पारिभाषिक शब्दावली का महत्व
3. पारिभाषिक शब्दावली के गुण
4. पारिभाषिक शब्दावली के निर्माण की प्रविधि और प्रक्रिया

उपलब्धियाँ–

1. विद्यार्थी कार्यालयी पत्र व्यवहार सीख सकेंगे तथा भावी प्रतियोगिता परीक्षाओं के लिये तैयार हो सकेंगे।
2. हिन्दी के अपने व्यावहारिक ज्ञान में वृद्धि कर सकेंगे।
3. विद्यार्थी अनुवाद एवं पारिभाषिक शब्दावली का ज्ञान लेकर एक अच्छा अनुवादक एवं भाषा वैज्ञानिक बन सकेगा।

संदर्भ ग्रंथ–

1. प्रयोजन मूलक हिन्दी– विनोद गोदरे, वाणी प्रकाशन, दिल्ली
2. प्रयोजन मूलक हिन्दी : सृजन और समीक्षा, डॉ. रामलखन मीणा,
3. प्रयोजन मूलक हिन्दी : पारिभाषिक शब्दावली– डॉ. मधु धवन
4. प्रयोजन मूलक भाषा और कार्यालयी हिन्दी– डॉ. कृष्ण कुमार गोस्वामी,
5. प्रयोजन मूलक हिन्दी– डॉ. बालेन्दु शेखर तिवारी, संजय बुक सेन्टर, वाराणसी
6. राजभाषा हिन्दी : विकास के विविध आयाम– डॉ. मलिक मोहम्मद,
7. सृजनात्मक साहित्य का अनुवाद– स्वरुप एवं समस्याएँ, सुरेश सिंहल

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 602	English Literature **(Prose and Fiction)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

1. To enable the students to compose short stories.
2. To acquaint them with spirituality and psychology.
3. To inculcate human values in the students.

Unit I: Prose

A: From Religion to Vocation: AcharyaMahapragya.

B: An Ideal Before the Youth: S Radhakrishnan.

C: Seven Rules of Writing: V.S. Naipaul.

D: How to Escape the Intellectual Rubbish: Bertrand Russell.

Unit II: English Short Stories

A: The Model Millionaire: Oscar Wilde.

B: When Mr. Peerzada came to Dine: JhumpaLariri.

C: Dr. Heidegger's Experiment: Nathaniel Hawthorne.

D: The Night the Ghost Got in: James Thurber.

Unit III: Indian Short Stories

A-The Gold Watch: Mulk Raj Anand.

B-Karma: Khushwant Singh.

C-Upper Division Love: ManoharMalgonkar.

D-A Client: Raja Rao.

Unit IV: (A) Novel - The Guide: R.K. Narayan.

(B) Media- Interview of AcharyaMahapragya with APJ Abdul Kalam.

Outcome:

1- They will compose stories without the help of a teacher.
2- They will understand the relation between literature and Media.

Suggested Reading :

1- Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
2- Collected Essays. Jain Vishva Bharti Institute, Ladnun.
3- Short Stories of Yesterday and Today. (ED.) Shiv K Kumar. OUP, New Delhi.
4- The Guide. R.K. Narayan, OUP, New Delhi.

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 603	Sanskrit Literature **संस्कृत व्याकरण एवं साहित्य (लघुसिद्धान्त कौमुदी)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. गणों का परिचय देना।
2. शुकनासोपदेश और कुमारसंभवम के ग्रंथों के चयनित अंशों का अध्यापन करना।
3. ञिनन्त आदि दस प्रक्रियाओं का ज्ञान कराना।

इकाई–1 लघु सिद्धांत कौमुदी के दवादि गण से लकारार्थ तक (सूत्र 629 से 765), कृदन्त प्रकरण (सूत्र 766 से 887 तक)

इकाई–2 रचनानुवाद कौमुदी (51 से 60)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

शुकनासोपदेश

1. दो पद्यों की व्याख्या
2. एक सामान्य प्रश्न

इकाई–3 कुमारसंभव (पांचवा सर्ग)

1. दो श्लोक की सप्रसंग व्याख्या
2. कुमारसंभवम् पर सामान्य प्रश्न

इकाई–4 अभिधान चिन्तामणि नाममाला (151 से 180)

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. ञिनन्त, सनन्त आदि प्रक्रियाओं का ज्ञान होगा।
2. समासबद्ध एवं लघु वाक्यों के निर्माण का अभ्यास होगा।
3. गणों के विभिन्न धातु रूपों का ज्ञान होगा।

पाठ्य पुस्तक / संदर्भ ग्रंथ–

1. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
2. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
3. कुमार संभवम्, चौखम्बा प्रकाशन,
4. शुकनासोपदेश, मोतीलाल बनारसीदास, दिल्ली या चौखम्बा प्रकाशन, बनारस
5. अभिधान चिन्तामणि, चौखम्बा प्रकाशन, वाराणसी
6. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 604	History **(आधुनिक विश्व के इतिहास की रूपरेखा)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को आधुनिक विश्व के इतिहास से परिचित करवाना।
2. अमेरिकी एवं फ्रांसीसी क्रांति के महत्त्व को बताना।
3. इटली एवं जर्मनी के एकीकरण की प्रेरणादायी प्रक्रिया को बताना।
4. राष्ट्र संघ एवं संयुक्त राष्ट्र संघ के महत्त्व को बताना।

ईकाई–1

पुनर्जागरण : अर्थ, कारण, कला तथा साहित्य का विकास। धर्म सुधार आंदोलन : कारण एवं मार्टिन लूथर का योगदान। प्रतिवादी धर्म सुधार आंदोलन : उद्देश्य, सफलता के कारण एवं परिणाम।

ईकाई–2

अमेरिका का स्वतंत्रता संग्राम : कारण और परिणाम। फ्रांस की क्रान्ति : कारण और परिणाम। नेपोलियन बोनापार्ट का उत्कर्ष, विजय अभियान एवं पतन। औद्योगिक क्रान्ति : कारण और परिणाम। जर्मनी का एकीकरण एवं बिस्मार्क का योगदान।

ईकाई–3

अफ्रीका में साम्राज्यवाद : कारण एवं परिणाम। इटली का एकीकरण : कठिनाइयां, प्रयत्न, मैजिनी, गैरीबाल्डी एवं काबूर का योगदान। प्रथम विश्व युद्ध : कारण और परिणाम। रूस की 1917 ई. की बोल्शेविक क्रान्ति के कारण और परिणाम।

ईकाई–4

इटली में फासिस्टवाद के उदय के कारण। जर्मनी में नाजीवाद के उदय के कारण। द्वितीय विश्व युद्ध : कारण और परिणाम। संयुक्त राष्ट्र संघ : उद्देश्य, सिद्धांत एवं उपलब्धियां।

उपलब्धियाँ–

1. विद्यार्थी विश्व इतिहास का सामान्य ज्ञान प्राप्त कर सकेंगे।
2. अमेरिकी, फ्रांसिसी, रूसी आदि क्रांति से प्रेरणा प्राप्त कर समाज में व्याप्त अव्यवस्थाओं का विरोध कर पायेंगे।
3. इटली एवं जर्मनी के एकीकरण से राष्ट्र निर्माण की प्रेरणा प्राप्त कर सकेंगे।
4. संयुक्त राष्ट्र संघ के वर्तमान महत्त्व को समझ पायेंगे।

पाठ्यपुस्तक/संदर्भ ग्रन्थः

1. शर्मा, हरिशंकर–विश्व का इतिहास, मलिक एण्ड कम्पनी, जयपुर।
2. जैन एण्ड माथुर–पाश्चात्य विश्व इतिहास की रूपरेखा, जैन प्रकाशन मन्दिर, जयपुर।
3. शर्मा, डॉ. कालूराम एवं व्यास, डॉ. प्रकाश–आधुनिक विश्व का इतिहास–पंचशील प्रकाशन, जयपुर।
4. गुप्ता, पार्थ सारथी–युरोप का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, नई दिल्ली।
5. शर्मा, कृष्णगोपाल, शर्मा दिग्राजसिंह एवं कोठारी, कमलसिंह–आधुनिक विश्व का इतिहास, अजमेरा बुक कम्पनी, जयपुर।
6. Fisher, H.A.L.- A history of Europe, Landon 1949.
7. Devish, H.A.- An outline history of the world, oxford university press, New yark 1968

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 605	Political Science **(अन्तर्राष्ट्रीय सम्ब्ध)**	**Any Three CE**	**4**	**30**	**70**	**100**

उद्देश्य–

1. विद्यार्थियों को आत्मपरकता की शक्ति का विकास करना।
2. विश्व में विभिन्न प्रकार की घटित होने वाली घटनाओं की जानकारी देना।
3. बदलती नई विश्व व्यवस्था की जानकारी देना।
4. विभिन्न देशों की विदेश नीतियों की जानकारी देना।

इकाई–1

अन्तर्राष्ट्रीय सम्बन्ध का अर्थ, प्रकृति व क्षेत्र, अन्तर्राष्ट्रीय सम्बन्धों के अध्ययन सम्बन्धी उपागम–आदर्शवादी एवं यथार्थवादी उपागम, राष्ट्रीय शक्ति–राष्ट्रीय शक्ति से अभिप्राय और तत्त्व

इकाई–2

शीतयुद्ध : अर्थ, कारण एवं प्रभाव, गुट–निरपेक्ष आंदोलन, निःशस्त्रीकरण।

इकाई–3

संयुक्त राज्य अमेरिका की विदेश नीति, साम्यवादी चीन की विदेशनीति, भारत की विदेशनीति एवं उसके पड़ौसी राज्य।

इकाई–4

अन्तर्राष्ट्रीय राजनीति में उभरती नवीन प्रवृत्तियां : उत्तर–दक्षिण संवाद, दक्षिण–दक्षिण संवाद, नवीन अन्तर्राष्ट्रीय व्यवस्था, क्षेत्रीय सहयोग संगठन : सार्क और आसियान।

उपलब्धियाँ–

1. विभिन्न राष्ट्रों के आपसी व्यवहार एवं आचरण के मूल कारणों को जान सकेंगे।
2. भूमण्डलीकरण, उदारीकरण, निजीकरण के युग में अन्तर्राष्ट्रीय राजनीति का तुलनात्मक अध्ययन कर सकेंगे।
3. अन्तर्राष्ट्रीय सम्बन्ध एवं अन्तर्राष्ट्रीय राजनीति पहले की अपेक्षा क्यों अधिक प्रासंगिक है? जान सकेंगे।
4. सोवियत खेमें के विघटन के पश्चात बदलते विश्व परिदृश्य को समझ सकेंगे।

पाठ्यपुस्तक / संदर्भ ग्रंथः

1. S.N. Dhar : International Problems & World Politics since 1949.
2. Jorden Connel Smith : Patterns of the post world war, 1982
3. Black & Thomson : Foreign Political in a Changing World.
4. बी.एल. फडिया : अन्तर्राष्ट्रीय सम्बन्ध, साहित्य भवन, पब्लिकेशन्स, आगरा
5. बी.एम. जैन : अन्तर्राष्ट्रीय सम्बन्ध, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर
6. पी.के. चड्ढा : अन्तर्राष्ट्रीय संबंध, आदर्श प्रकाशन, जयपुर

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 606	Sociology (**Social Anthropology**)	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:-

- To enable the students to understand the concept, nature and scope of social Anthropology.
- To enable the students to understand the sociat sturcture
- To enable the students to understand the primitive Economics and political system.
- To enable the students to understand the problem of Tribes.

Unit - I Concept of Anthropology

- Social Anthropology : Defination, Nature and Scope
- Apporaches to the Study Sociol Anthropology
- Structural - Functional, Evolutionary and Comparative

Unit - II Social Structure

- Culture : Its meaning, theories of culture growth

शीतयुद्ध : अर्थ, कारण एवं प्रभाव, गुट–निरपेक्ष आंदोलन, निःशस्त्रीकरण।

इकाई–3

संयुक्त राज्य अमेरिका की विदेश नीति, साम्यवादी चीन की विदेशनीति, भारत की विदेशनीति एवं उसके पड़ौसी राज्य।

इकाई–4

अन्तर्राष्ट्रीय राजनीति में उभरती नवीन प्रवृत्तियां : उत्तर–दक्षिण संवाद, दक्षिण–दक्षिण संवाद, नवीन अन्तर्राष्ट्रीय व्यवस्था, क्षेत्रीय सहयोग संगठन : सार्क और आसियान।

उपलब्धियाँ–

1. विभिन्न राष्ट्रों के आपसी व्यवहार एवं आचरण के मूल कारणों को जान सकेंगे।
2. भूमण्डलीकरण, उदारीकरण, निजीकरण के युग में अन्तर्राष्ट्रीय राजनीति का तुलनात्मक अध्ययन कर सकेंगे।
3. अन्तर्राष्ट्रीय सम्बन्ध एवं अन्तर्राष्ट्रीय राजनीति पहले की अपेक्षा क्यों अधिक प्रासंगिक है? जान सकेंगे।
4. सोवियत खेमें के विघटन के पश्चात बदलते विश्व परिदृश्य को समझ सकेंगे।

पाठ्यपुस्तक / संदर्भ ग्रंथः

1. S.N. Dhar : International Problems & World Politics since 1949.
2. Jorden Connel Smith : Patterns of the post world war, 1982
3. Black & Thomson : Foreign Political in a Changing World.
4. बी.एल. फडिया : अन्तर्राष्ट्रीय सम्बन्ध, साहित्य भवन, पब्लिकेशन्स, आगरा
5. बी.एम. जैन : अन्तर्राष्ट्रीय सम्बन्ध, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर
6. पी.के. चड्ढा : अन्तर्राष्ट्रीय संबंध, आदर्श प्रकाशन, जयपुर

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 606	Sociology (**Social Anthropology**)	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:-

- To enable the students to understand the concept, nature and scope of social Anthropology.
- To enable the students to understand the sociat sturcture
- To enable the students to understand the primitive Economics and political system.
- To enable the students to understand the problem of Tribes.

Unit - I Concept of Anthropology

- Social Anthropology : Defination, Nature and Scope
- Apporaches to the Study Sociol Anthropology
- Structural - Functional, Evolutionary and Comparative

Unit - II Social Structure

- Culture : Its meaning, theories of culture growth

- ❖ Religion : Theories of origin, Beliefs and Practices
- ❖ Magic : Meaning Types, its Relation to Religion

Unit - III Primitive Economics and Political Systems

- ❖ Primitive Economics System : Meaning, Characteristics and Founctioning
- ❖ Primitive Political System : Meaning, Characteristics, Primitive Law and Customs

Unit - IV Tribes

- ❖ Problems of Tribes India, Tribal Development
- ❖ Tribes in Rajasthan : Bhil, Meena, Garasiya, Saharia

Learning Outcomes:- After completion the course students would be able to:

- ❖ Understand the concept, nature and scope of social Anthropology.
- ❖ Understand the sociat sturcture
- ❖ Understand the primitive Economics and political system.
- ❖ Understand the problem of Tribes.

Reference :

- Bose, N.K. 1967, Culture and Society In India, Asia Publishing House
- Desai, A.R., 1979, Peasant Struggle in India, OUP, Bombay
- Dube, Sc 1977, Tribes of India, The struggle for survival, OUP, Bombay.
- Rao, M.S.A., 1979, Social Movements in India, Manohar Delhi
- Sharma, Suresh, 1994, Tribal Identity and Modern World.
- Singh K.S., 1984, Econimics of the Tribes in and their Transformation, concept publishing, New Delhi
- Singh K.S., 1995, Tribal Movements in India, Manohar New Delhi
- Majumdar and Madan : Social Anthropology
- Mair, Lucky : An Introduction to Social Anthroplogy

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 607	Geography **(Gepgraphy Thought)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectivess-

1. To give knowledge about teh concept of geographical thought.
2. To give knowledge about thoughts of various geographical thinkers as of British, German, American, Romans etc.
3. Trends of Moern Geography.

Unit - I

a. Definition and aims of Geogrpahy.
b. Evolution of Geograpical thought.
c. Major branches of Geography.

- ❖ Religion : Theories of origin, Beliefs and Practices
- ❖ Magic : Meaning Types, its Relation to Religion

Unit - III Primitive Economics and Political Systems

- ❖ Primitive Economics System : Meaning, Characteristics and Founctioning
- ❖ Primitive Political System : Meaning, Characteristics, Primitive Law and Customs

Unit - IV Tribes

- ❖ Problems of Tribes India, Tribal Development
- ❖ Tribes in Rajasthan : Bhil, Meena, Garasiya, Saharia

Learning Outcomes:- After completion the course students would be able to:

- ❖ Understand the concept, nature and scope of social Anthropology.
- ❖ Understand the sociat sturcture
- ❖ Understand the primitive Economics and political system.
- ❖ Understand the problem of Tribes.

Reference :

- Bose, N.K. 1967, Culture and Society In India, Asia Publishing House
- Desai, A.R., 1979, Peasant Struggle in India, OUP, Bombay
- Dube, Sc 1977, Tribes of India, The struggle for survival, OUP, Bombay.
- Rao, M.S.A., 1979, Social Movements in India, Manohar Delhi
- Sharma, Suresh, 1994, Tribal Identity and Modern World.
- Singh K.S., 1984, Econimics of the Tribes in and their Transformation, concept publishing, New Delhi
- Singh K.S., 1995, Tribal Movements in India, Manohar New Delhi
- Majumdar and Madan : Social Anthropology
- Mair, Lucky : An Introduction to Social Anthroplogy

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 607	Geography **(Gepgraphy Thought)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectivess-

1. To give knowledge about teh concept of geographical thought.
2. To give knowledge about thoughts of various geographical thinkers as of British, German, American, Romans etc.
3. Trends of Moern Geography.

Unit - I

a. Definition and aims of Geogrpahy.
b. Evolution of Geograpical thought.
c. Major branches of Geography.

d. Beginning of classical Geography contribution of Greeks- Herodotus & Eratosthmes.

Unit - II

a. Contribution of Romans - Strabo & Plolemy.
b. Early medieval Geography: contribution of Arabian Geographers (AI - Burini & Al-Idrisi)
c. Concept of Cultural landscape: Meaning & elements of Cultural landscape
d. Recent trends of modern geography.

Unit - III

a. Contribution of German schools of Geography Humboldt & Carl Ritter,
b. French Schools of Geography vidal de. la blache & Jean Brunhes
c. British School of Geography : Halford J. Mackinder.
d. American School of Geography : G. Tailor, Huntington.

Unit - IV

a. Dichotomies in Geography: Physical V/s Human Geography systemetic V/s Regional Geography.
b. Radicalism: Origin, salient features & Objectivess of Radical geography
c. Behaviourdism in Geography
d. Concepts of Cultural Ladnscape : Meaning & elements of cultural landscape.

Outcomes-

1. This paper will lead to the expansion of knowledge about various thoughts regarding geography.
2. Along with Indian thinkers, Student will touch the thinkings of world's thinkers.
3. Comparisions can be made about thinking of various thinkers.

Practical-

1. Aerial photographys : Introducation & development of Aerial Photographs, Identifications of Aerial photographs,
2. Development of Remote sensing, Advantages of remote sensing.
3. Remote Sensing: - Introductions, Development and Advantages of remote Sensing.

Outcomes:- After completion the course student would be able to:

- Understand the concept, nature and scope of social Anthropology.
- Understand the sociat sturcture
- Understand the primitive Economics and political system.
- Understand the problem of Tribes.

Suggested Readings:

1. कौशिक, एस.डी. : भौगोलिक चिंतन के सिद्धांत, रस्तोगी पब्लिकेशन्स, मेरठ।

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 608	Economics **(Statistics in Economics)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectives:

- To enable the students teacher to acquire the basic understanding use statistics in the field of Economics.
- To enable the students teacher to understand the measures of centeral tendency.
- To enable the students teacher to understnad the measures dispersion.
- To enable the students teacher to understnad elementar Mathmatics.

Unit I: Meaning uses and limitations of statistics

a) Collection of Statistics Data - Census and Sample Investigation.

b) Classification and presentation of Data - Statistics Table, Graphs, Frequency, Distribution, Diagrams

Unit II: Measures of Centarl Tendency

a) Arithmetic mean, median, mode

b) Geometric mean and Harmonic mean

Unit III: Measures of Dispersion

a) Range, Quartile Deviation, Mean Deviation

b) Standard Deviation and Co-efficient of variation simple correlation : Karl pearson's correlation co-efficient and spearman's Rank correlation.

Unit IV: Elementar Mathmatics

a) Simultaneous and Quadratic Equations

b) Arithmetic and Geometric Progressions, Logarithms.

Outcomes: After completion the course student would be able to:

- Understanding use statistics in the field of Economics.
- Understand the measures of centeral tendency.
- Understnad the measures dispersion.
- Understnad elementar Mathmatics.

Reference:

1. वी.एन. गुप्ता : सांख्यिकी
2. यादव, पोरवाल एवं शर्मा : सांख्यिकी
3. Elhance, D.N. : Fundamental of statistics
4. Singhal, M.L. : Elements of Statistics
5. Nagar, K.N. : Sankhyiki ke mool tatva
6. Croxton Cowden : Applied General Statistics
7. Mehta and Madnani : Elementary Mathematics in Economics (Hindi and English ed.)

- Black Board
- ReinforECement
- Stumulus Variation
- Communication
- Personality Development etc.

2. **Comprehensive School Teaching**
   - Demsstration Lesson Plan
   - Lesson based on Various Approaches Method, such as --
     - Co-operative Learning
     - Activities Based Apprach
     - Team Teaching
     - Project Method
     - Brain Storming
     - Task Based
     - Programme Instruction etc.

3. Unit Plan, Blue Print, Achivement Test and Use of Teaching Aids

4. School Activities
   - Physical
   - Cultural
   - Leteraty
   - Yoga Exceress

Learning Outcomes: After completion of this course students would able to:

- Acquire the knowledge of internship.
- Understand skill focused teaching.
- Develop ability of comprehensive school teaching.
- Understand and organize various school activities

Semester VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 609	Home Science **(Extension and Communication)**	**Any Three CE**	**4**	**30**	**70**	**100**

Objectivess:

- To explaint the concept, determinants and factors of lealth
- To describe the types of occupational health and related diseases related to workers
- To different types of pollution and their related remedies
- To education about the objectivess and Scope of population education

Unit I Health and Diseases

a) Concept and of Health: Definitions, determinants and factors, Physical Health, Social Health, Mental Health, Emotional Health
b) Occupational Health : Physical hazards, chemical hazards, biological hazards, mEChanical hazards and Psycho social hazards.
c) Occupational Diseases – Only classification, Measures for health protEction of workers.

Unit II Pollution & Population

a) Pollution: Different types & remedies of pollutions.
b) Population Education: Definition Objectivess and scope
c) Difference between population education and family planning education.
d) Population & its rate of growth a) Population growth in India. b) Causes for rapid growth of population in India & its effEct on health. c) Family planning.

Unit III Community Development & Extension Education

a) Extension Education: Meaning, scope and Objectivess of extension education.
b) Principles of extension education, Qualities of extension workers.
c) Difference between formal and Non-formal education.
d) Community Development Programme – Meaning, Definition, Elements and Principles of community development
e) Origin of community Development Programme. RECent programmes for Rural Development.

Unit IV Extension Serices and Aids

a) Audio Visual Aids : Definition, Classification use and idea of audio visual aids.
b) Poster Puppet, Chart, Film slide, Flash Card, Overhead Projector,
c) Computer and Internet
d) Chalk Board, Radio Bulletin, Board Television, Model Photography
e) Public Address System

Practicals: Any two of the following:

- A detailed survey in your area on health problems and related awareness
- Prepare a chart or poster presentation – on any topic related to your subject.
- Prepare a list of on going welfare programme for children and women.
- Prepare a plan and exECute to demonstrate any problem and related issue with audio visual aids

Outcomes: After completion the course student would be able to:

- Explaint the concept, determinants and factors of lealth
- Describe the types of occupational health and related diseases related to workers
- Different types of pollution and their related remedies
- Educate about the objectivess and Scope of population education

Reference Books :

1. Yash Pal Bedi, Hygiene and Public Health.
2. Park, Social & Preventive Medicine.
3. Dr. Jaipal Singh, Extension Education & Rural Development.
4. A. Reddy, Extension Education.
5. Alan Rogers,Teaching Extension in Adults.

Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 701	Creating and Inclusive Education	**CC**	**4**	**30**	**70**	**100**

Objectives:

- To develop the understanding of the concept and philosophy of inclusive education in the context of education for all.
- To identify and address diverse needs of all learners
- To familarize with the trends and issues in inclusive education
- To develop an attitude to foster inclusive education
- To develop and understanding of the role of facilitators in inclusive education
- To prepare teachers for inclusive schools

Course Contents:

Unit- I Introduction to Inclusive Education

a) Meaning, Objectives , Need and Types of Inclusive Education
b) Principles of Inclusive Education
c) Soluation and challenge of Inclusive Education
d) ICT Material of Inclusive Education

Unit- II Legislation, Emerging Issues and Role of Agencies in Inclusive Education

a) Legislation for inclusive education- National policy of disabilities 2006
b) Sarva Shiksha Abhiyan (2002)
c) NGO
d) RTE-2009

Unit- III Exceptional Child and SpECial Educational

a) Exteptional Child : Meaning and Types
b) Mentally Retared Child
c) Physically Handicapped Child
d) Hearing Impaired Child
e) Visually Handicapped Child
f) Emotionally Disturb Child

Unit- IV SpECial Educational Need (SEN) of learners in Inclusive School

a) Speech Defective Childern
b) Language Handicapped Child
c) Learning Disadvantage Child
d) Parents of Exceptional Childern
e) Guidance of Exceptional Childern
f) Special School (Building Co-curricular Activities)

Assignment & Practical Works : (Any Two)

- One Assignment Work

Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 702	Language Across the Curriculum	**CC**	**4**	**30**	**70**	**100**

Objectives:

- To understand the various mode of language like reading, wirting, speaking and listining.
- To develop the skill of oral and written language.
- To acquainte with the idea of composition and art of writing i.e. letter, paragraph, application etc.
- To develop the Vocabulary Building and Language Problems & its Remedies
- To develop the vocabulary and language proficiency and related remedies.

Course Contents:

Unit -I Language acquisition and development

a) Language : Concept, Meaning and Nature
b) Language usages : Written, Oral, Role Playing with Communication
c) 3 Language Policy : First (Mother tongue) Second (Foreign language) Third (Religious or classical language)
d) Language development: From childhood to Adult stages.

Unit -II Language Skills

a) Reading : Silent reading vs Rapid reading, News Paper, Journal, Books
b) Narrative Text vs. Expository text
c) LSRW (Listening, Speaking, Reading, Writing)
d) Note making and creative writing (Essay, Application, Letter, Paragraph)

Unit -III Language & Classroom Interaction

a) Expression : Public Speech, Lecture, Debating
b) Multilingualism in classroom
c) Summarizing and Reflection
d) Errors and Correction of Language in class

Unit-IV Vocabulary Building and Language Problems & its Remedies

a) New Structure and building of vocabulary
b) Learning new vocabulary and Diagnostic Language Errors
c) Language Phonemes & Identification of Sound Errors
d) Remedial Programme for Language Development

Assignment & Practical Works: (Any Two)

- Write Any one Assignment Work
- Identify speech defect in classroom teaching
- Prepare a Report on Creative Writing
- Prepare a C.D. on communication (30 minutes)

Learning Outcomes: After completion of this course students would able to:

- Understand the nature and use of language.
- Develop the idea of Multilingualism in class room teaching.
- Create the sense of language and its flavor.
- Inculcate language skills among trainees.
- Evaluate skills creative writing and expression.

- ❖ Acquire the idea of composition and art of writing i.e. letter, Paragraph, application etc.
- ❖ Develop ornamental use of vocabulary in different curriculum.

References:

1. Baruah, T.C. (1985), The English Teacher's Hndbook, New Delhi, Sterling Publication Pvt. Ltd.
2. Lado, Robert (1971), Language Teaching, New Delhi, Tata Mc. Graw Hill Pub. Co. Ltd.
3. Richards, J.C. and Rodgers, T.S. (2000), Approaches and Methods in Language Teaching, Cambridge, CUP.

Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 701	Hindi	Pedagogy of a School Subject **Any two** **CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ भाषा संरचना में हिन्दी भाषा तत्त्वों का ज्ञान प्रदान करना।
- ❖ श्रवण, भाषण, वाचन एवं लेखन सम्बन्धी भाषायी कौशलों का ज्ञान देना।
- ❖ माध्यमिक स्तर के निर्धारित पाठयक्रम एवं पाठ्यपुस्तक का विश्लेषण समीक्षा एवं कुशलता का विकास कराना।
- ❖ इकाई, दैनिक व सूक्ष्म पाठ योजनाओं के महत्त्व से अवगत कराना व निर्माण का ज्ञान कराना।
- ❖ हिन्दी भाषा के वैज्ञानिक स्वरूपों और कौशलों का ज्ञान कराना।
- ❖ हिन्दी भाषा की विभिन्न विधाओं एवं उनके व्यावहारिक शिक्षण पाठ योजनाओं का ज्ञान कराना।
- ❖ प्रश्न पत्र के निर्माण का ज्ञान देना।
- ❖ निदानात्मक एवं उपचारात्मक परीक्षण स्वरूप, महत्त्व एवं उपयोग का ज्ञान देना।
- ❖ मातृभाषा एवं राष्ट्रभाषा के रूप में हिन्दी की स्थिति से अवगत कराना।

विषय वस्तु :

इकाई : प्रथम – भाषा के विविध स्वरूप एवं सामान्य अवबोध

(अ) मातृभाषा, राष्ट्रभाषा के रूप में हिन्दी शिक्षण की स्थिति
(ब) मातृभाषा शिक्षण के उद्देश्य एवं सिद्धान्त
(स) हिन्दी शिक्षण में पुस्तकालय एवं वाचनालय का महत्त्व
(द) पाठ्यपुस्तक का अर्थ, परिभाषा, अच्छी पाठ्यपुस्तक के गुण–दोष

इकाई : द्वितीय – भाषा का वैज्ञानिक स्वरूप तथा भाषा कौशलों के विकास हेतु निम्नांकित पक्षों के स्वरूप का शिक्षण

(अ) वर्ण विचार, शब्द विचार, वाक्य विचार
(ब) श्रवण, उच्चारण एवं वर्तनी
(स) वाचन (सस्वर एवं मौन वाचन),
(द) अभिव्यक्ति (लिखित एवं मौखिक)

इकाई : तृतीय – हिन्दी शिक्षण में विभिन्न विधाओं का शिक्षण एवं मूल्यांकन

(अ) गद्य शिक्षण, पद्य शिक्षण, व्याकरण शिक्षण
(ब) रचना शिक्षण (पत्र, निबन्ध, कहानी)
(स) विभिन्न विधाओं पर पाठ योजना निर्माण
(द) इकाई योजना एवं नील पत्र निर्माण
(य) मूल्यांकन (सम्प्रत्यय, पाठान्तर्गत एवं पाठोपरान्त मूल्यांकन)

इकाई : चतुर्थ – हिन्दी शिक्षण की विभिन्न विधियों का अध्ययन

(अ) अभिक्रमित अनुदेशन विधि
(ब) आगमन–निगमन विधि

(स) दल शिक्षण
(द) हरबर्टीय पद्धति
(य) प्रायोजना विधि
(र) पर्यवेक्षित तथा निर्देशित स्वाध्याय विधि

सत्रीय कार्य – (किसी दो विषय पर)

- भाषा शिक्षण सम्बन्धी समस्याओं का चयन तथा उसके समाधान का उपाय खोजना।
- हिन्दी शिक्षण में सत्रीय प्रपत्र अथवा प्रश्न पत्र हल करना।
- माध्यमिक स्तर की पाठ्यपुस्तक अथवा किन्ही दो विशिष्ट लेखों की समीक्षा करना
- किन्हीं पाँच विद्यार्थियों की लेखन सम्बन्धी अशुद्धियों का निदान एवं उपचार (कक्षा 8 से 10वी)।
- हिन्दी विषय की किसी भी विधा पर पी.पी.टी. पर पाठयोजना तैयार करवाना।

Learning Outcomes:

- भाषा संरचना में हिन्दी भाषा तत्त्वों का ज्ञान प्राप्त कर सकेंगे।
- श्रवण, भाषण, वाचन एवं लेखन सम्बन्धी भाषायी कौशलों का प्राप्त कर सकेंगे।
- माध्यमिक स्तर के निर्धारित पाठयक्रम एवं पाठ्यपुस्तक का विश्लेषण समीक्षा एवं कुशलता का विकास कर सकेंगे।
- इकाई, दैनिक व सूक्ष्म पाठ योजनाओं के महत्त्व से अवगत कराना व निर्माण का ज्ञान प्राप्त कर सकेंगे।
- हिन्दी भाषा के वैज्ञानिक स्वरूपों और कौशलों का ज्ञान प्राप्त कर सकेंगे।
- हिन्दी भाषा की विभिन्न विधाओं एवं उनके व्यावहारिक शिक्षण पाठ योजनाओं का ज्ञान प्राप्त कर सकेंगे।
- प्रश्न पत्र के निर्माण का ज्ञान प्राप्त कर सकेंगे।
- निदानात्मक एवं उपचारात्मक परीक्षण स्वरूप, महत्त्व एवं उपयोग का ज्ञान प्राप्त कर सकेंगे।
- मातृभाषा एवं राष्ट्रभाषा के रूप में हिन्दी की स्थिति से अवगत हो सकेंगे।

सन्दर्भ ग्रन्थ सूची :

1. अवधेश अरूण, (2001), हिन्दी भाषा का स्वरूप, बिहार हिन्दी ग्रन्थ अकादमी, पटना।
2. ओड, एल.के (1982), हिन्दी शिक्षण में त्रुटि, निदान एवं उपचार, वनस्थली विद्यापीठ।
3. कक्षा 6 से 12 वीं तक की एन.सी.ई.आर.टी. की हिन्दी विषय की विभिन्न पाठ्य पुस्तकें।
4. कुमार, योगेश, (2004), आधुनिक हिन्दी शिक्षण, ए.पी. एवं पब्लिशिंग कॉर्पोरेशन, नई दिल्ली।
5. कुशवाहा, पुष्पलता, सक्सैना, कनक (2009), हिन्दी शिक्षण, आस्था प्रकाशन, जयपुर।
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9. भाई, योगेन्द्रजीत, (2007), हिन्दी भाषा शिक्षण, विनोद पुस्तक मंदिर, आगरा।
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12. शर्मा, मन्जू, जैन, बनवारी लाल, (2007), हिन्दी शिक्षण, शिक्षा प्रकाशन, जयपुर।
13. शर्मा, लक्ष्मी नारायण, (2001), हिन्दी संरचना का अध्ययन–अध्यापन, केन्द्रीय हिन्दी संस्थान, आगरा।
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15. सत्तिगेरी, के. आय (2006), नूतन हिन्दी शिक्षण, विनोद पुस्तक मंदिर, आगरा।
16. सिंह, निरंजन कुमार (2008), माध्यमिक विद्यालयों में हिन्दी शिक्षण, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर।

(ब) आगमन–निगमन विधि
(स) दल शिक्षण
(द) हरबर्टीय पद्धति
(य) प्रायोजना विधि
(र) पर्यवेक्षित तथा निर्देशित स्वाध्याय विधि

सत्रीय कार्य – (किसी दो विषय पर)

- भाषा शिक्षण सम्बन्धी समस्याओं का चयन तथा उसके समाधान का उपाय खोजना।
- हिन्दी शिक्षण में सत्रीय प्रपत्र अथवा प्रश्न पत्र हल करना।
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- किन्हीं पाँच विद्यार्थियों की लेखन सम्बन्धी अशुद्धियों का निदान एवं उपचार (कक्षा 8 से 10वी)।
- हिन्दी विषय की किसी भी विधा पर पी.पी.टी. पर पाठयोजना तैयार करवाना।

Learning Outcomes:

- ❖ भाषा संरचना में हिन्दी भाषा तत्त्वों का ज्ञान प्राप्त कर सकेंगे।
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- ❖ माध्यमिक स्तर के निर्धारित पाठयक्रम एवं पाठ्यपुस्तक का विश्लेषण समीक्षा एवं कुशलता का विकास कर सकेंगे।
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- ❖ हिन्दी भाषा के वैज्ञानिक स्वरूपों और कौशलों का ज्ञान प्राप्त कर सकेंगे।
- ❖ हिन्दी भाषा की विभिन्न विधाओं एवं उनके व्यावहारिक शिक्षण पाठ योजनाओं का ज्ञान प्राप्त कर सकेंगे।
- ❖ प्रश्न पत्र के निर्माण का ज्ञान प्राप्त कर सकेंगे।
- ❖ निदानात्मक एवं उपचारात्मक परीक्षण स्वरूप, महत्त्व एवं उपयोग का ज्ञान प्राप्त कर सकेंगे।
- ❖ मातृभाषा एवं राष्ट्रभाषा के रूप में हिन्दी की स्थिति से अवगत हो सकेंगे।

सन्दर्भ ग्रन्थ सूची :

1. अवधेश अरूण, (2001), हिन्दी भाषा का स्वरूप, बिहार हिन्दी ग्रन्थ अकादमी, पटना।
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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 702	English	Pedagogy of a School Subject **Any two CE**	**4**	**30**	**70**	**100**

Objectives:

- To know about various basics of grammer.
- To explain the place of English language in India.
- To describe English as a Second language in the multi -lingual country like India.
- To explain different methods of teaching English.
- To develop the lesson and its planning.
- To apply different teaching skills in the class room.

Course contents:

Unit- I Basic English Grammar & its Application

a) Parts of speech
b) sentence pattern, Types
c) Tense and verb patterns
d) Preposition
e) Voice change

Unit - II Place, importance and Objectivess of English as a second language:-

a) Importance of English language: comprehension of English and mother tongue based learning.
b) Position of English: Pre & post Independence in India.
c) Status of English in Indian school curriculum
   - Second language
   - First language
d) English language teaching: problems & issues
   - Library language
   - Window on the world
   - Medium of instruction
e) Aims and Objectivess teaching English at different levels.

Unit- III Methods, Approaches and Strategies and Lesson Planning:

a) Grammar-cum-Translation method
b) DirEct method , Audio- lingual and Bilingual method
c) Structural approach and Communicative approach

d) Collaborative learning and Dramatization.
e) Unit plan and Micro plan,Lesson planning ,Blue print and Achievement test

Unit- IV Developing Language skill and Lesson Planning

a) Teaching Prose, Poetry, Story and Grammar.
b) Strategies of Teaching Skill: Listening, Reading, Speaking and Writing.
c) Supplementary skills: Reference Skill (e.g. using Dictionaries, Thesaurus, and Encyclopedias)
d) Concept Mapping

Assignment & Practical Works : (Any Two)

- List of structural items included in the text book at the secondary stage.
- Preparation of 5 word cards, 5 Picture cards and 5 puzzles.
- Enlist 50 innovative words with lexical interpretation.
- Prepare an audio/video rEcording for English Pronunciation

Learning Outcomes: After completion of this course students would able to:

- Know about various basic application of grammar
- Explain the place of English language in India.
- Describe English as a Second language in the multi -lingual country like India.
- Explain different methods of teaching English.
- Apply different teaching skills in the class room.
- Lesson plan, micro lesson plan, TLM (Teaching Learning Materials) for teaching English as a second Language.

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 703	Sanskrit	Pedagogy of a School Subject **Any two CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ माध्यमिक स्तर के शिक्षकों में संस्कृत भाषा संबंधी व्याकरण की जानकारी एवं उनके प्रयोग की दक्षता का विकास करना।
- ❖ तृतीय भाषा शिक्षण के आधारभूत सिद्वान्तों का विकास करना।
- ❖ संस्कृत शिक्षण के उद्देश्यों का निर्धारण एवं व्यावहारिक परिवर्तन हेतु प्रयास करना।
- ❖ संस्कृत भाषा के विभिन्न कौशलों का पृथ्क एवं समन्वित शिक्षण का विकास करना।
- ❖ विभिन्न विधाओं के सफल अध्यापन हेतु विभिन्न विधियों का प्रयोग करना।
- ❖ संस्कृत भाषा शिक्षण में दृश्य–श्रव्य साम्रगी का निर्माण एवं शिक्षण में प्रयोग करना।
- ❖ संस्कृत शिक्षण के मूल्यांकन हेतु प्रश्नपत्र निर्माण करना एवं कौशलाधारित परीक्षण करना।
- ❖ संस्कृत भाषायी दक्षता में होने वाली अशुद्धियों का कौशलानुसार निदान करना।

विषय वस्तु :

इकाई – प्रथम –संस्कृत शिक्षण के सिद्धान्त, कौशल व उद्देश्य।

(अ) संस्कृत भाषा शिक्षण का महत्त्व एवं उपयोगिता।
(ब) संस्कृत शिक्षण के सिद्धान्त एवं सूत्र।
(स) संस्कृत शिक्षण के उद्देश्य एवं अपेक्षित व्यवहारगत परिवर्तन।
(द) भाषायी कौशल शिक्षण – श्रवण, कथन, पठन एवं लेखन।
(य) संस्कृत शिक्षण में दृश्य–श्रव्य सामग्री।

इकाई – द्वितीय – व्याकरण का सामान्य ज्ञान।

(अ) शब्द रूप – अकारान्त, इकारान्त, उकारान्त।
(ब) धातु रूप – भू, पठ्, हस्, पा, गम्, सेव्, कथ्, लभ् (लट्, लोट्, लड्., लृट, विधिलिड्. लकारों में)
(स) संधि –

- अच् सन्धि – इकोयणचि, एचोऽयवायाव :, अकः सवर्णे दीर्घः, आदगुणः वृद्धिरेचि।
- हल् सन्धि – स्तोः श्चुनॉश्चुः, झलां जशोऽन्ते, यरोऽनुनासिकेऽनुनासिको वा, तोर्लिः।
- विसर्ग सन्धि – ससजुषोरूः, हशि च, रो रि, विसर्जनीयस्य सः।

(द) समास – अव्ययीभाव समास, तत्पुरूष समास, कर्मधारय समास, द्विगु समास, द्वन्द्व समास, बहुव्रीहि समास, इनका सामान्य परिचय एवं समास विग्रह।

इकाई – तृतीय – संस्कृत शिक्षण की विभिन्न विधाओं का अध्ययन एवं पाठयोजनाएँ।

(अ) गद्य शिक्षण
(ब) पद्य शिक्षण
(स) व्याकरण शिक्षण

(द) रचना शिक्षण (पत्र, निबन्ध, कहानी)

इकाई – चतुर्थ – संस्कृत शिक्षण की विधियों का अध्ययन एवं मूल्यांकन।

(अ) संस्कृत शिक्षण की विधियों का अध्ययन

- प्रत्यक्ष विधि
- संग्रन्थन विधि
- आगमन निगमन विधि
- विश्लेषणात्मक विधि
- अनुवाद विधि/भण्डारकर विधि

(ब) इकाई योजना

(स) ब्लू प्रिंट एवं प्रश्न पत्र निर्माण

सत्रीय कार्य : (किसी दो विषय पर)

- माध्यमिक स्तर की संस्कृत पाठ्यपुस्तक की समीक्षा करना।
- किसी एक वर्ष का प्रश्नपत्र हल करना।
- किसी एक विधा पर शैक्षिक पाठ्यक्रम का आलेखन।
- रचना पाठ के लिए पाँच चित्रों का निर्माण।
- उच्चारण सुधार हेतु पाँच अभ्यास तालिकाओं का निर्माण।
- संग्रन्थन विधि पर पाठयोजना तैयार करना।

Learning Outcomes:

- माध्यमिक स्तर के शिक्षकों में संस्कृत भाषा संबंधी व्याकरण की जानकारी एवं उनके प्रयोग की दक्षता का विकास कर सकेंगे।
- तृतीय भाषा शिक्षण के आधारभूत सिद्वान्तों का विकास कर सकेंगे।
- संस्कृत शिक्षण के उद्देश्यों का निर्धारण एवं व्यावहारिक परिवर्तन हेतु प्रयास कर सकेंगे।
- संस्कृत भाषा के विभिन्न कौशलों का पृथ्क एवं समन्वित शिक्षण का विकास कर सकेंगे।
- विभिन्न विधाओं के सफल अध्यापन हेतु विभिन्न विधियों का प्रयोग कर सकेंगे।
- संस्कृत भाषा शिक्षण में दृश्य–श्रव्य साम्रगी का निर्माण एवं शिक्षण में प्रयोग कर सकेंगे।
- संस्कृत शिक्षण के मूल्यांकन हेतु प्रश्नपत्र निर्माण करना एवं कौशलाधारित परीक्षण कर सकेंगे।
- संस्कृत भाषायी दक्षता में होने वाली अशुद्धियों का कौशलानुसार निदान कर सकेंगे।

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 704	History	Pedagogy of a School Subject **Any two CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand the aim and objectives of teaching history at different levels of the secondary stage.
- To apply different approch to organize history
- To understand the types of evaluation of teaching history
- To develop classroom skills to apply different methods and approaches of teaching history at the secondary stage.
- To develop the skill to plan for instruction and the instructional support materials.
- To develop the skill related to diagnostic testing and remedial teaching.

Course Contents:

Unit- I Meaning, Nature and Curriculum of Teaching History

a) Concept and Objectives of Teaching History of the Secondary Stage.
b) Correlation of History with other school subject.
c) Principle of Curriculum Teaching History.
d) Different Approach to Organizing History Curriculum, Chronological, Biographical, Topical, Concentric.

Unit- II Methods and planning in Teaching History

a) Lesson plan and Unit plan
b) Story Telling, Biographical, Source, Time-line, Supervised, and Project Method
c) History Teacher-professional growth in change's
d) Teaching Aids- meaning, Type's and importance

Unit- III Evaluation of Teaching History

a) Concept of Evaluation
b) Purpose of Evaluation in Teaching History
c) Types of Evaluation (Essay Types, short Answer Types and Objectives Types)
d) Blue-Print & Construction of Achievement Test in History

Unit- IV Innovative Methods in Teaching History

a) Programmed instruction method.
b) Team-Teaching
c) Panel discussion

d) Field trip

Assignment & Practical Works : (Any Two)

- Historical study of a place of Local Important
- An Essay on any current Issue
- Critical Appraisal of any of the History Text books Prescribed for the Secondary level
- Preparing a Scrap-book on Any one aspEct of History and Culture
- Report writing of a freedom fighter/Social work and the Historical Personality of 20th Century at your locality based on interview
- One Assignment Work on any topic related with above Unit.

Learning Outcomes: After completion of this course students would able to:

- Understand the nature, scope and importance of learning history at secondary.
- Explain aim and objectives of teaching history at different levels of the secondary stage.
- Develop knowledge about the basic principles governing the construction of history curriculum and develop the ability history curriculum
- Organize Co-curricular activities and community resources for promoting history learning.
- Develop classroom skills needs for applying different methods and approaches of teaching history at the secondary stage.
- Understand the skill to plan for instruction and the instructional support , materials.
- Develop the skill needed for diagnostic testing and remedial teaching

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 705	Civics	Pedagogy of a School Subject **Any two**	**4**	**30**	**70**	**100**

		CE				

Objectives:

- ❖ To explain the role of civics to promote International Understanding.
- ❖ To understand Planning-Annual Plan, Unit Plan, & Daily Lesson Plan.
- ❖ To prepare different methods of teaching civics.
- ❖ To apply various Fndamental Principal of Formulation Curriculum in Civics
- ❖ To develop competencies related toteaching of civics.

Course Contents:

Unit- I Theoritical PerspEctive of Civics Teaching

a) Meaning & Development of Civics.
b) Nature, Scope & Developing Critical Thinking about Civics.
c) Role of Civics in Promoting International Understanding.
d) Aims & Objectivess of Civics Teaching at Different Levels - Primary, Upper Primary. Secondary & High Secondary.

Unit- II Planning of teaching & Evaluation

a) Planning-annual Plan, Unit Plan, & Daily Lesson Plan.
b) Audio Visual Aids.
c) Inovation
d) Evaluation (different types of test, setting, question paper, blue print, scoring key).

Unit- III Methods of teaching Civics

a) Lecture Method
b) Project Method
c) Problem Solving Method
d) Programme Learning
e) Team Teaching
f) Discussion Method, Demonstration

Unit- IV Curriculum Planning & Activities

a) Selection & Organization Content at Various Levels
b) Fundamental Principal of Formulation Curriculum in Civics
c) Charactristics of a good Text Book
d) Planning a Civics Studies Room

Assignment & Practical Works : (Any Two)

- Write an essay on any political problem.
- One Assignment Work solve.
- A critical study of Any one aspEct of the constitution or one of its amendments.
- Make five different teaching materials using different type of teaching aids.
- Make charts on fundamental rights & duties.
- Prepare a scrap book on any political issue

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand the role of civics.
- ❖ Understand the Planning of teaching & Evaluation.
- ❖ Prepare Fundamental Principal of Formulation Curriculum.
- ❖ Develop competencies in teaching of civics.

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Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 706	Social Science	Pedagogy of a School Subject **Any two CE**	**4**	**30**	**70**	**100**

Objectives:

- To enable the students to understand the meaning of social science and correlate with modern social science .
- To understand the different approaches and organizing Social Science
- To prepare students for panel discussion , seminar and workshop
- To enable the student – teacher to critically examine the social science syllabus and text books.
- To develop the classroom skills and use of techniques for teaching of social science.
- To develop the ability to organize co-curricular activities and utilize community resources for promoting social science learning.

Course Contents:

Unit -I Meaning nature and scope of social science

a) Historical Development of Social Science
b) Modern Concept, Nature and Scope of Social Science
c) Importance of Teaching Social Science at Different Levels of Secondary
d) Correlation of Social Science with Other School Subject
e) Aims and Objectivess of Teaching Social Science at Different Level

Unit -II Social Science Curriculum Principles of Designing a Good Curriculum and Planning in Social Science Teaching

a) Different Approaches to Organizing Social Science
   - Chronological
   - Biographical
   - Concentric
b) Characteristics of Good Text Book
c) Planning a Social science Room
d) Social Studies Teacher – Quality, Functions and Professional Growth of Social Science Teacher
e) Planning for Teacher of Social science
   - Annual plan
   - Unit plan
   - Lesson plan

Unit - III Methods of Teaching Social Science

a) Story telling, Biographical, Socialized RECitation, Source method, Problem solving Method, Project method.
b) Team Teaching

c) Panel Discussion , Seminar and Workshop
d) Field Trips
e) Programmed Instruction

Unit - IV Use of Instruction Material and Evaluation in the Social Science

a) Audio- Visual Equipment: - Use of Slide Projector OHP, Epidiascope, Television and Computer.
b) Teaching Aids of Various kinds, their EffEctive Use in Class Room (Models, Black-board, Map, Graphs, Time Chart, Films, Coins and Puppet .
c) Concept, Importance and Purpose of Evaluation in Social Studies.
d) Construction of Blue Print and Achievement Test in Social Science

Assignment & Practical Works: (Any Two)

- Studying historical monuments available locally and writing report on it
- Prepare a scrape book on any social issue
- Studying any social problem and write a report of the same
- Two abstracts of articles published in news papers journal on currents social issues
- Assignment Work any two topic
- Prepare a lesson plan using local/ community resources as teaching aids (fair, festival ,person, place etc.)
- Construction , administration and interpretation an achievement test of any ;standard of school
- Make 2 different teaching materials using different type of teaching (e.i. Charts, at as model & power point etc) at school social science subject
- Write film script

Learning Outcomes: After completion of this course students would able to:

- Understand the need for learning social science .
- Understand the place of social science in the secondary school curriculum.
- Develop the skills in student – teachers to select and apply appropriate methods and evaluate social science.
- Critically examine the social science syllabus and text books.
- Develop the classroom skills needed for teaching of social science.
- Develop the ability to organize co-curriculum activity and utilize community resources for promoting social science learning.
- Acquire the ability to develop instructional support materials.
- Review the text –book of social science (secondary level).

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 707	Economics	Pedagogy of a School Subject **Any two CE**	**4**	**30**	**70**	**100**

Objectives:

- To help the students to acquire the basic understanding in the field of Economics.
- To enable the student teachers to understand the aims and objectives of teaching Economics at the secondary school stage.
- To develop the ability, to evaluate the present curriculum in Economics at the secondary level.
- To develop the ability to organize group activities and projects in the subject.
- To develop the ability to use of various methods of teaching Economics.
- To enable the student to acquire necessary skills for the use and preparation of teaching aids and instructional material in Economics.
- To develop in the students appropriate attitudes towards the country's Economy.

- ❖ To develop in the student an adequate sense of awareness about Economic issues of the country and an out-look of problem solving through analysis and application of the theory of Economics.
- ❖ To develop competence in framing objective based achievement and diagnostic test, their administration and their scoring and drawing conclusions there of. 10.To develop in the students an ability to conduct various surveys in Economics and organize field trips.
- ❖ To enable the student-teachers to prepare unit plan, lesson plan and related teaching learning strategies.
- ❖ To enable the student teachers to review the text book of Economics.

Course Contents:

UNIT-I Concept of Economics

a) The Place of Economics in School Curriculum.
b) Aims and Objectivess of Teaching Economics at the Secondary Level
c) Instructional Objectivess, Behavioural Objectivess, Measurable and Non-measurable Objectivess, Behavioural Statements of Objectivess for Various Learning Points and Lessons.

UNIT-II Principle of Curriculum Planning

a) Principles and Approaches to Framing Syllabus and its Critical Appraisal at Secondary Level.
b) Curriculum Planning and Activities.
c) Evaluation of Text-books in Economics at the School Level:
   - Criteria of Good Text-book
   - Assignments, Exercises, Glossary and Summary in the Text
d) Maxims and Principles of Class-room Teaching.
e) Class-room Observation.

UNIT-III Planning and Methods of Teaching Economics

a) Lecture Method.
b) Project and Problem Solving Method.
c) Discussion Method.
d) Inductive and Deductive Method.
e) Unit and Daily Lesson Plannings
f) Teacher's Role and Attitude

UNIT-IV Instruction Material and Evaluation in Economics

a) Black-board, Maps. Graphs, Slides & Transparency, Audio-visual Aids, Slide Projector, Overhead Projector, LCD etc.
b) Importance and Concept of Evaluations,
c) Evaluation Devices- Essay type. Short answer Type and Objectivess Type Test.
d) Blu Print
e) Preparation, Administration and Scoring of Unit Test.

Assignment & Practical Works : (Any Two)

- Preparation of two teaching aids related to subject. (PPT Transparency)
- Review of two published papers related to subject.

- Review of a text-book at school level.

Learning Outcomes: After completion of this course students would able to:

- Explain the basic of Economics.
- Understand the aims and objectives of teaching Economics at the secondary school stage.
- Develop the ability, to evaluate the present curriculum in Economics at the secondary level.
- Organize group activities and projects in the subject.
- Use of various methods of teaching Economics.
- Acquire necessary skills for the use and preparation of teaching aids and instructional material in Economics.
- Appropriate attitudes towards the country's Economy.
- Adequate sense of awareness about Economic issues of the country and an out-look of problem solving through analysis and application of the theory of Economics.
- Framing objective based achievement and diagnostic test, their administration and their scoring and drawing conclusions there of.
- Prepare unit plan, lesson plan and related teaching learning strategies.
- Review the text book of Economics.

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 708	Geography	Pedagogy of a School Subject **Any two CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand the modern concept of Geography.
- To prepare yearly plan, unit plan, lesson plan for different classes.
- To prepare maps and charts to illustrate the content of different classes and use them effectively.
- To critically evaluate the existing school syllabus and review the text book of Geography.
- To apply appropriate method and techniques of teaching to particular topics at different levels.
- To arrange field trips and local surveys.

Course Contents:

Unit- I Concept and Objectivess

a) Development of Geography, Modern concept and new trends of Geography.
   - Its place in schools curriculum.
   - Its importance in day to day life and International understanding

b) Correlation of Geography with other school subjects.

c) Teaching Objectivess of Geography at different levels- Primary, Upper Primary secondary and Higher Secondary.

UNIT- II Curriculum planning in Geography

a) Principles of curriculum construction in Geography and its critical appraisal

b) Basic Principles for selEction and organization of content according to learners level.

c) Co-curricular activities in Geography, study of home region, Organization of field trips and excursion, Geography museum and library.

d) Evaluation of text book in Geography.

U**NIT- III Methods, Planning for teaching and role of teacher**

a) Annual plan,

b) Unit plan ethods,

c) Daily lesson plan

d) Story telling, Regional Method, Demonstration method, laboratory, inductive and Deductive method. Descriptive and Comparative method (Problem Solving, Project and Supervised study method). Approaches- Field trips, visit labs, use of local resources in teaching of Geography.

e) Qualities, Role and professional growth of Geography teacher

UNIT-IV Use of Instructional Material and Evaluation inGeography

a) Audio-Visual Equipment:- use of Slide Projector, OHP, Epidiascope, Television and computer in Geography

b) Teaching aids of Various kinds. Their effEctive use in class room (Models maps, pictures, sketches, diagrams, film, film strips. Atlas, Slides transparencies etc., Geography room/laboratory. Importance of lab work, equipment and apparatus.
c) Evaluation of achievements in Geography.
d) Construction of achievement test.
   - Different types of tests, their merits and limitations, (Essay type. short, answer and Objectives type.)
   - Blue- Print, preparation of question paper and item analysis.

Assignment & Practical Works : (Any Two)

- Prepare a scrap book on Geographical articles and news.
- Preparation of maps, charts and models for physical Geography
- Develop some lesson plan based on new methods and approaches.
- Write one or two article or abstract related to the current issues of Geography
- Critical appraisal of geography syllabus at secondary level.
- Construction of Objectives type test items.
- CollEction of news paper cuttings related to Geographical issues.
- Prepare a bibliography of reference books on the topics prescribed in Geography syllabus.
- Practical demonstration of the ability to use some weather instruments.
- Prepare a report on visit to some place of Geographical interest.

Learning Outcomes: After completion of this course students would able to:

- Understand the modern concept of Geography and its correlation with other school subjects.
- Explain co-curriculam activities in geography.
- Prepare various teaching plances.
- Exlain different teaching aids.

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 709	Home Science	Pedagogy of a School Subject **Any two** **CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand the Concept, Nature and Scope of Home science.
- To provide knowledge related to pedagogical concept like aims, objectives, approaches, methods, blue print and assessment.
- To stimulate curiosity and creativity for application of different methods according to learning situations.
- To develop attitude towards skill development, application of new trends and use of information technology to enhance productivity of teaching.

Course Contents:

Unit- I Theoritical Perspective of Home Science

a) Concept, Nature and Scope of Home science
b) Correlation of Home science with other school subjects in context of resolving problems related to family and community
c) Vocational skill Development through Home science teaching
d) Aims and Objectivess of Home science teaching

Unit- II Planning, Curriculum & Evaluation

a) Planning : Concept, Types and Significance
b) Criteria of Curriculum Development : Individualized, Interdisciplinary and SpECial issue oriented
c) E- resources in Home science : Fashion blog, Nutritional remedies, Blogs, SpECific institute related to textile, designing & health
d) Co- curricular activities : Group Discussion, Exhibition, Excursion etc
e) Blue print construction, Continuous & Comprehensive Evaluation in Home science

Unit- III Approaches and methods : Concept, Process, Scope and limitations :

a) Constructivist approach
b) Problem solving method
c) Project method

d) Experimental method
e) Dalton method and Dramatization

Unit- IV Measurement and Evaluation

a) Concept of Measurement and Evaluation
b) Criteria of good Evaluation
c) Preparation of Blue Print
d) Dignostic test and Remedial learning material
e) Continuous and Comprehensive Evaluation

Assignment & Practical Works : (Any Two)

- Prepare a survey report for vocational skill development through Home science at college level
- Experimental works in food/clothing/textiles/household gadgets in context of teaching and learning
- Visit to Health centre/ Community service centre/ schools/ colleges/ NGO and prepare a file with report
- Construct a Project related to rECent problem in local area
- Develop a diagnostic test for students and plan remedial works for them
- Prepare two lesson plan based on Constructivist/ experimental approach for students

Learning Outcomes: After completion of this course students would able to:

f) Organize co- curricular activities like Group Discussion, Exhibition, Excursion etc. at school level.
- ❖ Stimulate curiosity and creativity for application of different methods according to learning situations.
- ❖ Develop attitude towards skill development, application of new trends and use of information technology to enhance productivity of teaching.

Analyze school syllabus of the subject in relation to its applicability in local situations

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 710	**Optional Course** Environmental Education	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand the problems of concerning environment through multi disciplinary approach.
- To develop the skill of planning and organizing ecological activities in the schools.
- To create consciousness about environment among the adult learners.
- To give information on different techniques and materials for the affective dissemination of environmental information.

Course Contents:

UNIT- I Concept Of Environment

a) Meaning , Scope, Importance
b) Eco-System – CharEcteristic Qualities
c) Inter- Dependence In Environment
d) Natural Resources
e) Bio-Diversity – Scope & Threats, Preservation

UNIT- II Environmental Education

a) Meaning, Importance and Objectives
b) Scope of Environmental Education
c) Need for Public Awareness as a subject
d) Muti-disciplenary Nature of Environmental Studies Curriculum Development

UNIT- III Environmental Hazards and Pollution

a) Air Pollution
b) Water Pollution
c) Soil Pollution
d) Noise Pollution

UNIT- IV Global Issues and Environmental Conservation

a) Global Issuse (Global Warming, Climate Change, Deplition of Ozone Leyer and Energy Crisis)
b) Different Aspects Related To Environmental Conservation.
c) Environmental Preservation &Improvement (At National & International Level)
d) National Environment Policy

Assignment & Practical Works : (Any Two)

- Study on Any one environmental problems. The report on the study must include efforts of the pupil / teacher in developing awareness among people about the environmental problems.
- Prepare a plan to teach environment at education to the adults.
- One Assignment Work solve.
- Prepare a scrap book of an environmental articles and news.
- Conduct environmental competition for local school student.

Learning Outcomes: After completion of this course students would able to:

- Students are able to understand the problems concerning environment through multi disciplinary approach.
- Students are able to develop the skill of planning and organizing Ecological activities in the schools so the children can equipped to play their part in protection and enrichment of environment.
- Students are able to create Environment Consciousness among the adult learners.
- Students are able to use different Techniques and materials for the affective Dissemination of Environmental information.

- ❖ Students are able to conduct local surveys,arrange field trips Environmental games and hobbies

संदर्भ ग्रन्थ सूची :

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 711	Health and Physical	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ To develop the organic system of the body.
- ❖ Development of understanding and appreciation of the techniques and strategies of sports
- ❖ To develop correct health habits.
- ❖ Attainment of knowledge of proper health procedure as related with physical exercise.
- ❖ The physical education program will allow the students to participate in developmentally appropriate activities.

Course Contents:

Unit- I Concept of Health Education

a) Meaning of Health education.
b) Environmental factor which promote and affEct In Health.
c) Importance and Objectives of Health education.
d) General Exercises in school.

Unit- II Environment and Science of Living and Yoga

a) Importance of water to life and our environment.
b) Science of Living and yoga.
c) Role of Individual in improvement of sports environment.
d) Physical and physiological benefits of exercise on children.

Unit- III Physical Education, Balanced Diet and First Aid

a) Meaning and Importance of physical Education
b) Balanced Diet and Nutrition : Macro and Micro Nutrients

V History of Volleyball & Kabbadi

a) Historical Development of Volleyball
b) Measurement and Rule of Volleyball
c) Historical Development of Kho-Kho
d) Measurement and Rule of Kabbadi

Assignment & Practical Works : (Any Two)

- Write a Assignment Work on a topic given in the course
- Skill of Any one Team Game of choice from the given List

Learning Outcomes: After completion of this course students would able to:

- ❖ Develop the organic system of the body.
- ❖ Understand and appreciation of the techniques and strategies of sports
- ❖ Aware about correct health habits.
- ❖ Attain knowledge of proper health procedure as related with physical exercise.

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 712	Guidance and Counseling	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ To educateion about the basics concept, nature and scope of Educational and Vocational guidance.
- ❖ To understand the aims objective of educational and vocational guidance.
- ❖ To make enable about the importance of educational and vocational guidance.
- ❖ To give knowledge of role and responsibilities of guidance workers in school.
- ❖ To understand the nature and types of guidance service & with reference to school education.
- ❖ To understand the concept, nature and types of counseling.

Course Contents:

Unit- I Basics of Guidance

a) Meaning and Nature of Guidance.
b) Aims and Principles of Guidance.
c) Types of Guidance
d) Importance of Guidance in schools for individual and for society.
e) Process of Guidance.

Unit- II Basics of Counseling

a) Meaning, Nature and Principles of counseling
b) Types of Counseling.
c) Distinction between Guidance and Counseling.
d) Role and Responsibilities of Guidance workers in school.
e) Qualities of a good guidance programme.

Unit- III Area of Guidance

a) Educational guidance
b) Vocational guidance
c) Personal guidance
d) Guidance Implication in the current Indian scenario.
e) Problems of guidance in India.

Unit- IV Guidance Services

a) Introduction to Guidance Services.
b) Individual Inventory Service
c) Information Service
d) Cumulative REcord
e) Placement Services
f) Follow up Service

Assignment & Practical Works : (Any Two)

- Prepare a Assignment Work on any topic of Educational, Vocational or Personal guidance
- Write an article on current educational problems, providing the solution.
- Observe an educational or co-curricular activity in a school or college and provide guidance for the improvement.
- Case study of two spECial children.

Learning Outcomes: After completion of this course students would able to:

- Understand the basic concept, Nature and scope of Educational and Vocational guidance.
- Describe aims objective of educational and vocational guidance.
- Understand importance of educational and vocational guidance.
- Identify nature and types of guidance service & with reference to school education.
- Understand the concept, nature and types of counseling.

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 713	Distance Education	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- To provide an effective alternative path to wider opportunities in education and especially in higher education.
- To provide an efficient and less expensive education.
- To provide education facilities to all qualified and willing persons.
- To provide opportunities of academic pursuits to educate citizens willing to improve their standard of knowledge.
- To provide education facilities to those individuals who look upon education as a life-long activity.

Course Contents:

Unit-I Theoretical ProspEctive of Distance Education

a) Meaning and Definition of Distance Education.
b) Characteristics of Distance Education
c) Distance education as a discipline.
d) Need for establishing Distance Education as a discipline.

Unit-II Scenario of Distance Education Institutes

a) State wise situation of Distance Education Institutes in India.
b) Objectivess of Indira Gandhi National Open University.
c) Main Theoretical Bases of Distance Education.
d) Theory of Independent study by CHARLES WEDEMEYER.

Unit-III Essential Elements of Developing in Distance Education

a) Essential Elements of Developing curriculum in Distance education.
b) Different services provided by Sanchar Kendra IGNOU.
c) Non- Print Instructional media in Distance Education: Educational RADIO.
d) Major educational Television Projects in Distance education.

Unit-IV Counseling for Distance Learners

a) Organizing counseling Services for Distance Learners.
b) Various Types of Tele - Conferencing.
c) Format of the Text in Distance Education.
d) Distance Learners and Counseling

Assignment & Practical Works : (Any Two)

- Write Any one Assignment Work on a topic with in the content.
- Make the list of Distance Education programme of various universities in India.

Learning Outcomes: After completion of this course students would able to:

- Provide an effective alternative path to wider opportunities in education and especially in higher education.

- ❖ Understand an efficient and less expensive education.
- ❖ Explain education facilities to all qualified and willing persons.
- ❖ Identify the opportunities of academic pursuits to educate citizens willing to improve their standard of knowledge.

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 714	**5. Additional Course (Any one)** 5.1 Hindi	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ काव्य के विभिन्न घटक तत्त्वों का ज्ञान देना।
- ❖ काव्य के घटक तत्त्व रस, छन्द, अलंकारों का ज्ञान प्रदान करना।
- ❖ काव्य के गुण : माधुर्य, ओज, प्रसाद का ज्ञान देना।
- ❖ हिन्दी की शिक्षण विधियों का ज्ञान देना।
- ❖ हिन्दी के विभिन्न व्याकरणीय घटकों का ज्ञान देना।
- ❖ व्याकरण के घटक अनुवाद, संज्ञा, सर्वनाम, कारक, सन्धि, समास एवं विशेषण का ज्ञान देना।
- ❖ सूक्ष्म शिक्षण के विभिन्न कौशलों की जानकारी देना।
- ❖ हिन्दी के विभिन्न कवियों, लेखकों के उपन्यासों, कहानियों, रचनाओं का ज्ञान प्रदान करना।

विषय वस्तु:

इकाई : प्रथम – काव्य के घटक तत्त्व

(अ) काव्य के गुण : माधुर्य, ओज एवं प्रसाद

(ब) अलंकार – शब्दालंकार, अर्थालंकार, श्लेष, यमक, अनुप्रास, उपमा, रूपक, उत्प्रेक्षा, मानवीकरण, अतिशयोक्ति, विभावना, भ्रान्तिमान।

(स) रस का स्वरूप, रस के अवयव, श्रृँगार रस, हास्य रस, करूण रस, रौद्र रस, वीर रस, भयानक रस, वीभत्स, अद्‌भुत रस, शान्त रस, वात्सल्य रस, भक्ति रस।

(द) छन्द–दोहा, चौपाई, कवित्त, सोरठा एवं सवैया।

इकाई : द्वितीय – शिक्षण विधियों का परिचय

(अ) सूक्ष्म शिक्षण – सम्प्रत्यय एवं प्रमुख कौशलों का परिचय।

(ब) वाचन विधि

(स) व्याख्या विधि

(द) अनुवाद विधि

इकाई : तृतीय – व्याकरणीय घटक

(अ) अनुवाद : अर्थ एवं प्रकार
(ब) शब्द शक्तियों के भेद, उदाहरण
(स) संज्ञा, सर्वनाम एवं कारक का अर्थ एवं प्रकार
(द) सन्धि, समास एवं विशेषण का अर्थ एवं प्रकार

इकाई – चतुर्थ – हिन्दी साहित्यकारों का संक्षिप्त परिचय एवं उनका विशिष्ट अवदान :–

(अ) तुलसीदास,सूरदास, कबीरदास एवं रसखान
(ब) प्रेमचन्द, जयशंकर प्रसाद, हजारी प्रसाद द्विवेदी, मन्नू भंडारी
(स) महादेवी वर्मा, सूर्यकान्त त्रिपाठी निराला
(द) रामधारीसिंह दिनकर, हरिवंशराय बच्चन

सत्रीय कार्य (निम्न में से कोई दो)

- कक्षा सातवीं की पुस्तक 'बाल–महाभारत' अथवा कक्षा आठवीं की पाठ्य पुस्तक 'भारत की खोज' की समीक्षा करना।
- हिन्दी विषय की वर्तमान स्थिति की दशा एवं दिशा पर रिपोर्ट लिखना।
- अपनी पसन्द की कोई पांच–पांच कहानी अथवा कविताओं का संकलन करना एवं उनका प्रस्तुतिकरण।
- माध्यमिक या उच्च माध्यमिक की हिन्दी विषय की पाठ्य पुस्तक में विभिन्न कहानियों का नाट्य रूपान्तरण करना।
- 'हमारा संकलन' स्क्रेप बुक/पुस्तिका का निर्माण करना, जिसमें विभिन्न समाचारपत्रों, पत्रिकाओं, प्रमुख महापुरूषों, प्रसिद्ध लेखकों, कवियों, कवयित्रियों, प्रसिद्ध खिलाड़ियों व अन्य प्रसिद्ध व्यक्तियों के जीवन परिचय एवं विशेष उपलब्धि का सचित्र वर्णन।

Learning Outcomes:इस पाठ्यक्रम के पूरा होने के बाद छात्र शिक्षक सक्षम होगा।

- ❖ काव्य के विभिन्न घटक तत्त्वों का ज्ञान प्राप्त कर सकेंगे।
- ❖ काव्य के घटक तत्त्व रस, छन्द, अलंकारों का ज्ञान प्राप्त कर सकेंगे।
- ❖ काव्य के गुण : माधुर्य, ओज, प्रसाद का ज्ञान प्राप्त कर सकेंगे।
- ❖ हिन्दी की शिक्षण विधियों का ज्ञान प्राप्त कर सकेंगे।
- ❖ हिन्दी के विभिन्न व्याकरणीय घटकों का ज्ञान प्राप्त कर सकेंगे।
- ❖ व्याकरण के घटक अनुवाद, संज्ञा, सर्वनाम, कारक, सन्धि, समास एवं विशेषण का ज्ञान प्राप्त कर सकेंगे।
- ❖ सूक्ष्म शिक्षण के विभिन्न कौशलों की जानकारी प्राप्त कर सकेंगे।
- ❖ हिन्दी के विभिन्न कवियों, लेखकों के उपन्यासों, कहानियों, रचनाओं का ज्ञान प्राप्त कर सकेंगे।

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 714	5.2 English	**Any one- CE**	**4**	**30**	**70**	**100**

Objectives:

- To acquire the knowledge of Phonetics and its uses through different organs of speech
- To develop Understanding of English text
- To apply the Content knowledge through preparing lesson plan in English Language
- To explain the idea of assessment of English teaching
- To describe the Knowledge of diagnostic test and Remedial instruction in English teaching

Course Contents:

Unit- I Language production and phonology

a) Language acquisition
b) Organs of speech
c) Elements of Speaking
d) Phonology sound system: Vowel, Diphthongs and Consonants)

Unit -II Understanding Language Text

a) Text book Vs Reference books
b) Analysis of a Text book
c) Quality of good text book

Unit-III Lesson plan and teaching learning materials (TLM)

a) Strategies : Language games, Puzzles, role playing.
b) Teaching Aids in English:(Audio ,Visual, Audio- Visual)
c) Use of LCD ,OHP, Linguaphone , online Classes, Hand outs

Unit-IV Assessment of English Language

a) Diagnostic Evaluation
b) Remedial instruction
c) Errors in English (Oral vs. Witten)
d) Types of test in English teaching(Subjective Vs Objectives types)

Assignment & Practical Works : (Any Two)

- Review of a English Text book
- Prepare a PPT on any topic of English teaching for Secondary School.
- Prepare a PPT on any topic of English teaching for Secondary school.
- Prepare some Phonological words in each Sound in English.(Vowels (12), Diphthongs (8) and Consonants (24)

Learning Outcomes: After completion of this course students would able to:

- Acquire the knowledge of Phonetics and its uses through different organs of speech

- ❖ Develop Understanding of English text
- ❖ Apply the Content knowledge through preparing lesson plan in English Language
- ❖ Explain the idea of assessment of English teaching
- ❖ Describe the Knowledge of diagnostic test and Remedial instruction in English teaching

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 714	5.3 Sanskrit	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ विद्यालयी बालकों में व्याकरण की सामान्य जानकारी एवं उनके प्रयोग की दक्षता का विकास करना।
- ❖ संस्कृत भाषायी दक्षता में होने वाली अशुद्धियों का निदान करना।
- ❖ संस्कृत महाकाव्यों, गद्यकाव्यों, नाट्यकाव्यों का ज्ञान प्राप्त करना।
- ❖ हिन्दी वाक्यों का संस्कृत भाषा में अनुवाद कर सकने की योग्यता का विकास करना।
- ❖ संस्कृत विद्यालयों के पाठ्यक्रम का समीक्षात्मक मूल्यांकन करना।

विषयवस्तु :

इकाई – प्रथम – संज्ञा, प्रत्यय, उपसर्ग एवं अवयवों का ज्ञान।

a) संज्ञा प्रकरण – उच्चारणस्थानानि प्रयत्नाः (आभ्यन्तर, बाह्य), अल्पप्राणः, महाप्राणः, घोषः।

b) प्रत्यया – क्त, क्तवतु, शतृ, शानच, तुमुन्, अनीयर, ण्वुल, क्त्वा, ल्यप्, तरप्, तमप्।

c) अव्ययानां प्रयोग – उच्चैः, पुनः, शनैः, नमः, खलु, धिक्, प्रातः, कदा, विना, श्व, ह्यः।

d) उपसर्गा – प्र, परा, अप्, सम, दुर्, आ, अति, प्रति, सु, परि, अधि।

इकाई – द्वितीय – कारक, छन्द एवं अलंकारों का सामान्य ज्ञान।

a) कारक – प्रातिपादिकार्थ लिङ्ग–परिमाण–वचन मात्रे प्रथमा। कर्तुरीप्सिततमं कर्म, अभितः परितः। समयानिकषा हा प्रतियोगेऽपि। कर्तृकरणयोस्तृतीया, येनाङ्गविकार। कर्मणा यमभिप्रैति स संप्रदानम, रूच्यर्थानां–प्रीयमाणः, क्रुधद्रुहेर्ष्यासूयार्थानां यं प्रति कोपः। ध्रुवमपायेऽपादानम्, भीत्रार्थानां भयहेतुः।, आधारोऽधिकरणम्, यतश्चनिर्धारणम्। षष्ठीशेषे, कर्तृकर्मणोः कृतिः।

b) छन्द – अनुष्टुप्, आर्या, इन्द्रवज्रा, उपेन्द्रवज्रा, वसन्ततिलका, मन्दाक्रान्ता, शार्दूलविक्रीडितम्।

c) अलंकार – अनुप्रास, यमकम्, उपमा, रूपकम्, सन्देह, दृष्टान्त, अतिशयोक्ति, वक्रोक्ति, उत्प्रेक्षा।

इकाई – तृतीय – भारतीय संस्कृति एवं संस्कृत रचनाकारों का संक्षिप्त परिचय।

a) भारतीय संस्कृति – वर्ण व्यवस्था, आश्रम व्यवस्था एवं षोड्श संस्कार।

b) महाकाव्य कवि – भारवि, श्रीहर्ष एवं बाल्मीकि।

c) गद्य काव्य कवि – दण्डी एवं बाणभट्ट।

d) नाट्य कवि – कालिदास एवं भवभूति।

इकाई – चतुर्थ – शिक्षण विधियाँ।

a) दण्डान्वय विधि

b) खण्डान्वय विधि

c) स्वाध्याय निर्देशित पद्धति

d) स्पष्टीकरण विधि

सत्रीय कार्य – (किसी दो विषय पर)

- कक्षा 10 की संस्कृत पाठ्यपुस्तक की समीक्षा करना।
- पाठ्यक्रम के किसी एक इकाई के एक प्रकरण को विस्तार से समझाइये।
- कक्षा 8 की पाठ्यसामग्री से कठिन शब्दों की सूची तैयार करना एवं उनका अर्थ ग्रहण (कम से कम 30 शब्द)।
- 20 श्लोकों का कंठस्थीकरण।
- संस्कृत में मानव शरीर के अंगों के नाम।
- किन्हीं 15 घरेलू सामग्रियों के संस्कृत में नाम।

Learning Outcomes:

- ❖ विद्यालयी बालकों में व्याकरण की सामान्य जानकारी एवं उनके प्रयोग की दक्षता का विकास कर सकेंगे।
- ❖ संस्कृत भाषायी दक्षता में होने वाली अशुद्धियों का निदान कर सकेंगे।
- ❖ संस्कृत महाकाव्यों, गद्यकाव्यों, नाट्यकाव्यों का ज्ञान प्राप्त कर सकेंगे।
- ❖ हिन्दी वाक्यों का संस्कृत भाषा में अनुवाद कर सकने की योग्यता का विकास कर सकेंगे।
- ❖ संस्कृत विद्यालयों के पाठ्यक्रम का समीक्षात्मक मूल्यांकन कर सकेंगे।

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 714	5.4 History	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand ancient history on the basis of political, social and economic conditions.
- To develop the idea of Vedic Jainism, Buddhism & Shaivism religious.
- To acquire Knowledge of medieval periods in respect of temple, forts and bhakti movement.
- To evaluate the historical perspective modern India i.e. 1857 movement, gandhian politics.

Course Contents:

Unit- I Concept and Revolution of National Freedom

a) Concept of History
b) Main places of Sindhu-Ghati sabbhyata (Harappa, mohen- jodora , kalibanga, lothal)
c) Revolution of National Freedom (Revolution of Asahayog Andolen, Bharat Chhodo Andolen, Savinay Avagya Andolen
d) The Russian Revolution of 1917

Unit- II Historical perspEctives of ancient period.

a) Political and Economic history from the mauryan to the gupta period.
b) Issue in social history, Including caste and class.
c) A history of Vedic & Jainism Religious. (A brief review).
d) A history of Shaivism & Buddhism religious. (A brief review).

Unit- III Historical perspEctives of medieval and modern India.

a) Structure of agrarian relation in the 16^{th} 17^{th} centuries.
b) ArchitEcture & political system during Vijay nagar period.
c) Ideas and practices of the bhakti-sufi saints.
d) Medieval society through travelers account's.(Alberuni & Ibn-batuta)

Unit- IV Historical perspEctives of modern India.

a) East India Company, Revenue Settlement's.
b) Representations of 1857.
c) The Nature of Gandhian politics.

d) Industrial revolution.

Assignment & Practical Works : (Any Two)

- Archaeological report on a main site.
- Historical story(Two)
- Planning, organization and report writing on seminar.
- Picture of 1857 (Scrab-Book)
- Prepare a Historical model/Historical Democracy

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand ancient history on the basis of political, social and economic conditions.
- ❖ Develop the idea of Vedic Jainism, Buddhism & Shaivism religious.
- ❖ Acquire Knowledge of medieval periods in respect of temple, forts and bhakti movement.
- ❖ Evaluate the historical perspective modern India i.e. 1857 movement, gandhian politics.

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 714	5.5 Civics	**Any one - CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ To identify political views among students.
- ❖ To acquaint the content knowledge of political science.
- ❖ To comprehend the dynamic political status and issues of our country.
- ❖ To develop reasoning ability among students for various competitive exam.
- ❖ To enable the pupil teacher to review the text-book of civics content (Secondary level).

Course Contents:

Unit- I Political Thought

a) Socialism
b) Marxism
c) Gandhism
d) Dr.Bheem Rao Ambedakar

Unit- II Indian Constitution & Political Involvement

a) Indian Constitution
b) Democracy
c) Political Group
d) Political socialization

Unit- III Political Problems and Organization

a) Terrorism, political crime, corruption
b) International organization (DAKSHE, SARK, U.N.O.)
c) ElEction commission of India
d) NCW (National commission for women)

Unit- IV Current Political Scenario

a) RECent governing member and central, state level ministry
b) Fundamental rights and duties
c) Lok Sabha, Rajya Sabha, Vidhan Sabha, Vidhan Parishad
d) President, Prime Minister, Governor, Chief Minister

Assignment & Practical Works : (Any Two)

- One Assignment Work solve class 11 & 12
- Write an essay on any political problem.
- Study the causes of political problem and write a report of the same.
- Write an essay, story; poem can be created to tell moral values to litigants.
- Prepare scrap book of political news.
- Write any two abstracts related to political issues.

Learning Outcomes: After completion of this course students would able to:

- ❖ Identify political views among students.
- ❖ Acquaint the content knowledge of political science.
- ❖ Comprehend the dynamic political status and issues of our country.
- ❖ Develop reasoning ability among students for various competitive exam.
- ❖ Enable the pupil teacher to review the text-book of civics content (Secondary level).

References:

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 714	5. 6 Social Science	**Any one- CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ To understand Social Science on the basis of political, social and economic conditions.
- ❖ To develop the idea of Society, Social group, Community Marriage.
- ❖ To acquire Knowledge of Indian Social Problems (Culture, Castiesm, Communalism, Poverty, Corruption)
- ❖ To evaluate the Indian Social Issue.

Course Contents:

Unit-1 Meaning and Concept of Sociology

a) Development of Sociology
b) The meaning of Sociology
c) Subject matter of Sociology
d) Sociology and Social Science

Unit -II Society

a) Society - Meaning and Need

b) Social group- Meaning and Types [Primary and Secondary]
c) Community- Meaning, Characteristics Concept of community
d) Marriage- Aims and Types of Hindu marriage

Unit -III Social Change in Indian Society

a) Social change
b) Family
c) Cast and class- meaning and Changes in Caste and Class
d) Regionalism

Unit -IV Indian Social Problems

a) Culture-definition, Characteristics, Lack of Culture
b) Communalism
c) Poverty
d) Corruption

Assignment & Practical Works : (Any Two)

- Write an article on current Social issue.
- Prepare Assignment Work any two subject topic.
- Prepare a case study of Any one local problem.

Learning Outcomes: After completion of this course students would able to:

- Understand Social Science on the basis of political, social and economic conditions.
- Develop the idea of Society, Social group, Community Marriage.
- Acquire Knowledge of Indian Social Problems (Culture, Castiesm, Communalism, Poverty, Corruption)
- Evaluate the Indian Social Issue.

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 714	5.7 Economics	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- To help the students to acquire the basic understanding in the field of Economics.

- ❖ To enable the student teachers to understand the aims and objectives of teaching Economics at the secondary school stage.
- ❖ To develop the ability, to evaluate the present curriculum in Economics at the secondary level.
- ❖ To develop the ability to organize group activities and projects in the subject.
- ❖ To develop the ability to use of various methods of teaching Economics.
- ❖ To enable the student to acquire necessary skills for the use and preparation of teaching aids and instructional material in Economics.
- ❖ To develop in the students appropriate attitudes towards the country's Economy.
- ❖ To develop in the student an adequate sense of awareness about Economic issues of the country and an out-look of problem solving through analysis and application of the theory of Economics.
- ❖ To develop competence in framing objective based achievement and diagnostic test, their administration and their scoring and drawing conclusions there of. 10. To develop in the students an ability to conduct various surveys in Economics and organize field trips.
- ❖ To enable the student-teachers to prepare unit plan, lesson plan and related teaching learning strategies.
- ❖ To enable the student teachers to review the text book of Economics.

Course Contents:

Unit- I Meaning and Concept of Micro and Macro Economics

a) Micro Economics
b) Macro Economics
c) Concept of National Income

Unit- II Demand and Supply and Money

a) Basic concept of Demand and supply
b) Consumer Equilibrium
c) Definition of Money, Its Function
d) Functions of Commercial Bank
e) Functions of Central Bank

Unit- III Indian, Foreign Trade and Economics Planning

a) Indian Foreign Trade - DirEction and Trends
b) Concept of Globalization, Privatization and Liberalization
c) Economic Planning in India
d) Poverty in India
e) Unemployment in India

Unit- IV Method and Evaluation in Economics

a) Programmed Instruction Methods
b) Team Teaching
c) Computer assisted Instruction (CAI)
d) LEcture cum Demonstration Method
e) Evaluation in Economics

Assignment & Practical Works : (Any Two)

- Preparation a Assignment Works Any one subject topic.
- Review of two published papers related to subject

Learning Outcomes: After completion of this course students would able to:

- ❖ Help the students to acquire the basic understanding in the field of Economics.
- ❖ Enable the student teachers to understand the aims and objectives of teaching Economics at the secondary school stage.
- ❖ Develop the ability, to evaluate the present curriculum in Economics at the secondary level.
- ❖ Enable ability to organize group activities and projects in the subject.
- ❖ Understand to use of various methods of teaching Economics.
- ❖ Enable the student to acquire necessary skills for the use and preparation of teaching aids and instructional material in Economics.
- ❖ Develop in the students appropriate attitudes towards the country's Economy.
- ❖ Develop in the student an adequate sense of awareness about Economic issues of the country and an out-look of problem solving through analysis and application of the theory of Economics.
- ❖ Develop competence in framing objective based achievement and diagnostic test, their administration and their scoring and drawing conclusions there of. 10. To develop in the students an ability to conduct various surveys in Economics and organize field trips.
- ❖ Prepare unit plan, lesson plan and related teaching learning strategies.
- ❖ Review the text book of Economics.

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 714	5.8 Geography	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- ❖ To understand the modern concept of Geography.
- ❖ To understand the aims and objectives of teaching Geography.
- ❖ To prepare yearly plan, unit plan, lesson plan for different classes.
- ❖ To prepare maps and charts to illustrate the content of different classes and use them effectively.
- ❖ To critically evaluate the existing school syllabus and review the text book of Geography.

- ❖ To apply appropriate method and techniques of teaching to particular topics at different levels.
- ❖ To arrange field trips and local surveys.
- ❖ To prepare achievement test and diagnostic test, administration of the test, analysis of results, make suggestion for remedial teaching.

Course Contents:

Unit- I Motion of the Earth

a) Latitudes, Longitudes
b) Interior of the Earth
c) Origin of continents and oceans, sudden movements
d) Atmosphere, Composition, Insulation, Pressure belts, winds
e) Ocean Currents and Tides

Unit- II Indian Geography

a) Physical features
b) Climate
c) Natural vegetation
d) Drainage
e) Agriculture

Unit-III Rajasthan Geography

a) Physical features
b) Climate
c) Natural vegetation
d) Drainage
e) Agriculture

Unit- IV Practical Work in Geography

a) Definition, Scope and Development of Cartography
b) Technique, Materials, Tools of Map Making
c) Map
d) Scale
e) Representation of Statistical Data

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand the modern concept of Geography.
- ❖ Describe aims and objectives of teaching Geography.
- ❖ Pprepare yearly plan, unit plan, lesson plan for different classes.
- ❖ Prepare maps and charts to illustrate the content of different classes and use them effectively.
- ❖ Critically evaluate the existing school syllabus and review the text book of Geography.
- ❖ Apply appropriate method and techniques of teaching to particular topics at different levels.
- ❖ Arrange field trips and local surveys.
- ❖ Prepare achievement test and diagnostic test, administration of the test, analysis of results, make suggestion for remedial teaching.

Assignment & Practical Works :

- Assignment Work any two topic subject related
- Any two map making

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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BAE 714	5.9 Home Science	**Any one CE**	**4**	**30**	**70**	**100**

Objectives:

- To understand the Concept, Nature and scope of Home Science.
- To explore different ways of creating learning situations for different concepts of Home Science.
- To facilitate the development of scientific attitude in learner.
- To provide the knowledge related to Home management, Budgeting, Textile and Fashion as well as common health problems etc.
- To ensure the application of knowledge to resolve nutritional, health and resources related problems through Home Science
- To stimulate curiosity, skills and creativity in Home Science.

Course Contents:

Unit- I Development and Childhood Care

a) Home Science Education : Meaning, Definition & Scope, History and Objectivess
b) Concept of Human Development & Growth
c) Life span stages and Types of Development
d) Reproductive health and Child Care

Unit- II Nutrients and Dietary Management

a) Food : Definition, functions and classification
b) Nutrients and their composition, sources and functions
c) Balanced diet with nutrition for pregnancy and different stages of development
d) Methods of cooking for healthy food

e) Dietary management during different diseases

Unit- III Resource Management and Clothing

a) Resource Management, Budgeting, Saving and Investment in family
b) Fibers - types and properties, Yarn construction, Marketing, Principles of clothing construction
c) Preparation of fabrics Cutting-Layout, Pinning, Marking and Cutting
d) Fashion Terminology and Fashion cycle

Unit- IV Housing and Women

a) House planning and furnishing
b) Financial and legal consideration for housing
c) Consumer Aids and consumer protEction
d) Women Empowerment : Guidance and Counseling ; Welfare Organizations

Assignment & Practical Works : (Any Two)

- Data collection for various problems in local community like as nutritional, health issues, consumer awareness and Women Empowerment etc
- Prepare and implement a Project related to various community problems
- Plan and organize an exhibition related to Handicrafts, latest fashionable costumes
- Make and demonstrate dye samples/block printing samples/knitting and embroidery
- Prepare and perform a drama (group) related to local issues and awareness

Learning Outcomes: After completion of this course students would able to:

- Understand the Concept, Nature and scope of Home Science.
- Explore different ways of creating learning situations for different concepts of Home Science.
- Facilitate the development of scientific attitude in learner.
- Provide the knowledge related to Home management, Budgeting, Textile and Fashion as well as common health problems etc.
- Ensure the application of knowledge to resolve nutritional, health and resources related problems through Home Science
- Stimulate curiosity, skills and creativity in Home Science

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Semester VIII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU-801	1. Knowledge and Curriculum (Part-A)	Any one- **CC**	**4**	**30**	**70**	**100**

Objectives:

- To know the concept objective and principles of curriculum.
- To develop the idea and bases of curriculum.
- To understand various types of curriculum.

Course Contents:

Unit- I Knowledge and Curriculum Concept

a) Knowledge : Concepts, Characteristics, Sources of Acquiring, Methods of Acquiring
b) Curriculum: Meaning, Definition, Characteristics, Aims Importance
c) Difference between old and new concepts of curriculum
d) Principle of curriculum construction and Knowledge

Unit- II Bases of curriculum

a) Sociological bases
b) Scientific bases
c) Philosophical bases
d) Psychological bases

Unit- III Types of curriculum

a) Activity centred and life centred curriculum
b) Subject centred and core centred
c) Experience centred and work based curriculum
d) Hidden Curriculum

Unit- IV National curriculum

a) Concept and Characteristics of National curriculum
b) Curriculum reform in India
c) NCF-2005 (School education)
d) NCFTE-2009(Teacher education)

Assignment & Practical Works : (Any Two)

- One Assignment Work on the topic related with the unit.
- Preparation of Any one Assignment Work on curriculum .
- Review of present curriculum (Optional subject related)
- Curriculum framework for 10th class.

Learning Outcomes: After completion of this course students would able to:

- Understand the concept, objective and principles of curriculum.
- Develop the idea and bases of curriculum.
- Evaluate the relevancy of curriculum.
- Describe various approaches to curriculum construction.

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12. National Curriculum Frame work NCFTE (2009), for Teacher Education, NCTE, New Delhi
13. National Curriculum Frame work NCF (2005), for Scholl Education, NCTE, New Delhi

Semester VIII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU-802	Knowledge and Curriculum (Part-B)	Any one- **CC**	**4**	**30**	**70**	**100**

Objectives:

- To develop ideas of philosophical bases of curriculum
- To various Sociological bases of curriculum
- To develop various psychological bases of curriculum
- To develop Educational New Trends of curriculum

Course Contents:

Unit- I Philosophical bases of curriculum development

a) Idealism, Naturalism, Pragmatism and curriculum
b) Jain philosophy , Geeta Philosophy , Buddhism Philosophy and curriculum
c) M. K. Gandhi, Vivekanand , R. N. Tagore and curriculum

Unit- II Sociological basis of curriculum development

a) Social change and curriculum
b) Social Mobility and curriculum
c) Social development and curriculum
d) Culture and curriculum

Unit- III Psychological bases of curriculum development

a) Structruralism and curriculum
b) Behaviourism and curriculum
c) Associationism and curriculum
d) Gestaltism and curriculum

Unit- IV Educational New Trends of curriculum

a) Skill and curriculum
b) Values and curriculum
c) NCF-2005(School Education)
d) NCFTE-2009(teacher Education)

Assignment & Practical Works : (Any Two)

- Preparation of One Assignment Work.
- One abstracts of Educational New trends article published in some standard Journals
- Preparation of curriculum Design (any subject related)
- Curriculum frame work for B.Ed. programme.

Learning Outcomes: After completion of this course students would able to:

- Describe various philosophical bases of curriculum
- Understand various Sociological bases of curriculum
- Acquire various psychological bases of curriculum
- Develop Educational New Trends of curriculum

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11. National Curriculum Frame work NCFTE (2009), for Teacher Education, NCTE, New Delhi
12. National Curriculum Frame work NCF (2005), for Scholl Education, NCTE, New Delhi

Semester VIII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU-803	Post Internship Internship	**CC**	**16**	**160 Internship+ 120+120=240 Practical (Two Subjects final lesson)**		**400**

Post Internship distribution (16 Weeks)

Objectives:

- To develop unit plan and lesson plan
- To write objective in behavioural terms
- To observe the lessons of the school teachers.
- To prepare schedule of various activities for studetns.
- To organize different co-curricular activities in the school.
- To prepare blue pring and test paper for different classes.

Sr. No.	Contents
1.	Regular Practice Teaching including - Unit Plan and Blue Print (Atleast Each Subject of 25 lessons)
2.	Observation
3.	**Block Teaching** o School Admission o Time Table o Morning Assembly o Classroom Management o Organization of Various Activities o Physical Activities o Cultural Activities

- Literary Activities
- Yoga Exercies
- Field Trips/Picnic
- Counducting of Meeting
- Maintenance of Garden/School
- Action Research
- Preparation of Register
- Liberary Management
- Other Work of School
- Swachhata Abhiyan
- S. U. P. W.
- Education Tour

4. Final Lesson (Two teaching subject)

Objectives:

- To develop unit plan and lesson plan
- To write objective in behavioural terms
- To observe the lessons of the school teachers.
- To prepare schedule of various activities for studetns.
- To organize different co-curricular activities in the school.
- To prepare blue pring and test paper for different classes.

Syllabus

DEPARTMENT OF EDUCATION

Bachelor of Science-Bachelor of Education (B.Sc- B. Ed.)

Four Year Integrated Regular Programme

"A" Grade by NAAC & "A" Category by MHRD

Jain Vishva Bharati Institute

(Deemed to be University under section 3 of UGC Act, 1956)

Ladnun-341306 (Raj.)

2017 Price: Rs.

DEPARTMENT OF EDUCATION
JAIN VISHVA BHARATI INSTITUTE, LADNUN

Bachelor of Science-Bachelor of Education (B.Sc- B. Ed.)
Four YearsIntegratedRegular Programme

Jain Vishva Bharati Institute has launched a Bachelor of Education programme recognized by NCTE. The first session started from July 2005 and B.Sc-B.Ed programme has started from October2016. The programme places specific emphasis on meditation as a tool to enhance learning skills and I.Q. This programme is also the first national teachers training programme to offer study in Education for Sustainable Development. Innovative syllabus and enthusiastic faculty work towards not only training the teachers but also assisting them with campus recruitment. Jain Vishva Bharati Institute is looking forward to train a new class of future generation teachers.

1. Introduction:

Enlightened, emancipated and empowered teachers lead communities and nation towards better and higher quality of life. Teachers are expected to create social cohesion, national integration and learning society. They disseminate knowledge and also generate new knowledge therefore, it becomes essential for any nation to give necessary professional inputs to its teachers. Jain Vishva Bharti Institute pursues the curriculum for its pre-service teacher training programme for women candidates who are far behind but can lead the whole nation. This will is a special programme focussed with a strong foundation in Science of Living. The candidates are encouraged to flourish an environment that promotes value and technology based society.

Duration: The B.Sc -B.Ed programme is full time four years integrated programme.

Eligibility: A candidate who has passed senior secondary from any recognized Board and qualified entrance test conducted as per guideline of State Government.

Objectives:

- To give the subject knowledge of graduation level.
- To develop professionalism in teacher Education Programme.
- To motivate creative thinking and work among teacher trainees.
- To foster moral, social character and spiritual values of trainees.
- To develop Inter-relationship among Department, School and Society.
- To develop cognitive, Affective and Psycho-motor domain of the teacher trainees
- To promote for future Prospective, Employability and Skill based Teacher Training
- To develop Self Evaluation, Positive Attitude and self confidence
- To apply educational innovation and new strategies of the Teacher Education and trainees.

Scheme of Examination

1. Hindi/English shall be medium of instruction of examination.
2. Examination shall be conducted at the end of each semester as per the academic/examination calendar notified by the Institute.
3. Each theory paper will be valued as per marks division given in the prospectus which will include semester end theory exam. Practical (wherever applicable) and continuous internal assessment (CIA).
4. CIA will include the following components : (Education Subject)

- Attendance regularity 10 marks
- Class Tests 05 marks
- Assignments 10 marks
- Class Presentation/Seminar 05 marks

Total 30 marks

CIA will include the following components- (Only Science Subject)

The CIA comprises of attendance, participation in co-curriculum activities and group discussion etc.

The marks distribution will be as follows-

(1) Attendance - 5 marks

(2) Participation in co-curriculum activities, Prayer, Behavior of candidate, etc.) - 5 marks

(3) Group discussion/Presentation/desk work - 5 marks

Total - 15 Marks

5. Distribution of Marks- (Only Science Subject)
   - A. Theory - 60 Marks
   - B. Practical - 25 Marks
   - C. Continuous Internal Assessment - 15 Marks

   Total = 100 Marks

Paper Patern Only Science Subject :

Type of Questions	Number of Questions	Marks of Each Question	Maximum Marks
Objective type questions	10	½ mark for each question	05
Short answer type questions	4	2 marks for each question	08
Essay type questions	2	3½ marks	07
		Total Marks	20
		Total sum	20X3 = 60

Evaluation Panel:

CIA Concerned Two Subject teacher nominated by the HOD of the Department.

❖ **Internship Evaluation Panel:** Pre-Internship and Post Internship

- HOD of the concerned Department
- Departmental Supervisor/School Head Master/Principal of the School/Nominated School Teacher

Final Lesson Panel: (Two Teaching Subject)

❖ HOD of the concerned Department * Internal/External Subject Expert

❖ **EPC Evaluation Panel:** Theory/Practical and viva-voce Examination Panel will be :

❖ HOD of the concerned Department. * Internal Subject Expert

(B.Sc.-B.Ed)
Semester-I
Distribution of Papers, Marks and Credit

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 101	Childhood and Growing Up	**CC**	**4**	**30**	**70**	**100**
BSE 101	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	Chemistry Practical				**25 Practical**	
BSE 102	Physics-I	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25 Practical**	
BSE 103	Mathematics-I	**CE***	**4**	**15**	**20**	**100**
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25 Practical**	
BSE 104	Botany-I	**CE***	**4**	**15**	**20**	**100**
	Botany-II				**20**	
	Botany-III				**20**	
	Botany Practical				**25 Practical**	
BSE 105	Zoology-I	**CE***	**4**	**15**	**20**	**100**
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25 Practical**	
JVB 101	Introduction to Jainism	**FC**	**4**	**30**	**70**	**100**
		Total	**20**	**105**	**395**	**500**

*Either BSE 102 & 103 Or BSE 104 & 105

(B.Sc.-B.Ed)
Semester-II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 201	Assessment for Learning	**CC**	**4**	**30**	**70**	**100**
EDU 202	Learning and Teaching	**CC**	**4**	**30**	**70**	**100**
BSE 201	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	Chemistry Practical				**25** Practical	
BSE 202	**Physics-I**	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25** Practical	
BSE 203	Mathematics-I	**CE***	**4**	**15**	**20**	**100**
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25** Practical	
BSE 204	Botany-I	**CE***	**4**	**15**	**20**	**100**
	Botany-II				**20**	
	Botany-III				**20**	
	Botany Practical				**25** Practical	
BSE 205	Zoology-I	**CE***	**4**	**15**	**20**	**100**
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25** Practical	
		Total	**20**	**105**	**395**	**500**

*Either BSE 202 & 203 Or BSE 204 & 205

(B.Sc.-B.Ed)
Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 301	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	Chemistry Practical				**25** Practical	
BSE 302	**Physics-I**	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25** Practical	
BSE 303	Mathematics-I	**CE***	**4**	**15**	**20**	**100**
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25** Practical	
BSE 304	Botany-I	**CE***	**4**	**15**	**20**	**100**
	Botany-II				**20**	
	Botany-III				**20**	
	Botany Practical				**25** Practical	
BSE 305	Zoology-I	**CE***	**4**	**15**	**20**	**100**
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25** Practical	
EDU 301	Understanding a Discipline and Subject	Any one **CE**	**4**	**30**	**70**	**100**
EDU 302	Innovative Methods					
JVB 301	Critical Understanding of ICT	**FC**	**2**	**15** Practical	**35**	**50**
JVB 302	Yoga and Preksha Meditation	**FC**	**2**	**15** Practical	**35**	**50**
		Total	**20**	**105**	**395**	**500**

*Either BSE 302 & 303 Or BSE 304 & 305

(B.Sc.-B.Ed)
Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 401	Gender , School and Society	**CC**	**4**	**30**	**70**	**100**
EDU 402	Reading and Reflecting on texts (EPC)	**CC**	**2**	**15**	**35 Practical and Viva-Voce**	**50**
EDU 403	Drama and Arts in Education (EPC)	**CC**	**2**	**15**	**35 Practical and Viva-Voce**	**50**
BSE 401	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	ChemistryPractical				**25 Practical**	
BSE 402	**Physics-I**	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Prcatical				**25 Practical**	
BSE 403	Mathematics-I	**CE***	**4**	**15**	**20**	**100**
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25 Practical**	
BSE 404	Botany-I	**CE***	**4**	**15**	**20**	**100**
	Botany-II				**20**	
	Botany-III				**20**	
	Botany Practical				**25 Practical**	
BSE 405	Zoology-I	**CE***	**4**	**15**	**20**	**100**
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25 Practical**	
		Total	**20**	**105**	**395**	**500**

*Either BSE 402 & 403 Or BSE 404 & 405

(B.Sc.-B.Ed)
Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 501	General English	**CC**	**4**	**30**	**70**	**100**
EDU 502	Contemporary India and Education	**CC**	**4**	**30**	**70**	**100**
BSE 501	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	Chemistry Practical				**25** Practical	
BSE 502	Physics-I	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25** Practical	
BSE 503	Mathematics-I	**CE***	**4**	**15**	**20**	**100**
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25** Practical	
BSE 504	Botany-I	**CE***	**4**	**15**	**20**	**100**
	Botany-II				**20**	
	Botany-III				**20**	
	Botany Practical				**25** Practical	
BSE 505	Zoology-I	**CE***	**4**	**15**	**20**	**100**
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25** Practical	
		Total	**20**	**105**	**395**	**500**

*Either BSE 502 & 503 Or BSE 504 & 505

(B.Sc.-B.Ed)
Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 601	General Hindi	**CC**	**4**	**30**	**70**	**100**
EDU 602	Pre. Internship	**CC**	**4**	**100** Pre. Internship		**100**
BSE 601	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	Chemistry Practical				**25** Practical	
BSE 602	Physics-I	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25** Practical	
BSE 603	Mathematics-I	**CE***	**4**	**15**	**20**	**100**
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25** Practical	
BSE 604	Botany-I	**CE***	**4**	**15**	**20**	**100**
	Botany-II				**20**	
	Botany-III				**20**	
	Botany Practical				**25** Practical	
BSE 605	Zoology-I	**CE***	**4**	**15**	**20**	**100**
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25** Practical	
		Total	**20**	**75**	**425**	**500**

*Either BSE 602 & 603 Or BSE 604 & 605

Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU 701	Creating and Inclusive Education	**CC**	**4**	**30**	**70**	**100**
EDU 702	Language Across the Curriculum	**CC**	**4**	**30**	**70**	**100**
BSE 701	Chemistry	Pedagogy of a School Subject **Any two CE**	**4**	**30**	**70**	**100**
BSE 702	Physics					
BSE 703	Mathematics					
BSE 704	General Science					
BSE 705	Biology	**CE**	**4**	**30**	**70**	**100**
BSE 706	Optional Course Environmental Education	**Any one EC**	**4**	**30**	**70**	**100**
BSE 707	Health and Physical Education					
BSE 708	Guidance and Counseling					
BSE 709	Distance Education					
BSE 710	Additional Course (Any one) 5.1 Chemistry					
	5.2 Physics					
	5.3 Mathematics					
	5.4 General Science					
	5.5 Biology					
		Total	**20**	**150**	**350**	**500**

Semester VIII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
EDU-801	Knowledge and Curriculum (Part-A)	**CC** Any one	**4**	**30**	**70**	**100**
EDU-802	Knowledge and Curriculum (Part-B)					
EDU-803	Post Internship	**CC**	**16**	**160 Internship+ 120+120=240 Practical (Two Subjects final lesson)**		**400**
		Total	**20**	**30**	**470**	**500**

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 101	Chemistry-I	Any Three CC	4	15	20	100
	Chemistry-II				20	
	Chemistry-III				20	
	Chemistry Practical				25 Practical	

Chemistry-Paper-I : Inorganic chemistry

Objectives:

- To understand about shape of s,p,d,f orbitals and atomic structure.
- To develop critical understanding about comparative study of differet elements on the basis of periodicity .
- To promote awareness about principles related to atomic structure and chemical bonding.
- To know about molecular orbital theory of homo and heteronuclear compounds.

Unit 1 : Atomic structure

Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, Schrodinger wave equation, quantum number, radial and angular wave functions and probability distribution curves, shapes of s, p, d orbitals, Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configuration of the elements, effective nuclear charge.

Unit2 : Periodicityofp-blockelements & Chemistry ofnoblegases

Comparativestudyofp-blockelements:grouptrends,electronicconfiguration,atomicand ionicradii,ionizationenergy,electronaffinity,electronegativity,oxidationstates, inertpaireffect. Introductionofnoblegases,Chemical propertiesofthenoble gases,compoundsofnoblegases,chemistryof xenon, stucture and bonding of xenoncompounds.

Unit 3 :ChemicalBondingPartI

Introductionofchemicalbonding,propertiesofcovalentbond,valence bond theory and its limitations,directionalcharacteristics ofcovalentbond,hybridization, energeticsofhybridisation andshapes[4]ofdifferent moleculesandions,Valenceshellelectronpairrepulsion(VSEPR)theorytoSnCl$_2$,H$_3$O$^+$,NH$_3$, H$_2$O,TeCl$_4$,ClF$_3$, ICl$_2^-$

Unit 4 : ChemicalBondingPartII

Linearcombinationofatomicorbitals,typesofmolecular orbitals,MOtheory for homonuclear molecules andions(H$_2$+toNe$_2$),molecular orbitaltheoryfor heteronuclear molecules (CO,NO)multicentre bonding inelectron deficientmolecules, bondstrength andbondenergy,dipolemoment,percentage ioniccharacterfrom dipolemomentandelectronegativitydifference.

Learning Outcomes: After complition the course student would able to:

- Explain the principles related to atomic structure, periodicity & chemical bonding.

- ❖ Plot and interpret probability distribution curves, electronic configuration, shapes of molecules and bonding structures.
- ❖ Identifies the relationship among periodicity of various elements and properties of chemical bonding.
- ❖ Classify the elements on the basis of atomic structure, periodicity and their basic properties.

Chemistry-Paper-II : Organic chemistry

Objectives:

- ❖ To understand about reaction mechanism of organic compounds.
- ❖ To aware about different types ofchemical reactions.
- ❖ To provide information about nomenclature of alkane and cycloalkane .
- ❖ To know about synthesis of alkenes and cycloalkenes .
- ❖ To acquaint about nomenclature and classification of Dienes and alkyns.

Unit-I : Mechanismoforganicreaction

Homolytic andheterolytic bondbreaking,Typesofreagents,electrofilesandnucleofiles.Typesoforganic reactions,energyconsiderations,reactiveintermediates-Carbocations,carbanions,free radicals,carbenes,arynesandnitrenes withexamples.Assigningformalchargesonintermediatesandotherionicspecies.Methodofdetermination ofreaction mechanism(productanalysis,intermediates,isotopeeffect,kineticandstereochemicalstudies)

Unit-II : Alkanes& Cycloalkanes

IUPACnomenclatureofbranchedandunbranchedalkanes.Thealkylgroup. Isomerisminalkanessources, methodsofformation(withspecialreferenceofWurtzreaction,Kolbereaction,CoreyHousereactionanddecarboxylation ofcarboxylicacids.)Physicalpropertiesandchemicalreactionsofalkanes,Mechanism offreeradicalhalogenationsof alkanes,orientation,reactivityandselectivity.
Nomenclature,methodofformation,chemicalreactions,Baeyerstraintheoryanditslimitations.Ringstrain insmallrings(cyclopropaneandcyclobutane),theoryof strainlessrings.

Unit-III : Alkenes & Cycloalkenes

Nomenclatureofalkenes,methodsofformation,mechanismsofdehydrationofalcoholsanddehydrohalogenation ofalkylhalides,regioselectivity inalcoholdehydrations.TheSaytzeffrule,Hofmannelimination.Physicalpropertiesand relativestabilitiesofalkenes.Chemicalreactionsofalkenes— mechanisminvolvedinhydrogenations,Markownikoffsrule, hydroboration–oxidation,oxymercuration-reduction.Epoxidation,ozonolysis,hydration,hydroxylationandoxidationwith $KMnO_4$,polymerization ofalkenes.Subsititutionattheallylicandvinylicpositionofalkenes.Industrialapplicationsof ethyleneandpropene. Methodofformation,conformationandchemicalreactionsofcycloalkenes.

Unit-IV Dienes &Alkynes

Nomenclature andclassification ofdienes,isolated,conjugatedandcumulateddienes,Structureofallenesand butadiene,methodsofformation,polymerization,chemicalreactions,1,2and1,4-additions,Diels-Alderreaction. Nomenclature, structure andbonding inalkynes,methodsofformation.Chemicalreactionsofalkynes,acidityof alkynes.Mechanismofelectrofilicandnucleofilicadditionreactions,Hydroboration-oxidation,metal–ammoniareduction, oxidationandpolymerisation.

Learning Outcomes: After complition the course student would able to:

- Explain about reaction mechanism of organic compound.
- Know about synthesis of alkane and cycloalkanes .
- Classify various derivatives on the basis of isomerism, rules of reacitivity and theories.
- Apply the mechanism of chemical reaction for explaning chemical bonding, nomenclature of various compounds.

Chemistry-Paper-III :Physical chemistry

Objectives:

- To develop curiosity about mathematical concept and use of computer .
- To provide information about various laws and their implications .
- To aware about different states, Vander Waals equation and their derivations.
- To understand about liquid stage and classification of liquid crystals.

Unit I : Mathematical Concepts and Computer

Logarithmic relations, curve sketching, linear graphs and slopes **,**Differentiations of functions like k^x, e^x, x^n, sin x, log x: maxima and minima**,** Integration of some useful relevant functions: Permutations and combinations**,** Factorials and Probability **,**Application of computers in physical chemistry

Unit II : GaseousStates1

Gaseous lawsandtheirderivations,postulate ofkinetictheoryofgasesanditsderivation,deviationfrom idealbehavior,(withrespecttopressureandvolume),VanderWaalsequationofstate

Unit-III : GaseousStates2

Criticalphenomenon:PVisothermofrealgases,continuity ofstate,theisothermsofVanderWaals equation,relationshipbetweencriticalconstantandVander-Waalsconstant, thelawofcorrespondingstates,reduced equationofstate. Rootmeansquare,averageandmostprobablevelocity.QualitativediscussionoftheMaxwell`sdistribution ofmolecular velocities,collisionnumber,meanfreepathandcollisiondiameter.Liquificationofgases.

Unit-IV : Liquidstate

Intermolecularforces,structureofliquids(aqualitativedescription).Structuraldifferencesbetweensolid, liquidandgases. Liquidcrystals:differencebetweenliquidcrystal,solidandliquid. Classification,structureandapplication ofliquidcrystal.

Learning Outcomes: After complition the course student would able to:

- Plot and interpret various graphs, probability curves and structures of gaseous and liquid states.
- Explain logarithmic relations, root mean square and laws of corresponding liquid and gaseous states.
- Measure and calculate the differentiations of functions, collision number and probability to define various behavior of different states.

PRACTICALS

Inorganic chemistry

QualitativeAnalysis:Semimicroanalysis;separationandidentificationofthreecationsandthreeanions in thegiven inorganic mixture, specific testsforsome typical combination of acid radicals.

Physical chemistry

Viscosity, SurfaceTension

1. To determine the percentagecompositionofagivenmixture(non-interactingsystems)by viscositymethod.
2. To determinethe relativeviscosityofgiven unknown organic liquid byviscometer.
3. To determinethe relativesurfacetension ofgivenunknown organic liquid bystalagmometer.
4. To determinethepercentagecomposition ofagivenbinarymixturebysurfacetension method.

Viva-VoceandRecord

Suggested Reading:

1. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, पींकी बी. पंजाबी एवं भूपेन्द्र शर्मा हिमांशु पब्लिकेशन्स, उदयपुर
2. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, एवं वी.के. स्वामी, रमेश बुक डिपो, जयपुर
3. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
4. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
5. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
6. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
7. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
8. अकार्बनिक रसायन, जी.के. रस्तोगी, यशपाल सिंह, कॉलेज बुक हाऊस, जयपुर
9. भौतिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाऊस, जयपुर
10. प्रायोगिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाऊस, जयपुर
11. अकार्बनिक रसायन, लवानिया, गुप्ता, ओझा, बंसल, रमेश बुक डिपो, जयपुर

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 102	Physics-I	CE*	4	15	**20**	100
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25 Practical**	

Physics-Paper-I:MECHANICS – I

Objectives:

- To understand the physical laws and frames of reference.
- To aware the concept of special theory of relativity.
- To develop knowledge about conservation law.
- To give information about rigid body dynamics.

UNIT-I Physical Laws and Frames of Reference:

Inertial and non-inertial frames, examples. Transformation of displacement, velocity and acceleration betweendifferent frames of reference involving translation. Galilean transformation and invariance of Newton's law. Noninertialframes, fictitous or pseudo forces, Transformation of displacement, velocity and acceleration betweenrotating co-ordinate systems, centrifugal acceleration, Coriolis force and its applications, Motion relative to earth.Foucault's pendulum

UNIT-II Special Theory of Relativity:

Postulates of special theory of relativity. Lorentz transformations, Addition of velocities and acceleration, Timedilation and length contraction. Variation of mass with velocity, Relativistic energy and mass energy relation.

UNIT-III Conservation Laws:

Conservative forces. Potential energy. Potential energy in gravitational and electrostatic field. Rectilinear motionunder conservation forces. Discussion of potential energy curves and motion of a particle. Conservation of angularmomentum about an arbitrary point, Precessional motion of spinning top, Spin precession in constant magneticfield.

UNIT-IV Rigid Body Dynamics:

Equation of motion of a rotating body, inertial coefficients, case of J not parallel to w, kinetic energy of rotation andidea of principle axis. Calculation of moment of inertia of a disc, spherical shell, hollow and solid spheres andcylindrical objects (cylindrical shell, solid cylinder) about their symmetric axis through centre of mass.

Learning Outcomes: On completion of the course students would able to:

- Applies relative motion Property.
- Discuss on the Parameters defining the motion of mechanical systems.
- Classify the interaction of forces between solids in mechanical systems.
- Describe the rigid body dynamics.
- Calculate the moment of inertia about symmetric axis & CM.

Suggested Readings :

1. Berkeley Physics Course Vol. 1, Mechanics (Mc Graw-Hill)
2. The Feynman Lecures on Physics, Vol. 1, R.P. Feynman R.B. Ligton and M.Sands (Narosa Publishing House)

3. P.Khandelwal - Oscillation and Waves, (Himalaya Publishing House, Mumbai)
4. R.S. Gambhir - Mechanics (CBS Publishers and Distributors, New Delhi)
5. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, 2015–16, यांत्रिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली

Physics-Paper-II :MECHANICS – II

Objectives:

- To understand the centre of mass frame.
- To aware the concept of motion under central forces.
- To develop knowledge about elasticity-I .
- To give information about elasticity-II and its examples.

UNIT-I Centre of mass frame:

Centre of mass, Two particle System, motion of centre of mass and concept of reduced mass, Conservation ofenergy and linear momentum, Collision of two particles in one and two dimensions (elastic and inelastic), Analysisof collision in centre of mass frame. Slowing down of neutrons in moderator. System with varying mass. Angularmomentum and charged particle scattering by a nucleus as an example.

UNIT-II Motion under central forces:

Motion under central force, Gravitational interaction, Inertial and gravitational mass. General solution undern gravitational interaction. Rutherford scattering. Discussion of trajectories. Cases of elliptical and circular orbits.Kepler's laws,

UNIT-III Elasticity-I:

Elasticity, Small deformations, Young's modulus, Bulk modulus and Modulus of rigidity for an isotropic solid,Poisson's ratio, relation between elastic constants. Elastic theorems.

UNIT-IV Elasticity-II:

Theory of bending of beams and Cantilever, Torsion of a cylinder, Bending moments and Shearing forces.Experimental determination of elastic constants by bending of beam.

Suggested Readings :

1. Berkeley Physics Course Vol. 1, Mechanics (Mc Graw-Hill)
2. The Feynman Lecures on Physics, Vol. 1, R.P. Feynman R.B. Ligton and M.Sands (Narosa Publishing House)
3. P.Khandelwal - Oscillation and Waves, (Himalaya Publishing House, Mumbai)
4. R.S. Gambhir - Mechanics (CBS Publishers and Distributors, New Delhi)
5. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, 2015–16, यांत्रिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली

Learning Outcomes: After complition the course student would able to:

- Describe center of mass.
- Applies the vector theorems of mechanics.
- Classify the analytical mechanics.
- Use of theory of bending of beam & cantilever to determine the deformation. Differentiating various elastic coefficients.

Physics-Paper-III:ELECTROMAGNETISM – I

Objectives:

- To understand the vector field and vector theory.
- To aware the concept of curl and the field of stationary charge.
- To develop knowledge about the field of moving charge.
- To give information about the magnetic field.

UNIT -I Vector Fields:

Partial derivative. Gradient of a scalar function. Line integral of a vector field. Divergence of a vector field.Divergence in the Cartesian coordinates, Concept of solid angle. Gauss divergence theorem, Gauss law indifferential form, Gauss law from inverse square law, physical meaning of divergence of a vector, The Laplacianoperator. Possion's and Laplace equations.

UNIT -II Curl and the Field of Stationary Charge:

Curl of a vector field, curl in Cartesian coordinates, Stoke's theorem, physical meaning of curl. Potential differenceand potential function. Potential energy of a system. Application: energy required to build a uniformly chargedsphere. Classical radius of the electron, potential and field due to a short dipole, torque and force on a dipole in a Zexternal field.

UNIT -III The Field of Moving Charge:

Magnetic force, Measurement of charge in motion, Invariance of charge. Electric field measured in different framesof reference, Field of a point charge moving with constant velocity, Force on a moving charge, Interaction between amoving charge and other moving charges.

UNIT – IV The Magnetic Field:

The definition of magnetic field, properties of the magnetic field. Ampere's circuital law with applications.Ampere's Law in the differential form. Vector potential. Poissions equation for vector potential. Field of any currentcarrying wire and deduction of Bio-Savart law.

Learning Outcomes: After complition the course student would able to:

- Describe the basic mathematical concepts related to electromagnetic vector fields.
- Discuss about the principles of electrostatics.
- Applies the principles of magneto statics.
- Differentiation between electric field and electric potential.
- Calculate boundary conditions.

Suggested Readings :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, 2015–16, विद्युत चुम्बकत्व, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली

Physics Practical: I

1. To study the variation of power transfer to different loads by a D.C. source and to verify maximum powertransfer theorem.
2. To study the variation of charge and current in a RC Circuits with different time constant (using a DCsource).

3. To study the behaviour of an RC Circuits with varying resistance and capacitance using AC mains as aPower source and also to determine the impedance and phase relations.
4. To study the rise the decay of current in an LR circuit with a source of constant emf.
5. To study the voltage and current behavior of an LR circuit with an AC power source. Also, determine power factor, impedance and phase relations.
6. To study the characteristics of a semiconductor junction diode and determine forward and reverseresistances.
7. To study the magnetic field along the axis of a current carrying circular coil. Plot the necessary graph andhence find the radius of the circular coil.
8. To determine the specific resistance of a materials and determine difference between two small resistanceusing Carey Foster's bridge.
9. To convert galvanometer into an ammeter of a given range.
10. To convert galvanometer into a voltmeter of a given range.
11. Any experiment according to theory paper.

Suggested Readings :

1. प्रभा दशोरा, 2015, प्रथम वर्ष प्रायोगिक भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 103	Mathematics-I	CE*	4	15	**20**	100
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25 Practical**	

Mathematics -Paper-I : Discrete Mathematics-I

Objectives:

- Discuss about the set, Relation and function-Binary Relation.
- To aware about the Boolean Algebra- Lattices and Algebraic Structure.
- Understand the Logic and Propositional Calculation.
- To discuss about duality.

Unit 1 : Sets, Cardinality, Principal of inclusion and exclusion, Mathematical induction. Relations and Functions- Binary relations, Equivalence relations and Partitions, Partial ordered relations and Lattices, Chains and Antichains, Pigeon Hole principle.

Unit 2: Boolean Algebras- Lattices and Algebraic structure, Duality, Distributive and Complemented Lattices. Boolean Lattices, Boolean functions and expressions.

Unit 3 ; Fundamental theorem of arithmetic, divisibility in Z, Congruences, Chinese Remainder Theorem, Euler's function, primitive roots.

Unit 4: Logic and Propositional Calculus, Propositions, Simple and compound, Basic Logial _,--eperations, Truth tables, Tautolo ies and contradictions Propositional Functions. quantifiers.

Learning Outcomes: After complition the course student would able to:

- Classify the terms set, Relation and function-Binary Relation.
- Interpret the Boolean Algebra- Lattices and Algebraic Structure.
- Solve the Fundamental Theorem of Arithmetic, Euler's Function.
- Calculate the Logic Problem.
- Describe the duality property.

Suggested Reading :

1. V.K.Balakrishnan, Introductory Discrete Mathematics, Prentice-Hall, 1996.
2. J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with Applications to Computer Science, McGraw-Hill Book Co., 1995.
3. C.L. Liu, Elements of Discrete Mathematics, (Second Edition), McGraw Hill, International Edition, 1986.
4. Kenneth H. Roson, Discrete Mathematics and Its Applications, Tata Mc-Graw Hiils, New Delhi, 2003.

5. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड़, जितेन्द्र सैनी,विविक्त गणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
6. जी.सी. गौखरू सैनी, विविक्त गणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics -Paper-II : Differential Calculus

Objectives:

- To understand the series and type of series.
- To aware the concept of curvature.
- To develop knowledge about the partial differentiation.
- To give information about the conic section.

Unit I: Series — Infinite series and Convergent series. Tests for convergence of a series —Comparison test, D'Alembert's ratio test, Cauchy's n-th root test, Raabe's test, De-Morgan-Bertrand's test, Cauchy's condensation test, Gauss's test, (Derivation of tests is not required). Alternating series. Absolute convergence. Taylor's theorem. Maclaurin's theorem.

Unit 2: Derivative of the length of an arc. Pedal equations. Curvature — Various formulae, Centre of curvature and Chord of curvature.

Unit 3 Partial differentiation. Euler's theorem for homogeneous functions. Chain rule of partial differentiation. Total differentiation, Differentiation of implicit functions.

Unit 4: Envelopes and evolutes, Maxima and Minima of functions of two variables. Lagrange's method of undetermined 'multipliers. Asymptotes. Multiple poants. Curve tracing of standard curves (Cartesian and Polar curves).

Learning Outcomes: After complition the course student would able to:

- Identify the Test of convergence of a series.
- Calculate the Derivative of the Length of an Arc, Pedal Equation.
- Classify the Partial Differentiation.
- Use of theory of Envelopes and Evaluate Maxima & Minima of Functions of Two Variables.
- Calculate the Euler Theorem for Homogeneous Functions.

Suggested Reading:

1. Chandrika Prasad and Gorakh Prasad, A Text Book on Differential Calculus, Pothishala Pvt. Ltd., Allahabad, 1992.
2. Slituiti Narayan and P.K. Mittal, Differential Calculus, S. Chand & Co., N. D., 2013.
3. H.S.Dhami, Differential Calculus, Age Int. Ltd., New Delhi, 2012.
4. M. J. Strauss, G. L. Bradley and K. J. Smith, Calculus (3rd Edition), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education), Delhi, 2007.
5. H. Anton, 1. Bivens and S. Davis, Calculus (7th Edition), John Wiley and sons (Asia), Pt Ltd., Singapore, 2002.
6. G.B. Thomas, R. L. Finney, M. D. Weir, Calculus and Analytic Geometry, Pearson Education Ltd, 2003.

7. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड़, जितेन्द्र सैनी, अवकलन गणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
8. जी. सी. गौखरू सैनी, अवकलन गणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics -Paper-III : Analytic Geometry I

Objectives:

- To understand the polar equation of conics.
- To aware the concept of circle of conics.
- To develop knowledge about the sphere and cone.
- To give information about the cylinder.

Unit I : Polar equation of conics, Polar equation of tangent, normal and asymptotes,

Unit 2 chord of contact, auxiliary circle, director circle of conics

Unit 3: Sphere, Cone,

Unit 4 ; Cylinder

Learning Outcomes: After complition the course student would able to:

- Discuss on the Concept of Polar Equation of Conics.
- To understand the 2-D & 3-D Geometry of Sphere and Cone.
- To identify the Polar Equation of Tangent.
- To understand the 2-D & 3-D Geometry of cylinder

Suggested Reading :

1. N.Saran and R.S.Gupta, Analytical geometry of Three Dimenssions, Pothishala Pvt. Ltd., Allahabad, 1992.
2. P.K. Jain and Khalil Ahmed, A Text Book of Analytical geometry of Three Dimenssions, Wiley-Eastern Ltd., 2000.
3. बी.एल. चौरसिया, संजीव त्यागी, अनिल शर्मा, बी. एल. जांगीड़, जितेन्द्र सैनी,एनालिटिक ज्यामिती, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
4. जी.सी. गौखरू सैनी,, एनालिटिक ज्यामिती, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 104	Botany-I	CE*	4	15	20	100
	Botany-II				20	
	Botany-III				20	
	Botany Practical				25 Practical	

Botany -Paper-I : MICROBIOLOGY

Objectives:

- To learn about the history, discovery, concept and applications of microbiology.
- To understand the ultra structures and classification of bacteria
- To know the structural component, cycle of life, reproduction of viruses with their diseases.
- To comprehend the basic concept of food spoilage and food preservation
- To aware the economic importance of bacteria and viruses

UNIT I: History and development of Microbiology

History and development of Microbiology; contribution of eminent scientists (Antony Van Leeuwenhoek, Louis Pasteur, Robert Koch, Elie Metchnikoff, Paul Ehrlich, Alexander Flemming, Selman A. Waksman, Edward Janner), spontaneous generation, biogenesis, germ theory of disease, vaccination and discovery of antibiotics, concept of quorum sensing and biofilms, microbial nutrition and scope of microbiology

UNIT II: Bacteria .

General characteristics, occurrence, classification, ultra structure of Bacterial cell: morphology (structure and shapes), flagella, capsule, nutritional types, chromatin material. Reproduction-vegetative, asexual and sexual (transformation, conjugation and transduction), Comparison of Archaebacteria and Eubacteria, Gram positive and Gram negative Bacteria, Cyanobacteria: Cell structure, reproduction and life history of *Nostoc*.

UNIT III: Viruse and Mycoplasma

Discovery, classification and structural component of Viruses, replication, lytic and lysogenic cycle, Bacteriophages, Structure and reproductive cycle of TMV and Pox virus, Transmission of viruses, Mycoplasma: Occurrence, morphology, reproduction and importance.

UNIT IV: Economic importance of bacteria and Viruses

Economic importance of bacteria with special reference to their role in agriculture, industry, waste management and biocontrol. Economic importance of viruses with special reference to vaccine production, role in research and medicine. Probiotics. Basic concept of food spoilage and food preservation.

Learning Outcomes: After complition the course student would able to

- Understand the ultra structures and classification of bacteria
- Describe the structural component, cycle of life, reproduction of viruses with their diseases.
- Discuss the history, discovery, concept and applications of microbiology.
- Comprehend the basic concept of food spoilage and food preservation
- Explain the economic importance of bacteria and viruses

Suggested Readings:

- Agrawal, K. and Sharma, J. 2014. A Text book of Mycology, Microbiology and Plant Pathology. CBH publisher, Jaipur.
- Aneja, K. R. 2003. Experiment in Microbiology, Plant Pathology and Biotechnology. New age international (P) Ltd. Publishers, New Delhi.
- Biswas, S. B. and Biswas, A. 2000. An introduction of Viruses. Vikas publications, New Delhi.
- Dubey, R. C. and Maheshwari, D. K., 2002. A Text Book of Microbiology. S. Chand and Co., New Delhi.

- Kumar, H. D. and Kumar, S. 1998. Modern Concepts of Microbiology. Vikas publishing house Pvt. Ltd., New Delhi.
- Madahar, C. L. 2001. Introduction of Bacteria. Mc Graw Hill Edu. Pvt. Ltd., London.
- Mckane, L. and Judy, K. 1996. Microbiology: Essentials and Applications**.** McGraw Hill, New York.
- Pandey, S. N. and Trivedi, P. C. 2005. A text book of Fungi, Bacteria and Virus. Vikas Publishing House, New Delhi.
- Pelczar, M.J. Microbiology. *5th edition***,** Tata Mc Graw-Hill Co., New Delhi.
- Presscott, L., Harley, J. and Klein, D. 2005. Microbiology**.** 6th edition**,** Tata Mc Graw-Hill Co., New Delhi.
- Purohit, S. S. 2002. Microbiology. Agro. Bot. Publication, Jodhpur.
- Sharma, P. D. 2003. Microbiology and Pathology. Rastogi Publication, Meerut.
- Singh, V. and Srivastava, V. 1998. Introduction of Bacteria. Vikas Publication, New Delhi.
- Singh, R. P. 2010. Microbiology. Kalyani Publishers, New Delhi.

Botany -Paper-II : ALGAE AND LICHENS

Objectives:

- ❖ To know the characteristics, structure, habitat, types and evolution of algae
- ❖ To understand various aspects of photosynthetic pigments with special reference to chlorophyll and xanthophylls.
- ❖ To learn about the characteristics with reference of examples of phaeophyceae and Rhodophyceae
- ❖ To get aware the economic importance of algae
- ❖ To get knowledge about the life cycle and economic importance of lichens.

UNIT I: **Basics of algae**

General characters, classification of algae (Fritsch, Smith), diversity in habitat, range of vegetative thallus organization, cell structure photosynthetic pigments and reserve food material, Reproduction: vegetative, asexual and sexual, evolution of sex in algae**,** types of life cycles.

UNIT II: Chlorophyceae and Xanthophyceae

Chlorophyceae: General characteristics, thallus organization, cell structure, reproduction and life cycle of *Chlamydomonas, Volvox, Chara.*

Xanthophyceae: General characteristics, *Vaucheria*: Thallus organization, cell structure, reproduction and life cycle.

UNIT III: Phaeophycae and Rhodophyceae:

Phaeophycee: General characteristics, *Ectocarpus*: Thallus organisation, cell structure, reproduction and life cycle.

Rhodophyceae: General characteristics*, Polysiphonia*: Thallus organisation, cell structure, reproduction and life cycle.

UNIT IV: Lichens

Economic importance of algae, isolation and culture of algae. Lichens: General characters, types, structure, multiplication, reproduction and economic importance, its importance as colonizers and indicators of environment.

Learning Outcomes: After complition the course student would able to:

- ❖ Describe various aspects of photosynthetic pigments with special reference to chlorophyll and xanthophylls.

- ❖ Differentiate the characteristics of phaeophyceae and Rhodophyceae
- ❖ Explain characteristics, structure, habitat, types and evolution of algae
- ❖ Interpret the economic importance of algae
- ❖ Comprehend the life cycle and importance of lichens

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Suggested Readings:

1. Bold, H. C. and Wayne, M. J. 1996. Introduction to Algae. 2nd Edition. Prentice Hall, Inc. Englewood Cliffs, New Jersey.
2. Ghemawat, M. S., Kapoor, J. N. and Narayan, H. S. 1976. A Text book of Algae. Ramesh Book Depot., Jaipur.
3. Gilbart, M. S. 1985. Cryptpogamic Botany. Vol. I and II second edition. Tata McGra Hill Publishing Co. Ltd., New Delhi.
4. Kumar, H. D. 1998. Introductory Phycology. Affiliated East-West Press Ltd., New York.
5. Lee, R.E. 2008. Phycology. Fourth Edition, Cambridge University Press, USA.
6. Sambamurthy, A.V.S.S. 2006. A Textbook of Algae**.** I. K. International Pvt. Ltd., New Delhi.
7. Singh.V., Pandey, P. C. and Jain, D. K. 2001. A Text book of Botany. Rastogi Publication, Meerut.
8. Thakur, A. and Bassi, S., 2007. Diversity of microbes and Cryptogams. S. Chand and Co., New Delhi.
9. Van den Hoek, C., Mann, D.J. and Jahns, H.M. 1995. Algae: An introduction to Phycology**.** Cambridge Univ. Press., England.
10. Vashitha, B. R. 2002. Botany for degree students (Algae and Bryophytes). S. Chand and Co. Ltd., New Delhi.

Botany -Paper-III: Mycology and Plant Pathology

Objectives:

- ❖ To understand general characteristics, classification, structure, reproduction of fungi.
- ❖ To learn about general diseases caused by fungi, bacteria, viruses in plants
- ❖ To know general characteristics of oomycetes, zygomycetes
- ❖ To gain knowledge about other classes i.e. ascomycetes, basidiomycetes and deuteromycetes with examples.
- ❖ To understand the general characteristics of deuteromycetes

UNIT I:

Fungi : General characteristics, classification (Alexopoulus and Mims's), thallus, cell structure, nutrition, asexual, sexual reproduction, homothallism, heterothallism and heterokaryosis.

Plant disease:Biotic and abiotic diseases,important symptoms caused by fungi, bacteria,virus andMLOs(Blight,mildew,Downy mildew and green ear, rust, smut, canker ,mosaic, little leaf, gall) etc.

UNIT II:

General account of class chytridiomycetes, general characteristics, structure and life cycles/disease cycles of members of oomycetes and zygomycetes with special reference to the
genera: *Albugo* (white rust disease) *, Sclerospora* (Downey mildew/Green ear disease) .

UNIT III:

General characteristics, structure and life history/disease cycle of class Ascomycetes Basidiomycetes and Deuteromycetes with special reference to the genera: *Aspergillus, Claviceps(ergot disease), Peziza, Puccinia (rust disease) and Agaricus.*

UNIT IV:

General characteristics and structure and life cycle of class Deuteromycetes with special references to *Alterneria (early blight of potato disease),* sex degeneration in fungi and economic importance of fungi.

Learning Outcomes: After complition the course student would able to:

- ❖ Understand general characteristics, classification, structure, reproduction of fungi.
- ❖ Discuss general characteristics of oomycetes, zygomycetes
- ❖ Get knowledge about other classes i.e. ascomycetes, basidiomycetes and deuteromycetes .
- ❖ Larn about general diseases caused by fungi, bacteria, viruses in plants
- ❖ Classify the division Fungi.

Suggested Readings:

- Alexopoulos, C.J. and Mims, C.V. 1988. Introductory Mycology. John Wiley and Sons, New York.
- Dubey, H.C. 1989. Fungi. Rastogi publication, Meerut.
- Pandey, S. N. and Trivedi, P. S. 1994. A text book of Fungi, Bacteria and Virus. Vikas Publishing House, New Delhi.
- Sarabhai, R.C. and Saxena, R.C. 1990. A textbook of Botany. Rastogi publication, Meerut.
- Vashishta, B. R. 2001. Botany for degree student's Fungi. S. Chand and company, New Delhi.
- Webster, J. and Weber, R. 2007. Introduction to Fungi. 3rd edition, Cambridge University Press, Cambridge.

PRACTICAL I

1. Introduction of handling and maintenance of laboratory equipments.
2. The components, use and care of compound microscope.
3. Study of the types of bacteria from temporary/permanent slides.
4. Introduction of techniques of slide preparation, stain preparation and staining.
5. Gram's staining of bacteria from curd.
6. Preparation of microbiological culture media (potato dextrose agar, nutrient agar).
7. Isolation of bacteria from soil..
8. Study of vegetative and reproductive structures of: *Nostoc, Chlamydomonas Volvox,Chara, Voucheria, Ectocapus, Polysiphonia.*
9. Study of different types of lichens.
10. Nuclear staining of filamentous fungi.
11. Preparation of slides and study of following genera through temporary mounts and permanent slides:
12. *Albugo, Aspergillus, Claviceps, Peziza, Puccinia, Agaricus Alternaria* .
13. Study of plant diseased specimens caused by fungi, viruses, bacteria and mycoplasma.
14. Measurement of fungal extracellular enzymes..
15. Collection, identification and submission of minimum 3 diseased specimens.

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 105	Zoology-I	CE*	4	15	**20**	100
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25 Practical**	

Zoology- Paper-I: Life and Diversity of animals - Nonchordata-I

Objectives:

- To discuss the animal kingdom.
- To understand the general characteristics and Classification of Phylum protozoa.
- To develop the general characteristics and Classification of Phylum porifera.
- To understand the general characteristics and Classification of Phylum platy helminthes
- To understand the external features and life cycle of fasciola.

Unit I: Principles of Taxonomy:

1.1 Nomenclature system, Binomial nomenclature, Trinomial nomenclature, Rules of nomenclature

1.2 Concept of five kingdoms, Levels of Organisation, Basis of classification (Number of Cells, Symmetry, Coelom, Embryogeny, Segmentation)

Unit II:

2.1 Phylum Protozoa

Salient features and classification of Protozoa up to Class

Type study – Paramecium (Salient Features, Locomotion, Nutrition and Reproduction)

2.2 Phylum Porifera

Salient features and classification of Porifera up to Class

Type study- Sycon Canal system of Sponges Skeletal System

Unit III

3.1 Phylum Coelenterata

Salient features and classification of Coelenterata up to Class

Type study – Obelia(External Features, Nutrition, Excretion, Reproduction)

Polymorphism inCoelenterates

UNIT IV

4.1 Phylum Platyhelminthes

Salient features and classification of Platyhelminthes up to Class Type study- Taenia(External features and life cycle)

Type study- Fasciola (External Features and Life Cycle)

Learning Outcomes: After complition the course student would able to:

- Understand general taxonomic rules on animal classification, the principles and methods of taxonomy, the Levels of structural organization and the Basis of Classification -Coelom, symmetry, segmentation and its types.

- ❖ Classify the phylum Protozoa, Porifera & Coelenterata using examples, Understand the Locomotion in Protozoa, canal system of sponges, Coral and coral reefs & economical importance of Protozoa, Porifera.
- ❖ Clarify the external features and life cycle of fasciala.
- ❖ Discuss the sycom canal sysem of sponges skeletal system.
- ❖ Describe salient features & classification of coelenterate up to class

Zoology- Paper-II: Life& Diversity of Animals Nonchordata- II

Objectives:

- ❖ To discuss the general characteristics and Classification of Phylum Annelida .
- ❖ To understand the general characteristics and Classification of Phylum Arthropod.
- ❖ To understand the general characteristics and Classification of Phylum Echinodermata.
- ❖ To understand the general characteristics and Classification of Phylum Hemichordate.
- ❖ To classify the general characteristics and classification of Phylum Mollusa.

Unit I:

1.1 Annelida:

General characters and outline classification up to classes with examples.

Type-study: Morphology, Digestive, Excretory, & Reproductive systems of leech

1.2 Arthropoda:

General characters and outline classification up to classes with examples.

Type Study: Palemon: -Morphology, Digestive, Excretory, & Reproductive systems.

Unit II:

2.2Mollusca:

General characters and outline classification up to classes with examples.

Type Study:Pila: External characters, Skeletal, Digestive, Respiration,& Reproductivesystems.

Unit III:

3.1Echinodermata:

General characters and outline classification up to classes with examples.

Type Study: Asterias (External characters, Skeletal, Digestive, Respiration, & Reproductive systems)

Unit IV:

4.1 Hemichordata:

General characters and outline classification up to classes with examples.

Salient features of Balanoglossus

Learning Outcomes: After complition the course student would able to:

- ❖ Classify Phylum Annelida with taxonomic keys, and a basic idea of parasitic adaptations.
- ❖ Write down the classification and characteristics of Phylum Arthropoda,
- ❖ Write down the classification and characteristics of Phylum Mollusca Echinodermata & Hemichordata and Understand the process of pearl formation and water vascular system of star fish.
- ❖ Describe in the productive system of Leech.
- ❖ Classifiy in salient features of banlanoglessus

Zoology- Paper-III: Cell Biology

Objectives

- ❖ To understand the structures and purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and organelles

- ❖ To understand how these cellular components are used to generate and utilize energy in cells
- ❖ To understand the cellular components underlying mitotic cell division.
- ❖ To develop the structure an function of mitochondria
- ❖ To identify the lysosome structure polymorphism and function

Unit – I

1.1 Introduction to cell: Size, shape, ultra structure and characteristics of prokaryotic and eukaryotic cell, Cell theory

1.2 Endoplasmic reticulum: Types, Ultra structure and functions

1.3 Golgi complex: Ultra structure and functions

Unit – II

2.1 Structure and Function of mitochondria;

2.2 Lysosome: Structure, polymorphism and functions

Unit – III

3.1 Cytoskeleton: Organization and functions of Centrosome, Cilia and Flagella

3.2 Cell- communication: types of Cell Junctions

3.3. Cell proliferation: Events in different phases of cell cycle

Unit – IV

4.1 Ribosome: Structure, Types, Lake's model and functions

4.2 Mitosis (Different Phases and Significance)

4.3 Meiosis (different phases and significance)

Learning Outcomes: After complition the course student would able to:

- ❖ Develop an understanding of the cytoskeleton and cell membrane
- ❖ The cell cycle, structure of mitochondria and types of cell divisions.
- ❖ Students are able to discuss the cell, structure of ribosome, lysosome and golgi complex.
- ❖ Students are able to discuss the endoplasmic recticulum structure .
- ❖ Studetns are able to classify in structure and function of mitochondria

Practical

Zoology: PRACTICAL Based on paper I, II and III

Notes:

1. With reference to whole mounts and museum specimens, in case of unavailability of certain animal types, diagrams, photographs, models and digital techniques etc. should be substituted. Study will include classification (up to orders) with diagnostic characters and comments.
2. Candidates will keep a record of all work done in the practical class.

Paper-I: Life and Diversity of Animals- Nonchordata – I (Protozoa to Aschelminthes)

I. Microscopic Techniques : Organisation and working of optical microscopes: Dissecting and Compound Microscope:

II. Study of museum specimens (Classification of animals up to orders)

I. Protozoa: Euglena, Volvox, Elphidium (Polystomella), Foraminiferous shell, Monocystis, Opalina, Paramoecium, Paramoecium showing Binary fission, Paramecium Conjugation, Balantidium, Nyctotherus, Vorticella

II. Porifera: Sycon, Leucosolenia, Hyalonema, Euplectella, Spongilla
III. Coelenterata : Obelia Colony & Medusa, Millepora, Physalia, Vellela, Aurelia, Alcyonium, Gorgonia, Pennatula, Metridium, Stone Corals
V. Aschelminthes : Ascaris, Drancunculus, Ancylostoma, Wuchereria

2. Study of Permanent Slides

I. Porifera: Sponge gemmules, Sponge spicules,V.S. Sycon, T.S. Sycon,
II. Coelenterata: Obelia medusa, Obelia Colony
III. Platyhelminthes: Miracidium, Sporocyst, Redia and Cercaria, Metacercaria larvae of Fasciola, Hexacanth and Onchosphere larvaa of Taenia solium, Scolex ofTaenia, Mature and gravid proglottids ofTaenia solium.

3. External features and Anatomy through audio visual presentation

I. Cockroach: External features, Mouth parts, Digestive, nervous and reproductive system
II. Earthworm: External Features, Digestive, nervous and reproductive system

Paper-II : Life and Diversity of Animals – (Annelida to Hemichordata)

1. Study of museum specimens (Classification of animals up to orders)

I. Annelida: Nereis, Heteronereis, Aphrodite, Chaetopterus, Arenicola,
I. Arthropoda: Peripatus, Lepus, Palemon, Eupagurus (hermit Crab), Carcinus (Crab), Scolopendra, Julus, Scorpion, Spider, Limulus, Cysticerca/Locust, Dragonfly, Queen Termite, Cymax, Moth/ Butterfly,

II. Mollusca : Chiton, Dentalium, Cyprea, Pila, Aplysia, Mytilus, Pincteda, Loligo, Sepia, Octopus, Nautilus
III. Echinodermata: Antedon, Asterias, Ophiothrix, Echinus, Holothuria
IV. Hemichordata: Balanoglossus

2. Study of permanent slides

I. Annelida: Parapodia of Nereis, T.S. of Leech through Buccal Cavity and Crop II. Arthropoda: Crustacean Larvae- Nauplius, Zoea, Metazoea, Megalopa, Mysis III. Mollusca: Veliger and Glochidium larvae, T.S. of Unio Shell
IV. Echinodermata: T.S. of arm of star fish
V. Hemichordata: Balanoglossus through collar and proboscis

3. Audiovisual demonstration

I. Prawn: Appendages, digestive, Nervous and Reproductive system, Statocyst, Hastate Plate
ii. Pila: Nervous system, Osphradium, Gills, Radula

Paper III: Cell Biology

1. Study of pictures of ultra structure of prokaryotic cell & eukaryotic cell
2. Demonstration of mitosis cell division in onion root tips by squash method
3. Demonstration of meiosis through audio visual Presentation
4. Study of mitochondria in Buccal Epitheli

Suggested Reading:

Life and Diversity of Animals – Non Chordates-I & II

1. Barnes, R. (1981). Invertebrate zoology. *W. B. Saunders Co*
2. Barrington, E. W. J. (1969). Invertebrate structure and function. *ELBS*
3. Barradaile L.A. & Potts F.A.The Invertebrate
4. Jordan, E. L. & Verma, P. S. Invertebrate Zoology. *S. Chand & Co*.
5. Kotpal, Agrawal&Khetrapal. Modern Text Book of Zoology - Invertebrates,
6. Puranik P.G. & Thakur R.S.Invertebrate Zoology
7. Majupuria T.C. Invertebrate Zoology
8. Dhami & Dhami. Invertebrate Zoology
9. Parker & Hashwell, Textbook of Zoology Vol. I (Invertebrates) A.Z.T.B.S. Publishers
10. R.L. Kotpal, 2007, Phylum Protozoa to Echinodermata (series), Rastogi and Publication, Meerut

11. Vidyarthi – Text Book of Zoology, Agrasia Publishers, Agra
12. Marshal & Williams. Text book of zoology.
13. Boolotin & Stiles. College zoology. MacMillan
14. Kohli, Triguranayati, 2007, Invertebrate, R.B.D. Publishing House, Jaipur

Practical Books

15. A manual of Practical Zoology Invertebrates – P. S. Verma
16. Dr. S.S. Lal Practical Zoology Invertebrates 9th edition,Rastogi Publication Meerut & Distributors, New Delhi

Suggested Reading : Cell Biology:

1. Alberts et al (2001). Molecular biology of the cell. Garland publications.
2. De Robertis, E. D. P. & De Robertis, E. M. F. (1987). Cell and molecular biology. Lea & Febiger Intl. ed.
3. Powar, C. B. (1986). Cell biology. Himalaya Publ.
4. Burke, J. D. C. (1970). Cell biology. *William & Wilkins Co*
5. Dr. S.P. Singh, Dr. B.S. Tomar., Cell Biology 9th revised edition, Rastogi Publication, Meerut
6. Gupta P.K., Cell and Molecular Biology, Rastogi Publication, Meerut
7. Veer Bala Rastogi. Introduction to Cell Biology, Rastogi Publication, Meerut
8. Verma and Agrawal .Concepts of Cell Biology
9. Narendra Jain, Maya Singh, Shikha Patni, S.K. Singh, 2016, Cell Biology and Genetices, College Book Center, Jaipur
10. K.C. Soni, 2008, Cell Biology and Genetices, College Book Center, Jaipur

Semester-II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 201	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	Chemistry Practical				**25**Practical	

Chemistry-Paper-I : Inorganic chemistry

Objectives:

- To give knowledge about the mathematical concepts of ionic solid structure and packing.
- To aware about metallic bond and weak interactions among molecules.
- To provide information about various properties of s & p-block elements and their correlations.
- To develop their concept about structural principles of silicates and their applications.

Unit-I : **IonicSolids**

Ionicstructures(ABandAB$_2$ type),packingofions,Radiusratioandcoordinationnumber, calculationoflimiting radiusratiofor tetrahedral, octahedralandcubiccrystalstructure, limitationsof radius ratio rules,Polarizing powerand polarisability ofions,Fajansrule, latticeenergy andborn landeequation,Born Haber cycle andits applications, solvation energyand solubilityofionic solids.

Unit-II : Metallic Bond &Weak interactions

Introductionofmetallicbond,propertiesofmetals,theoriesofMetallicbond- oldelectron free theory,valancebondtheory,limitationsofvalencebondtheory,molecularorbitalorbandtheory,latticedefects in ionicsolids, semiconductors.

Hydrogen bondingand VanderWaalsforces.

Unit-III : s-BlockElements

Comparativestudy,diagonalrelationships,salientfeaturesofhydrides, solvation and complexationtendenciesincludingtheirfunction in biosystems andintroductionto alkyls and aryls.

Unit-IV : Some importantcompoundsofp-block elements

Hydrides of boron, diborane and higher boranes, borazines, borohydrides, fullerenes, carbides, flurocarbons, silicates (structural principle), tetrasulphur tetranitride, basic properties of halogens, interhalogens and polyhalides.

Learning Outcomes: After complition the course student would able to:

- Explain the mathematical concepts of ionic solid structure and packing.
- Plot and interpret shapes of ions and bonding structures.
- Identifies the relationship among properties of metals on the basis of various theories of bonding.
- Classify the s & p block elements like hydrides and halogens on the basis of atomic structure, periodicity and their basic properties.

Chemistry-Paper-II : Organic chemistry

Objectives:

- To understand isomerism in organic compounds
- To develop their knowledge about geometric isomerism, aromaticity and halogen compounds.
- To aware them about nomenclature, mechanism and application of organic compounds.
- To develop conceptual knowledge about various principles relaed to geometrical structure, reactions and configuration of various compounds.

UnitI : Stereochemistryoforganiccompounds

Conceptof isomerism, typeofisomerism.Optical isomerism;elements of symmetry, molecular chirality-allenes and biphenyl, Enantiomers, stereogenic centre, optical activity, propertiesofenantiomers.Chiralandachiralmoleculeswithtwostereogeniccentres,distereomers Threo,and erythro diastereomers, meso compounds. Resolutionof enantiomers , inversion, retention andracemisation. Relative andabsolute configuration, sequence rule, D&L and R&S systemofnomenclature.

Unit-II : Geometrical,Conformational isomerism&Arenes

Determinationofconfigurationofgeometricisomers,E&Z- systemofnomenclature, geometricisomerismin oximesand in cyclic compounds.

Conformational analysis of ethane and n-butane. Newman projection andSawhorse formulae. Fischerandflyingwedge formula. Differencebetween configurationand conformation

Nomenclatureofbenzenederivatives.The arylgroup,aromaticnucleusandsidechain.Structureof benzene,molecularformulaandKekulestructure.Stability andcarbon-carbonbondlengthofbenzene,resonance structure,MO picture.

Unit-III : **Aromaticity &Aromatic electrofilic substitution**

The Huckel's rule, aromaticions.

Generalpattern of the mechanism, role ofsigma and picomplexes. Mechanism ofnitration,halogenations,sulphonation,mercurationandFriedelCraftreactionwithenergyprofile diagrams. Activatinganddeactivatingsubstituents,orientationandortho/pararatio.Sidechainreactionsof benzenederivatives. Birchreduction.

Unit-IV :Alkylandarylhalides &Polyhalogen compounds

Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanism of nucleofilic substitution, reaction of alkyl halides, $SN^1$and SN^2 reaction with energy profile diagram.

Chloroform, carbon tetra chloride. Methods of formation of aryl halides, nuclear and side chain reaction. The addition-elimination and the elimination addition mechanism of nucleofilic aromatic substitution reaction. Relative reactivities of alkyl halides v/s allyl, vinyl and aryl halides. Synthesis and uses of DDT and BHC.

Learning Outcomes: After complition the course student would able to:

- Explain about elememts of symmetry, profile and methods of formation of organic compounds.
- Apply various mechanism rules to define chain reactions, configuration and formation of arenes, halogen compounds.
- Classify various derivatives on the basis of isomerism, configuration and energy profile.

- ❖ Describe various rules and reactions about stereochemistry, aromaticity and orientation related to chemical compounds.

Chemistry-Paper-III : Physical chemistry

Objectives:

- ❖ To develop curiosity about laws of crystallography and chemical kinetics. .
- ❖ To provide information about derivation of equations, order and preparation of energy profile .
- ❖ To aware about the scope, factors and theories of chemical kinetics.
- ❖ To give information about colloidal state, their prepation and determinants.

Unit I:Solid state

Definitionofspacelattice,Unitcell.Lawofcrystallography(i)lawofconstancyofinterfacialangles (ii)law of rationalityofindices(iii)lawofsymmetry.Symmetryelementsincrystals. Xraydiffraction bycrystals.Derivationof Braggsequation,DeterminationofcrystalstructureofNaCl,KClandCsCl(Laue'smethodandpowdermethod).

UnitII : Colloidalstate

Definitionofcolloids,classificationofcolloids.Solidsinliquids(sols):properties- kinetics, opticalandelectrical.Stabilityofcolloids,protectiveaction,HardySchulzelaw. Goldnumber.Liquidsin solids (gels):classification,preparationandproperties,inhibition,generalapplicationofcollides. Liquidinliquid (emulsions): typesofemulsions,preparation,Emulsifiers.

Unit-III : ChemicalKinetics

Chemicalkineticsand itsscope,rateofareaction,factorsinfluencing the rateofareaction, Concentrationdependenceofrates,mathematical characteristicsofsimplechemicalreaction-zeroorder,firstorder,secondorder,pseudoorder,halflifeandmean life.

Determinations of the orderof reaction-differentialmethod, method of integration, method ofhalf-life period and isolation method.Theoriesofchemicalkinetics,Effectoftemperatureontherate reaction,Arrheniusconceptofactivationenergy.Simplecollisiontheory basedonhardspheremodel,transition statetheory(equilibriumhypothesis).Expressionfortherateconstantbasedonequilibrium constantand thermodynamic aspects.

Unit-IV : Solutions,Dilutesolutions &Colligativeproperties

idealandnon idealsolutions,methodsofexpressing concentrationsofsolutions, activityand activitycoefficient. Raoult`slaw,relativelowering ofvapourpressure,molecularweightdetermination. Osmosislawofosmoticpressureanditsmeasurement,determinationofmolecularweightfrom osmoticpressure, Elevationofboiling pointanddepression offreezing point. Thermodynamicderivationofrelationbetween molecularweightandelevationofboiling pointanddepression in freezing point. Experimentalmethodsfor determining various colligative properties. Abnormal molar mass degree of dissociation and association of solutes.

Learning Outcomes: After complition the course student would able to:

- ❖ Draw and interpret symmertries and structures of crystalsand colloids.
- ❖ Compare among various forms of crystals, order and trainsition state of compounds.

- ❖ Measure and calculate the mathematical characteristics simple chemical reactions and determinants.

Practical's

Inorganic chemistry:

Quantitative analysis:Volumetric analysis

(a) Determination ofaceticacid incommertial vinegar usingNaOH.
(b) Determination of alkalicontent ant acid tablet usingHCl.
(c) Estimation of calcium content in chalk as calciumoxalatebypermanganometery.
(d) Estimation of hardness of waterbyEDTA.
(e) Estimation of ferrous andferric bydichromatemethod.
(f) Estimation of copper usingthiosulphate.

Organic chemistry:

(A) Laboratorytechniques

(a) Determination ofm.p. ofnaphthalene, benzoic acid, urea etc. OR
(b) Determination ofb. p. of ethanol , methanol, cyclohexane, etc

(B) Qualitative analysis

(a) Detectionof extra elements(N, S.andhalogens) andfunctionalgroupse.g. (phenolic,alcoholic,carboxylic,carbonyl,ester,carbohydrate,amine,amide andnitro) insimple organic compounds

Viva voceandrecord

Suggested Reading:

1. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
2. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
3. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
4. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
5. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
6. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
7. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
8. भौतिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाउस, जयपुर
9. अकार्बनिक रसायन, जी.के. रस्तोगी, यशपाल सिंह, कॉलेज बुक हाउस, जयपुर
10. प्रायोगिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाउस, जयपुर

Semester-II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 202	Physics-I	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25**Practical	

Physics-Paper-I : ELECTROMAGNETISM – II

Objectives:

- To aware about the of concepts related to Faraday‘s law, induced emf.
- To give information about Maxwell‘s equations to solutions of problems relating to transmission lines.
- To develop knowledge about the transient behavior of R-C circuit.
- To aware about the transient behavior of R-L circuit.

UNIT – I Magnetic Fields in Matter:

Electric current due to orbital electron, the field of current loop, Bohr magneton. Orbital gyro magnetic ratio Electron spin and magnetic moment. Magnetic susceptibility, magnetic field caused by magnetized matter. Magnetization current. Free current and the field H.

UNIT –II Electric Field in Matter:

The moment of a charge distribution. Atomic and molecular dipoles. Atomic polarizability. Permanent dipolemoment, dielectrics. The Capacitor filled with a dielectric. The potential and field due to a polarized sphere.

UNIT –III Dielectric:

Dielectric. Dielectric sphere placed in a uniform field. The field of charge in dielectric medium and Gauss’s law.The connection between electric susceptibility and atomic polarizability. Polarization in changing field. The boundcharge (polarization) current.

UNIT -IV Transient behavior and Maxwell’s Equations:

Transient behaviour of an R-C circuit. Electromagnetic Induction and Maxwell’s Equations, Faraday’s law indifferential form. Mutual inductance, Self inductance Transient behaviour of an L-R circuit, the displacementcurrent, Maxwell’s equations in differential and integral forms.

Learning Outcomes: After complition the course student would able to:

- Understand the concepts related to Faraday‘s law, induced emf, maxwell‘s equations, transit behavior, electric field in matter, atomic & molecular dipoles.
- Applies Maxwell‘s equations to solutions of problems relating to transmission lines, uniform plane wave propagation, magnetic field in matter.
- Understand the transient behavior of R-C circuit & L-R circuit.
- Classify the moment of a charge distribution.
- Discuss on the magnetic susceptibility and free current.

Suggested Readings:

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना,, विद्युत चुम्बकत्व, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics-Paper-II:OSCILLATIONS AND WAVES –I

Objectives:

- To aware about the concepts of mechanics,
- To give information about physical characteristics of SHM
- To calculate logarithmic decrement relaxation factor and quality factor.
- To aware acoustics and the properties of matter.
- To develop knowledge about obtaining solution of the oscillator.

UNIT -I Oscillations:

Oscillations in an arbitrary potential well, Simple harmonic motion, examples-spring mass system, mass on a spring,torsional oscillator, LC circuit, energy of the oscillator,

UNIT -II Damped Oscillator:

Damping of oscillator, viscous and solid friction damping. Power dissipation. Anharmonic oscillator, simplependulum as an example.

UNIT -III Driven Oscillator:

Driven harmonic oscillator with viscous damping. Frequency response, phase relations. Quality factor, Resonance.Introduction of j operator concept in Electrical oscillations, series and parallel LCR circuit. Electro-mechanicalsystem-Ballistic Galvanometer Effect of damping.

UNIT – IV Coupled Oscillator:

Equation of motion of two coupled S.H Oscillators. Normal modes, motion in mixed modes. Transient behaviour.Effect of coupling in mechanical systems. Electrically coupled circuits, frequency response. Reflected impedance.Effect of coupling and resistive load.

Learning Outcomes: After complition the course student would able to:

- Discuss on the simple harmonic motion and its equation.
- Differentiate between damped oscillator and driven oscillator.
- Interpret the term frequency response and phase relation.
- Applies the concept of Ballistic galvanometer.
- Identify the coupled oscillator and some electrically coupled oscillators.

Suggested Readings:

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, दोलन तथा तरंग, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics-Paper-III:OSCILLATIONS AND WAVES –II

Objectives:

- To aware about the concepts of lattice dynamics.
- To give information about electric transmission line.
- To calculate the wave equation and analysis the fourier series.
- To aware about the electromagnetic wave.

UNIT -I Lattice dynamics:

Dynamics of a number of oscillators with near-neighbour interactions. Equation of motion for one dimensionalmono-atomic and diatomic lattice, acoustic and optical modes, dispersion relations. Concept of group and phasevelocities.

UNIT – II Electrical Transmission Line:

Electrical transmission line, propagation velocity, losses, characteristic impedance, standing waves, effect oftermination.

UNIT –III Wave Motion:

Wave motion – Elastic waves in a solid rod. Pressure waves in a gas column. Transverse waves in a string, waves inthree dimensions, spherical waves, Fourier series and Fourier analysis.

UNIT – IV Electromagnetic Wave:

Plane electromagnetic (EM) wave. Energy and momentum of EM wave. Radiation pressure. Radiation resistance offree space. EM waves in dispersive media (normal case). Spectrum of electromagnetic radiations.

Learning Outcomes: After complition the course student would able to:

- Discuss on the group and phase velocities.
- Differentiate between 1-D mono atomic & diatomic lattice.
- Interpret the term propagation velocity and losses.
- Applies the concept of transverse wave in the string.
- Identify the spectrum of electromagnetic radiation.

Suggested Readings :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, दोलन तथा तरंग, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics Practical : II

1. To study the random decay and determine the decay constant using the statistical board.
2. Using compound pendulum study the variation of time period with amplitude in large angle oscillations.
3. To Study damping using Compound pendulum study the damping.
4. To study the excitation of normal modes and measure frequency splitting using two coupled oscillator.
5. To study the frequency of energy transfer as a function of coupling strength using coupled oscillators.
6. (a) To study the viscous fluid damping of a compound pendulum and (b)Determing damping coefficient and Q of the oscillator.
7. To study the electromagnetic damping of a compound pendulum and to find the variation of dampingcoefficient with the assistance of the conducting lamina.
8. To find J by Callender and Barne's Method.
9. To determine Youngs modulus by bending of beam.

10. To determine Y. σ and η Searle's method.
11. To measure Curie temperature of Monel alloy.
12. To determine modulus of rigidity of a wire using Maxwell's needle.
13. Study of normal modes of a Coupled pendulum system. Study of oscillations in mixed modes and find theperiod of energy exchange between the two oscillators.
14. To study Variation of surface tension with temperature using Jaegger's method.
15. Any experiment according to theory paper.

Suggested Readings :

1. प्रभा दशोरा, प्रायोगिक भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015

Semester-II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 203	Mathematics-I	**CE***	**4**	**15**	**20**	**100**
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25** Practical	

Mathematics-Paper-I: Discrete Mathematics II

Objectives:

- To aware the Particular Solutions of Generating Function.
- To give information about the Graph.
- To Interpret the Eulerian and Hamiltonian Graphs.
- To give information about Trees.

Unit 1

Discrete numeric unctions and Generating functions. Recurrence relations and Recursive Algorithms — Linear Recurrence relations with constant coefficients.

Unit 2

Homogeneous solutions. Particular solution. Total solution. Solution by the method of generating functions.

Unit 3: Graphs — Basic terminology, Multigraphs, Weighted graphs, Paths and circuits, Shortest paths, Introduction to Eulerian and Hamiltonian Graphs. Travelling SalesMan problem. Union, Join, Product and composition of graphs. Planar graphs and Geometric dual graphs.

Unit 4: Trees — Properties, Spanning tree, Binary and Rooted tree. Digraphs — Simple digraph, Asymmetric digraphs, Symmetric digraphs and complete digraphs. Digraph and Binary relations. Matrix representation of graphs and digraphs.

Learning Outcomes: After complition the course student would able to:

- Applies the Particular Solutions of Generating Function.
- Discuss about the Weighted Graph, Shortest Paths.
- Plot Eulerian and Hamiltonian Graphs.
- Discuss about the Trees Properties.
- Calculate the homogeneous solutions.

Suggested Reading :

1. V.K.Balakrishnan, Introductory Discrete Mathematics, Prentice-Hall, 1996.
2. J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with Applications to Computer Science, McGraw-Hill Book Co., 1995.
3. C.L. Liu, Elements of Discrete Mathematics, (Second Edition), McGraw Hill, International Edition, 1986.

4. Kenneth H. Roson, Discrete Mathematics and Its Applications, Tata Mc-Graw Hiils, New Delhi, 2003.
5. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड़, जितेन्द्र सैनी, विविक्त गणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
6. जी.सी. गौखरू सैनी, विविक्त गणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics-Paper-II:Integral Calculus

Objectives:

- To develop knowledge about the concepts Beta and Gamma Function.
- To aware the Concept of Double Integrals in Cartesian and Polar Co-ordinates.
- Calculate Areas and Rectification.
- To give information about the Volumes and Surfaces of Solids of Revolution.

Unit 1: Beta and Gamma functions, Reduction formulae (simple standard formulae),

Unit 2 ; Double integrals in Cartesian and Polar Coordinates, Change of order of integration. Triple integrals. Dirichlet's integral.

Unit 3: Areas, Rectification,

Unit 4 ; Volumes and Surfaces of solids of revolution.

Learning Outcomes: After complition the course student would able to:

- Calculate the concepts Beta and Gamma Function.
- Calculate of Double Integrals in Cartesian and Polar Co-ordinates.
- Calculate Areas and Rectification.
- Discuss the volumes and Surfaces of Solids of Revolution.
- Calculate the dirichlet’s integral.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी,, समाकलन गणित, आर. बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, समाकलन गणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics-Paper-III:Analytic Geometry II

Objectives:

- To give information about the Central Conicoids.
- To aware tangent line and tangent plans.
- To develop concept generating Lines of Hyperboloid of One Sheet and its Properties.
- To give information about of a General Equation of Second g degree in 3-D to Standard Forms.

Unit 1: Central Conicoids — Ellipsoid, Hyperboloid of one and two sheets,

Unit 2: tangent lines and tangent planes, Direct sphere, Normals.

Unit 3: Generating lines of hyperboloid of one sheet and its properties.

Unit 4: Reduction of a general equation of second degree in three-dimensions to standard forms.

Learning Outcomes: After complition the course student would able to:

- ❖ Classify the Central Conicoids.
- ❖ Discuss the Generating Lines of Hyperboloid of One Sheet and its Properties.
- ❖ Reduction of a General Equation of Second Degree in 3-D to Standard Forms.
- ❖ Discuss the tangent lines and tangent plans.

Suggested Reading :

1. N.Saran and R.S.Gupta, Analytical geometry of Three Dimenssions, Pothishala Pvt. Ltd., Allahabad, 1992.
2. P.K. Jain and Khalil Ahmed, A Text Book of Analytical geometry of Three Dimenssions, Wiley-Eastern Ltd., 2000.
3. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, एनालिटिक ज्यामिती, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
4. जी.सी. गौखरू सैनी,, एनालिटिक ज्यामिती, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-II

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Total
BSE 204	Botany-I	**CE***	**4**	**15**	**20**	**100**
	Botany-II				**20**	
	Botany-III				**20**	
	Botany Practical				**25**Practical	

Botany-Paper-I : CELL BIOLOGY

Objectives:

- ❖ To distinguish between structure of cell, cell wall and plasma membrane.
- ❖ To understand the concept of cell organelles with their detailed information.
- ❖ To know the ultra structure of Nucleus and chromosome.
- ❖ To compare the different stages of cell division (mitosis and meiosis).
- ❖ To comprehend the structure and composition of chromosomes.

UNIT I: Structure of Cell, Cell wall and Plasma membrane

History of cell and cell theory, microscopy, elementary idea on micrometry and cell fractionation, characteristics of prokaryotic and eukaryotic cell, chemistry, structure and function of cell wall and plasma membrane.

UNIT II: Structure of Cell Orgenells

Ultra structure and function of Mitochondria, Chloroplast, Endoplasmic reticulum, Golgi complex, Peroxisome, Glyoxysome, Ribosome, Vacuoles.

UNIT III: Structure of Nucleus and chromosome

Detailed structure and function of Nucleus, nuclear envelope, nuclear pore complex and nucleolus. Chromatin Structure, morphology and organization of chromosomes. Special types of chromosomes - Sex chromosomes, polytene and lampbrush chromosomes.

UNIT IV: Cell cycle and Cell division

Cell cycle and Cell division: Amitosis, Mitosis: different stages, mitotic spindle and chromosome movement in detail, Meiosis I and II: different stages and its significance, cytokinesis, General account of chiasmata formation, crossing over, linkage and synaptonemal complex.

Learning Outcomes: After complition the course student would able to:

- ❖ Know the ultra structure of Nucleus and chromosome.
- ❖ Distinguish between structure of cell, cell wall and plasma membrane.
- ❖ Understand the concept of cell organelles with their detailed information.
- ❖ Know the different stages of cell division (mitosis and meiosis).
- ❖ Discuss the structure and composition of chromosomes.

Suggested Readings:

- Alberts, B., Johnson, A., Lewis, J., Roff, M., Roberts, K. and Walter, P., 2008. Molecular Biology of the Cell. Garland Publishers, New York.
- De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology. 8th edition. Lippincott Williams and Wilkins, Philadelphia.
- Gupta, P.K. 2009. Cytology, Genetics, Evolution and Plant breeding, Rastogi publication, Meerut.
- Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th Edition. John Wiley and Sons. Inc. New Jersey, USA.
- Lodish, H., Berk, A., Matsudaira, P., Kaiser, C. A., Krieger, M., Scott, P.M., Zipursky, L.and Darnell, J. 2008. Molecular Cell Biology. W. H. Freeman and company, Macmillan publishers, London.
- Roy, S.C. and De, K.K. 1999. Cell biology. New central Book Agency (P) Ltd., Calcutta.
- Verma, P.S. and Agrawal, V.K. 2012. Cell Biology, Genetics, Molecular Biology, Evolution and Ecology. S. Chand and Co. Ltd., New Delhi.

Botany-Paper-II :GENETICS AND PLANT BREEDING

Objectives:

- ❖ To know the concept of genetic inheritance
- ❖ To study the laws of Mendel
- ❖ To understand the chromosomal theory of inheritance.
- ❖ To learn about the concept of cytoplasmic inheritance.
- ❖ To understand different methods of plant breeding.

UNIT I: Genetic inheritance

Mendel's laws of inheritance- Dominancy, law of segregation, law of independent assortment, deviations from Mendel's laws; interaction of genes, incomplete dominance, codominance, lethal alleles, epistasis, pleotropy, polygenic inheritance (grain color in wheat, corolla length in *Nicotiana tabacum*) and multiple allelism: ABO blood groups in human.

UNIT II: Chromosomal inheritance

Linkage, crossing over and chromosome mapping- interrelationships and importance. Linkage maps, chromosome theory of inheritance, sex determination and sex linked inheritance. Chromosomal aberrations:

deletion, duplication, inversion, translocation, aneuploidy and polyploidy. Extra nuclear genome: mitochondrial and chloroplast.

UNIT III: Genes and Mutations

Concept of gene: Neurospora genetics- one gene one enzyme hypothesis. Brief account on fine structure of gene in eukaryotes and prokaryotes. Mutations- types of mutations, point mutation-transition, transversion and frame shift mutation. Physical and chemical mutagens.

Cytoplasmic inheritance: Maternalinfluence,shellcoiling insnail, Kappa particlesin Paramaecium.

UNIT IV: Plant breeding

Introduction and objectives of plant breeding , general methods of breeding in-self-pollinated, cross pollinated and vegetative propagated crop plants : Introduction and acclimatization, selections and hybridizations, hybrid vigour and inbreeding depression, green revolution, Role of mutation and polyploidy in plant breeding, national and international agriculture research institute, famous plant breeders and their contribution (Indian and international), Plant breeding work done on wheat and rice in India.

Learning Outcomes: After complition the course student would able to:

- ❖ Undersand the concept of genetic inheritance
- ❖ Study the laws of Mendel
- ❖ Interpret the chromosomal theory of inheritance.
- ❖ Explain the concept of cytoplasmic inheritance.
- ❖ Discuss different methods of plant breeding.

Suggested Readings:

- Brooker, R. J. 1999. Genetics: Analysis and Principles. Addison-Wesley, Boston.
- Choudhary, H. K. 1989. Elementary Principle of Plant Breeding. Oxford and IBM Publishing Co., New Delhi.
- De Robertis, E. D. P. and De Robertis, E. M. F. 2006. Cell and Molecular Biology. 8th edition. Lippincott Williams and Wilkins, Philadelphia.
- Dnyansagar, V. R. 1986. Cytology and Genetics, Tata Mc Graw - Hill Pub Co. Ltd., New Delhi.
- Gardner, E. J., Simmons, M. J. and Snustad, D. P. 2008. Principles of Genetics. 8th Edition, Wiley India.
- Gupta, P. K. 2009. Cytology, Genetics, Evolution and Plant Breeding, Rastogi Publication, Meerut.
- Miglani, G. S. 2000. Advanced genetics. Narosa Publishing House, New Delhi.
- Shukla, R. S. and Chandel, P. S. 2000. Cytogenetics, Evolution and Plant Breeding, S. Chand and Co. Ltd., New Delhi.
- Singh, R. B. 1999. Text Book of Plant Breeding. Kalyani publishers, Ludhiana.
- Snustad, D. P., Simmons, M. J. 2011. Principles of Genetics. V Edition. John Wiley and Sons Inc. New Jersey USA.

Botany-Paper-III:BRYOPHYTA

Objectives:

- ❖ To acquire knowledge on bryophytes with its classification, habitat and life cycle.

- ❖ To understand habitat, structure, reproduction with life cycle of Riccia and Marchantia.
- ❖ To learn about class anthocerotopsida.
- ❖ To know about the life cycle of funeria.
- ❖ To apply the knowledge of bryophyta in daily life.

UNIT I:

Bryophytes: General characteristic, origin, evolution, classification (Eichler and Proskauer), habitat range, thallus structure, reproduction, alternation of generation and economic importance.

UNIT II:

Habitat, structure, reproduction and life cycle of the following: Hepaticopsida; *Riccia andMarchantia*.

UNIT III:

Habitat, structure, reproduction and life cycle of the following: Anthoceropsida; *Anthoceros.* Phylogenetic relationship with hepaticopsida and Bryopsida.

UNIT IV:

Bryopsida: Habitat, structure, reproduction and life cycle of *Funaria.* Sterilisationof sporogenous tissues in Bryophytes.

Learning Outcomes: After complition the course student would able to:

- ❖ Acquire knowledge on bryophytes with its classification, habitat and cycle.
- ❖ Understand habitat, structure, reproduction with life cycles of Riccia and Marchantia.
- ❖ Describe the class anthocerotopsida.
- ❖ Explain the concept of life cycle of funeria.
- ❖ Interpret the importance of bryophyte.

Suggested Readings:

- Chopra, R.N. and Kumar, P.K. 1988. Biology of Bryophytes**.** Wiley Eastern Ltd. New Delhi.
- Pandey, S.N., Mishra, S.P. and Trivedi, P.S. 1981. A text book of Botany vol. II, Vikas publishing House Pvt. Ltd, New Delhi.
- Parihar, N.S. 1965. An Introduction to Bryophyta. Central Book Depot, Allhabad.
- Puri, P. 1985. Bryophytes. Atmaram and Sons, Delhi.
- Smith, G.M. 1938. Crytogramic Botany Vol. II. Bryophytes and Pteridophytes. Mc Graw Hill Book Company, London.
- Sporne, K.R. 1967. The Morphology of Bryophytes. Hutchinson University Library, London.
- Tyagi, A.and Saxena, M. 2014. Algae, Lichens and Bryophyta, CBH, Jaipur
- Vashishta, B. R., Sinha, A. K. and Kumar, A. 2011. Botany for degree students, Bryophyta. S. Chand and Co. New Delhi.
- Watson E.V. 1971. The structure and life of Bryophytes. Hutchinson University Library, London.

BOTANY PRACTICAL II

1. Demonstration of the phenomenon of protoplasmic streaming in leaf.
2. To study chloroplast, chromoplast and leucoplast in plant material.
3. Study of Mitosis in root tip and Meiosis in flower bud from temporary and permanent slides.
4. Study the prokaryotic, eukaryotic cell and cell organelles by electron micro photographs.

5. To study the effect of organic solvent on membrane permeability.
6. Genetic problems on monohybrid, dihybrid cross, test cross and back cross.
7. Karyotype preparation.
8. Identification of chromosomes on the basis of their size and centomere position.
9. Pedigree analysis for dormant and recessive autosomal and sex linked traits.
10. Study of Barr body in epithelial cells of females.
11. Study of habit, habitat, vegetative thallus organization and structure, reproductive structures of the following taxa through temporary mounts and permanent slides:
12. *Riccia, Marchantia, Anthocero and Funaria.*

Semester-II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 205	Zoology-I	**CE***	**4**	**15**	**20**	**100**
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25**Practical	

Zoology-Paper-I :Developmental Biology

Objectives

- To describe how organisms maintain gametic population.
- To understand fertilization process.
- To understand way of cleavage and different patterns to form zygote.
- To understand the fundamental embryonic development.
- To understand the complete process of formation of germ layers.

UNIT-I

1.1History of embryology and Types
1.2Gametogenesis: Spermatogenesis, Structure of sperm, Oogenesis, Structure of egg, Types of eggs

UNIT-II

2.1 Fertilization-Type of Fertilization, Process of Fertilization
2.2 Parthenogenesis
2.3 Planes and Patterns of cleavage, Blastulation, Gastrulation,

UNIT-III

3.1Concept of embryonic induction; Primary organizers differentiation and competence.
3.2Extra embryonic membranes, Type and physiology of Placenta
3.3Structure of hen's egg, Development of chick up to 96 hrs stage.

UNIT-IV

4.1Stem cells: Sources, types and their use in human welfare; Cloning
4.2Elementary Idea of Teratogenesis
4.3Ageing and Sencescence, IVF, Embryo transfer-Test tube babies, GIFT, ZIFT and Bioethics

Learning Outcomes: After complition the course student would able to:

- Describe the process of: Gametogenesis, Fertilization and early development, Parthenogenesis
- Understand the concept of embryonic induction: primary organizer and competence, Developmental stages of chick (upto 96 hours).
- Discuss for the extra embryonic membranes.
- Discuss for the placenta
- Describe of stem cell

Zoology-Paper-II : Genetics

Objectives

- To describe how the behavior of chromosomes during meiosis can explain mendal law.
- To understand how inheritance patterns are affected by position on chromosomes.
- To understand the similarities and differences between how genetic information is passed on in prokaryotes and eukaryotes.
- To understand gene interactions.

- ❖ To classify the sex determination in human.

Unit – I

1.1 Mendelism: Brief history of Genetics and Mendel's work, Mendelian Laws, their significance and current status

1.2 Genetic Interactions- Epistasis-dominant and recessive, codominance, incomplete dominance, complementary, supplementary, inhibitory, duplicate and Lethal genes

1.3 Multiple Allelic interactions: Inheritance of blood group and Rh factor

Unit –II

2.1 Linkage and crossing over: Basic concept, types and theories, elementary idea ofChromosome mapping

2.2 Sex determination – ZZ, XY, XO, ZW pattern, Sex determination in Human,

Unit – III

3.1Chromosomes Number, size, shape, type structure, Lampbrush chromosomes,

3.2Cytoplasm inheritance: Kappa particles in Paramecium, Chloroplast Genetics, Cytoplasmic Inheritance in chlamydomonas

Unit –IV

4.1 Disorders related to chromosomal number- Turner syndrome, Klinefelter's syndrome and Down's syndrome

4.2 Elementary idea of Thalassemia, Sickle Cell Anaemia, Diabetes mellitus

Learning Outcomes: After complition the course student would able to**:**

- ❖ Understand the Mendelism & Multiple allelism.
- ❖ Understand the concept of gene & gene interaction, and Sex- linked Inheritance.
- ❖ Describe the Blood Group, RH Factor .
- ❖ Interpret the terms Chromosome , Thalassemia,Sickle cell anemia
- ❖ Describe in sex determination in human

Zoology-Paper-III : Molecular Biology

Objectives

- ❖ To Understand about the genetic material (Nucleic acids) and DNA replication.
- ❖ To Understand about various types of RNA and process of Transcription & Translation.
- ❖ To describe the Genetic Code, and protein synthesis.
- ❖ 4.To classify the bacterial DNA structure
- ❖ To describe the nucleolus structure and function

Unit – I

1.1 Interphase Nucleus: Organization, Ultrastructure and functions of Nucleus, Pore Complex, Nuclear Membrane

1.2 Nucleolus: Structure and functions

1.3 Chromosome: Ultrastructure and types, Chromosomal Organisation: Nucleosome Model, Solenoid Model,

1.4 Giant chromosomes: Lamp-brush and Polytene chromosome

Unit - II

2.1 1DNA: Structure of DNA, Polymorphism of DNA (A, B, C, D and Z)

2.2 RNA: Structure of RNA, types of RNA, RNA as a genetic material

Unit - III

3.1 DNA replication: Meselson and Stahl experiments, Mechanism of replication –origin of replication, concept of replication, directionality of replication, Role of enzymes in replication
3.2 Bacterial DNA Structure
3.3 Replication in Bacterial DNA

Unit IV

4.1 Genetic code: Characteristics of genetic code, Wobble hypothesis
4.2 Protein synthesis: Central Dogma; Transcription Mechanism in Prokaryotes, Transcription in Eukaryotes, Enz of transcription;
4.3 Protein Synthesis: Elementary idea of the mechanism of translation

Learning Outcomes: After complition the course student would able to:

- Understand about the genetic material (Nucleic acids) and DNA replication.
- Interpret about various types of RNA and process of Transcription & Translation.
- Understand the Genetic Code, and protein sysnthesis.
- Describe the bacterial DNA structure
- Discuss the nucleolus structure and function

Zoology --Practical Based on paper I, II and III

Paper-I: Developmental Biology

1. **Study of development of chick with the help of**
   a. Whole mounts: 18 Hours (Primitive streak stage), 21 hrs, 24 hours, 33 hrs, 48 hours 72 hours and 96 hours.
   b. Study of the embryo at various stages of incubation in vivo by making a window in egg shell.

Paper-II: Genetics

1. Life cycle of Drosophila; Identification of male and female drosophila;. Study of mutants in Drosophila (Bar eye, white eye, yellow body, sepia eye, curled wing, vestigial wing)
2. Identification of blood groups & Rh. Factor

Paper-III: Moleculor Biology

1. Demonstration of salivary gland chromosome in Chironomous larva
2. Use of colchicine in arresting anaphase movement (onion root tips)
3. Study of cell permeability using mammalian RBCs.

Suggested Readings :

1. Genetics; Winchester, A. M.; Oxford and IBH Publishing Co.
2. Cell and Molecular Biology; De Robertis and De Robertis; Saunders College.
3. Genetics; Strickberger W. M.; Prentice Hall of India.
4. Cell Biology; Powar, C.B; Himalayan Publishing House.
5. Principles of Genetics; Gardener, E. J.;Wiley eastern, New Delhi.
6. A Textbook of Genetics; Rastogi, V.B.; Ramnath and Kedarnath
7. Molecular Biology of the gene; Watson, J.D; Benzamin/ Cummings.
8. Biochemistry; Voet &Voet; John Wiley & Sons.
9. Cytology and Genetics. Dyansagar, C.R. Tata McGraw Hill Publ. Co. New Delhi.
10. Cell Biology : Dyson, R.D. Allen and Bacon, New York.
11. Cell Biology. Rastogi S.C. : Tata McGraw Hill Publ. Co. New Delhi.

12. Cell Biology and Genetics. Kohli, S. jain, S. and Ramesh Book Depot. Jaipur.
13. Cytology : Verma, P.S. and Agrawal V.K : S.Chand and Co. New Delhi.
14. Genetics. Verma, P.S. and Agrawal V.K. S.Chand and Co., New Delhi.
15. Cell Biology and Genetics; Kohli, K.S;Ramesh Book Depot
16. Genetics; Winchester, A.M; Oxford and IBH Publishing Co.
17. Cell and Molecular Biology; De Robertis and De Robertis; Saunders College.
18. Genetics; Strickberger; Macmillan, Prentice Hall of India.
19. Cell Biology; Powar, C.B; Himalayan publishing House.
20. Principles of Genetics; Gardener, E,J; Wiley eastern, New Delhi.
21. A Textbook of Genetics; Rastogi, V.B.; Ramnath & Kedarnath.
22. Cell and Molecular Biology; Gerald Karp; John Wiley and Sons,inc
23. Molecular Biology of the cell; Bruce Alberts, Julian Lewis, James D.Watson; Garland Publishings
24. Textbook of Zoology; Shivapuri, Jacob, D. and Vyas, D.K.; Ramesh Book Depot.
25. Zoology: Storer, T.I. and Using, K.L.: Tata McGraw Hill Publishing Co., New Delhi.
26. D. Reinhold, New York (Indian repring : Affiliated East West Press, New Delhi.)
27. Student Text Book of Zoology. Vol.I.II and III. Sedgwick.A.
28. Text book of Zoology. Parker, T.J., Haswell. W.A.Macmillan Co., London.
29. Gilbert, S. T. (2000). Developmental biology, 6th ed. *Sinauer, Sunderland*.
30. Hoar, W. S. (1983). General and comparative physiology. *Prentice Hall*.
31. Prosser, C. L. Comparative animal physiology.
32. Saunders, J. W. Developmental biology: Patterns/Principles/Problems. MacMillan Publ.
33. Wilson, J. A. Principles of animal physiology. Collins MacMillan Publ.
34. Sandhu. T. B. of Embryology
35. Armugam. T. B. of Embryology
36. Pattern. Early Embryology of Chick
37. Verma & Agrawal. Chordate Embryology
38. Tomar. Chordate Embryology
39. Asha Sharma, Chetan K. Sharma, Development Biology, R.B.D. Publishing House, Jaipur
40. K.V. Shastri, Vinita Sukhla, 2014, Development Biology, Rastogi Publication, Meerut, Delhi
41. S.K. Sharma, 2015, Micro Biology & Bio-technology,College Book Center, Jaipur

Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 301	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	Chemistry Practical				**25**Practical	

Chemistry-Paper-I : inorganic chemistry

Objectives:

- To develop the conceptual knowledge of acid and bases.
- To aware about the classification of acids, non aquous solvents and separation methods.
- To give information about various characteristics & laws realed to hard and soft acid and bases.
- To acquaint the knowledge of principles and purifying process for various solvents.

Unit I : Acids and Bases

Arrhenius (Water- ion system), Bronsted- Lowry (The proton donor acceptor system), The Lux-Flood (oxide ion concept), Lewis concepts of acids and bases (The electron donor acceptor concept) and solvent system and solvolysis, ionic product of solvent, limitations of solvent system.

Unit II : Hard and soft acids and bases (HSAB)

Classification of acids and bases as hard and soft. Pearson's HSAB concept, acid- base strength and hardness and softness, symbiosis, theoretical basis of hardness and softness, electronegativity and hardness and softness, limitations of HSAB.

Unit III : Non-aqueous solvents

Physical properties of solvent, types of solvent and their general characteristics, reactions in non-aqueous solvents with reference to liq. NH_3 and liq. SO_2

Unit IV : Seperation methods and Analysis Process

Principles and process of solvent extraction, the distribution law and partition coefficient, batch extraction, continuous extraction and counter current distribution, Gravimetric methods, theory of precipitation, co-precipitation, post precipitation, theory of purifying the precipitates.

Learning Outcomes: After complition the course student would able to:

- Differentiate between the various types of acid and bases.
- Describe the rules and principles related to explain the properties of non aqueous solvents.
- Apply the rules of separation and purification to extract various impurities.
- Explain the general characteristics and types of solvents.

Chemistry-Paper-II :Organic chemistry

Objectives:

- To develop knowledge about classification & nomenclature of organic compounds.
- To aware about the chemical reactions, mechanism and properties of alcohol & ethers.
- To develop understading the proper use of various laws related to synthesis and catalyzing process.

- To explain the various reactions on the basis of their mechanism.

Unit I: Alcohols

Classification and nomenclature. Monohydric alcohols- Methods of formation by reduction of aldehyde, ketones, carboxylic acids and esters. Hydrogen bonding, acidic nature, reaction of alcohols. Dihydric alcohols- methods of formation, chemical reactions of vicinal glycols, oxidation cleavage [Pb(OAc)4 and HIO4] and pinacol- pinacolone rearrangement. Trihydric alcohols- methods of formation, chemical reactions of glycerol.

Unit II : Phenol

Nomenclature, structure and bonding, preparation of phenols, physical properties and acidic character. Comparative acidic strength of alcohols and phenols, resonance stabilization of phenoxide ion, reaction of phenols, electrophilic aromatic substitions, acylations and carboxylation. Mechanisms of Fries rearrangement, Claisen rearrangement. Gattermann synthesis, Hauben- Hoesch reaction, Lederer Manasse reaction and Reimer Tiemann reaction.

Unit III : Aldehyde and ketones

Nomenclature and structure of the carbonyl group. Synthesis of aldehyde and ketones with particular reference to the synthesis of aldehydes from acid chlorides, synthesis of aldehyde and ketones using 1, 3 dithianes, synthesis of ketones from nitriles and from carboxylic acids. Physical properties. Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, perkin and Knovenagel condensations, condensation with ammonia and its derivatives. Wittig reaction, Mannich reaction, use of acetals as protecting group, oxidation of aldehyde and ketones, Cannizzaro reaction, Bayer Villiger oxidation of ketones, MPV, Clemmensen's reduction, Wolf Kishner reduction, $LiAlH_4$ and $NaBH_4$ reduction, Halogenation of enolizable ketones.

Unit IV : Ethers and epoxides & Organic synthesis via Enolates

Nomenclature of ethers and methods of their formation, physical properties, chemical reactions- cleavage and auto oxidation, Ziesel 's method. Synthesis of epoxides. Acid and base- catalyzed ring opening of epoxides, orientation of epoxide ring opening; reactions of Grignard and organolithium reagents with epoxides.

Acidity of α hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethylacetoacetate; The Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate. Alkylation of 1,3- dithianes, alkylation and acylation of enamines.

Learning outcomes: After complition the course student would able to:

- Calssify the various organic compounds on the basis of mechanism and structure.
- Apply the knowledge of processing derivatives for synsthesize various products.
- Describe and discuss about technical terminology related to alcohols, ketones & ethers ec.
- Explain different methods of formation according to chemical reactions.

Chemistry-Paper-III : Physical chemistry

Objectives:

- To develop the knowledge about laws of thermodynamics, electrochemistry & equilibrium.
- To aware about the behavior of ideal gases, enthalpy and process of dissociation.
- To describe the relationship pressure and heat, conductivity & electrolytes etc.
- To develop understanding about the thermodynamics process and chemical equilibrium.

Unit I: Thermodynamics-I & First law of thermodynamics

Definition of thermodynamics terms: systems, surroundings etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamics process. Concept of heat and work.

Statement, definition of internal energy and enthalpy. Heat capacity. Heat capacities at constant volume and pressure and their relationship. Joule law-Joule Thomsan co-efficient and inversion temperature. Calculation of w,q,dU &dH for the expansion of ideal gases under isothermal and adiabatic condition for reversible process.

Unit II: Themochemistry

Standard state, standard enthalpy of formation- Hess`s Law of heat summations and its applications, Heat of reaction at constant pressure and constant volume. Enthalpy of neutralization. Bond dissociation energy and its calculation from thermo-chemical data, temperature dependence of enthalpy. Kirchhoff `s equation.

Unit III: Electrochemistry I

Electrical transport- conduction in metals and in electrolyte solutions, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of equivalent and specific conductance with dilution. Migration of ions and Kohlrausch law, Arrhenius theory of electrolyte dissociation and its limitations, weak and strong electrolytes. Ostwald dilution law its uses and limitations.

Debye Huckel– Onsager`s equation for strong electrolytes (elementary treatment only). Transport number, definition and determination by Hittorf method and moving boundary method. Application of conductivity measurements; determination of degree of dissociation, determination of Ka of acids, determination of solubility product of a sparingly soluble salt, condutometric titrations.

Unit IV: Chemical equilibrium

Equilibrium constant and free energy. Thermodynamic derivation of law of mass action. Le- Chatelier`s principle. Reaction isotherm and reaction isochore – Clapeyron equation and Clausious- Clapeyron equation, application.

Learning Outcomes: After complition the course student would able to:

- Calculate and measure equivalent conductance, bond energy and thermo chemical data.
- Differentiate among intensive and extensive properties of system according to thermodynamics.
- Plot and interpret graph, equations and interrelationship related to volume, pressure and heat energy.
- Describe various phenomenon of thermodynamics, thermochemistry and electrochemistry.
- Measure thermo chemical data, enthalpy, solubility and equilibrium constant etc

.

Practicals

Inorganic Chemistry

Preparation of standard solutions

Dilution 0.1M to 0.001M solutions

Gravimetric analysis:(Any One)

i) Analysis of Cu as CuSCN ,

ii) Analysis of Ni as Ni (dimethylglyoxime) and

iii) Analysis of Zn as Zn3(PO4)2

Organic Chemistry

Qualitative Analysis : Identification of two organic compound through the functional group analysis, determination of melting point/boiling point and preparation of suitable derivatives of any one.

Suggested Reading:

1. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
2. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
3. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
4. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
5. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
6. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
7. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
8. अकार्बनिक रसायन, सुरेश आमेटा, उमा शर्मा, पी.के. शर्मा, मुकेश मेहता, हिमांशु पब्लिकेशन्स, उदयपुर
9. अकार्बनिक रसायन, जी.के. रस्तोगी, यशपाल सिंह, कॉलेज बुक हाऊस, जयपुर
10. प्रायोगिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाऊस, जयपुर

Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 302	Physics-I	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25** Practical	

Physics-Paper-I:Statistical And Thermodynamical Physics-I

Objectives:

- To aware general thermo-dynamical interaction.
- To develop concept about carnot's engine and Maxwell relation.
- 3 To apply the concepts production of low temperature.
- 4. To apply the concepts of low temperature.

UNIT I General Thermo-dynamical Interaction:

Thermal interaction; Zeroth law of thermodynamics Helmholtz free energy; Adiabatic interaction and enthalpy; General interaction and first law of thermodynamics; Infinitesimal general interation; Gibb's free energy and Phasetransitions. Clausius-Clapeyron equation; Vapour pressure curve.

UNIT II Carnot's Engine and Maxwell Relation:

Heat engine and efficiency of engine, Carnot,s Cycle; Thermodynamic scale as an absolute scale; Maxwell relationsand their applications.

UNIT III Production of Low Temperature:

Joule Thomson expansion and J.T. coefficients for ideal as well as Vander Waal's gas. Porous plug experiment,Temperature inversions. Regenerative cooling and cooling by adiabatic expansion and demagnetization.

UNIT IV Application of Low Temperature:

Liquid Helium, He I and He II, super fluidity, quest for absolute zero. Nernst heat theorem. Qualitative Discussionof Superconductivity.

Learning Outcomes: After complition the course student would able to:

- Identify and describe the statistical nature of concepts and laws in thermodynamics, in particular: entropy, temperature, chemical potential, Free energies, partition functions.
- Use the statistical physics methods, such as Boltzmann distribution, Gibbs distribution, Fermi-Dirac and Bose-Einstein distributions to solve problems in some physical systems.
- Apply the concepts and principles of black-body radiation to analyze radiation phenomena in thermodynamic systems.
- Apply the concepts and laws of thermodynamics to solve problems in thermodynamic systems such as gases, heat engines and refrigerators etc.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, उष्मा गतिकी एवं सांख्यकीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics-Paper-II:Optics –I

Objective

- To give information about geometrical optics.
- To aware about the lenses and these properties.
- To develop concept about the interference.
- To give information about polarization and types of polarization.

UNIT-I Geometrical Optics:

Fermat's principle, Laws of reflection and refraction from Fermat's principle, refraction at a spherical surface.Axial, lateral, angular magnification and their interrelationship; Abbe's Sine condition for spherical surfaces;

UNIT-II Lenses:

Refraction through a thick and thin lenses and its Focal length , Focal length of two thin lenses separated by adistance, Cardinal points of a co-axial lens system, properties of cardinal points; construction of image usingcardinal points.

UNIT-III Interference:

Young's double slit experiment, temporal and spatial coherence, coherence length, Division of amplitude,Interference in thin films, colour in thin films. Wedge shaped film, Newton rings and determination of wavelengthand refractive index by Newton ring. Michelson Interferometer, Measurement of wavelength and refractive index byMichelson Interferometer.

Unit-IV Polarization:

Polarization states of electromagnetic (EM) waves, reflection and refraction of plane EM wave at plane dielectricsurface, boundary conditions, derivation of Fresnel's relations. Huygen's theory, Theory of double refraction usingFresnal's ellipsoidal surface (no mathematical derivation). Production and analysis of plane, circularly andelliptically polarized light, quarter and half wave plates.

Learning Outcomes: After complition the course student would able to:

- Gain knowledge on various theories of light
- Acquire skills to identify and apply formulas of optics and wave physics
- Classify the properties of light like reflection, refraction, interference, diffraction etc
- Applies the diffraction and polarization.
- Classify the theory of double refraction.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, प्रकाशिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली**,** 2015–16

Physics-Paper-III:Electronics & Solid State Devices –I

Objectives:

- To give information about circuit analysis.
- To aware about the network theorems.
- To develop concept about the semiconductor.

- ❖ To give information about rectifiers and voltage regulation.

UNIT-I Circuit Analysis:
Network-some important definitions, loop and nodal equation based on DC and AC circuits (Kirchhoff's Laws),Four terminal network parameters; Current volt conventions, Open circuit, short circuit and hybrid parameters ofany four terminals network. Input, Output and mutual impendence for an active four terminal network.

UNIT – II Network Theorems:
Superposition, Thevenin, Norton, Reciprocity, Compensation and maximum power transfer and miller theorems.

UNIT – III Semiconductors:
Intrinsic and extrinsic semiconductors, charge densities in N and P materials, conduction by drift and diffusion ofcharge carriers. PN diode equation, capacitance effects. Nature of charge carriers by Hall effect and Hall coefficient.Zener Diode, tunnel diode, photovoltaic effect.

UNIT – IV Rectifiers and Voltage Regulation:
Half-wave, full wave and Bridge rectifiers, Calculation of ripple factor, efficiency and regulation. Filters: shuntinductors, shunt capacitor, L sections and π sections filters. Voltage regulation and voltage stabilization by Zenerdiode, Voltage multiplier circuits.

Learning Outcomes: After complition the course student would able to:
- ❖ Applies the kirchhoff's law (first and second) and circuit analysis.
- ❖ Calculate the network theorem (superposition, thevenin, reciprocity, compensation, maximum power transfer and miller theorems).
- ❖ Discuss the concept of the semiconductor, type of semiconductor, zener diode and hall effect.
- ❖ Identify the concept of rectifiers, voltage regulation, various type of filter.
- ❖ Calculation of ripple factor, efficiency and regulation

.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, इलेक्ट्रोनिकी एवं ठोस प्रावस्था युक्तियां, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics Practical: III

1. Study of dependence of velocity of wave propagation on line parameter using torsional wave apparatus.
2. Study of variation of reflection coefficient on nature of termination using torsional wave apparatus.
3. Using Platinum resistance thermometers find the melting point of a given substance.
4. Using Newton's rings method find out the wave length of a monochromatic source and find the refractiveindex of liquid.
5. Using Michelson's interferometers find out the wavelength of given monochromatic source (Sodium light).
6. To determine dispersive power of prism.
7. To determine wave length by grating.
8. To determine wave length by Biprism.

9. Determine the thermodynamic constant using Clements & Desorme's method.
10. To determine thermal conductivity of a bad conductor by Lee's method.
11. Determination of ballistic constant of a ballistic galvanometer.
12. Study of variation of total thermal radiation with temperature
13. To study the Specific rotation of sugar solution by polarimer.
14. Any experiment according to theory paper.

Suggested Reading :

1. प्रभा दशोरा, द्वितीय वर्ष, प्रायोगिक भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 303	Mathematics-I	**CE***	**4**	**15**	**20**	**100**
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25** Practical	

Mathematics-Paper-I :Real Analysis

Objectives:

- To aware the Real Numbers as Complete Ordered Field, Closed & opened Sets.
- To gain knowledge about the Cauchy's Sequences, Subsequences.
- To develop knowledge about the Notion of Limit & Continuity for Functions of Two Variables.
- To develop concept about the properties of continuous function on close intervals.

Unit 1: Real numbers as complete ordered field, Limit point, Bolzano-Weierstrass theorem, Closed and Open sets, Union and Intersection of such sets. Concept of compactness. Heine-Borel theorem. Connected sets. Real sequences- Limit and Convergence of a sequence, Monotonic sequences.

Unit 2: Cauchy's sequences, Subsequences, Cauchy's general principle of convergence.

Unit 3 ; Properties of continuous functions on closed intervals. Properties of derivable functions, Darboux's and Rolle's theorem.

Unit 4: Notion of limit and continuity for functions of two variables. Riemann integration — Lower and Upper Riemann integrals, Riemann integrability, Mean value theorem of integral calculus, Fundamental theorem of integral calculus,

Learning Outcomes: After complition the course student would able to:

- Applies the Real Numbers as Complete Ordered Field, Closed & opened Sets.
- Calculate the Cauchy's Sequences, Subsequences.
- Discuss the Properties of Continuous Functions on Closed Intervals.
- Classify the Notion of Limit & Continuity for Functions of Two Variables.
- Interprets the fundamental theorem.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, रियल एनालिसिस, आर. बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, रियल एनालिसिस, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics-Paper-II : Differential Equations I

Objectives

- To give information about Degree & Order of a Differential Equation.
- To aware Linear Equation & Exact Differential Equation.
- To develop concept of the 1st Order but Higher Degree Differential Equation Solve for x,y &p.
- To develop knowledge about the Homogeneous Linear Differential Equations.

Unit 1: Degree and order of a differential equation. Equations of first order and first degree. Equations in which the variables are separable. Homogeneous equations and equations reducible to homogeneous form.

Unit 2; Linear equations and equations reducible to linear form. Exact differential equations and equations which can be made exact.

Unit 3: First order but higher degree differential equations solvable for x,y and p. Clairaut's form and singular Solutions with Extraneous Loci. Linear differential equationS with constant coefficients, Complimentary function and Particular integral.

Unit 4 : Homogeneous linear differential equations, Simultaneous differential equations.

Learning Outcomes: After complition the course student would able to:

- Calculate Degree & Order of a Differential Equation.
- Differentiate between Linear Equation & Exact Differential Equation.
- Calculate the 1st Order but Higher Degree Differential Equation Solve for x,y &p.
- Discuss on the Homogeneous Linear Differential Equations.
- Discuss on the linear differential equation constant coefficients.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी,अवकलन समीकरण, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, अवकलन समीकरण, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics-Paper-III: Numerical Analysis

Objectives:

- To aware Relation b/w Differences and Derivatives .
- To Understand the Divided Differences by Newton's .
- To give knowledge about the Stirling's and Bessel's Interpolation Formulae.
- To develop concept of Numerical Integration .

Unit 1: Differences. Relation between differences and derivatives. Differences of a polynomial. Newton's formulae for forward and backward interpolation.

Unit 2: Divided differences. Newton's divided difference, Lagrange's interpolation formula.

Unit 3: Central differences.Gauss's, Stirling's and Bessel's interpolation formulae. Numerical Differentiation. Derivatives from interpolation formulae.

Unit 4: Numerical integration, Derivations of general quadrature formulas, Trapazoidal rule. Simpson's one-/ third, Simpson's three-eighth and Gauss's quadrature formulae.

Learning Outcomes: After complition the course student would able to:

- Calculate Relation b/w Differences and Derivatives .
- Discuss on the Divided Differences by Newton's .
- Applies the Stirling's and Bessel's Interpolation Formulae.
- Identify the concept of Numerical Integration.
- Applies the trapezoidal rule.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, संख्यात्मक विश्लेषण, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, संख्यात्मक विश्लेषण, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 304	Botany-I	CE*	4	15	20	100
	Botany-II				20	
	Botany-III				20	
	Botany Practical				25 Practical	

Botany-Paper-I :Molecular Biology

Objectives:

- To know the concept of genetic material
- To understand the structure of DNA with its model
- To get knowledge about the concept, types and process of DNA replication
- To understand the concept of transcription and Translation
- To learn about the regulation of gene expression

UNIT I: Genetic Material

- Biological, Chemical and physical Nature of Heredity material.
- Structure of DNA, WATSON & Crick model of DNA, Nuclcosome model.
- Structure and types of RNAs (mRNA, tRNA adr RNA)

UNIT –II DNA Replication

- Concept, Types and process of DNA Replication.
- Staht experiment of semiconservative replication of DNA
- Okazaki fragments, DNA Polymerases, DNA protein interaction.
- Preliminary account of DNA damage and repair.

UNIT-III Transcription and Translation

- Transcription in Eukaryotes, role of promoters, RNA Polymerases, Pre RNA synthests, pre RNA Processing, copping, splicing and polyadenylation.
- Translation in Eukaryotes, Genetic code (Initiation, Elongation and Termination.)

UNIT-IV Regulation of Gene Expression

- Regulation in Gene expression in prokaryotes and Eukaryotes,
- Negative and Positive control.
- Attenuation and Antitermination.
- Reverse Transcription and its application.

Learning Outcomes: After complition the course student would able to:

- Explain the concept of genetic material
- Understand the structure of DNA with its model
- Describe the concept, types and process of DNA replication
- Differentiate the transcription and Translation

- ❖ Interpret the regulation of gene expression

Suggested Readings:

1. Becker, W.M., Kleinsmith, L.J., Hardin, J. and Bertoni, G. P. 2009. The World of the Cell. 7th Edition. Pearson Benjamin Cummings Publishing, San Francisco.
2. Brown, T. A. 2010. Gene cloning and DNA analysis: An Introduction. Blackwell Publication, USA.
3. Buchanan, B., Gruissem, W. and Jones, R. 2000. Biochemistry and Molecular Biology of Plants. American Society of Plant Biologists., USA.
4. Chrispeel, M.J. and Sadava, D.E. 1994. Plants, Genes and Agriculture. Jones and Barlett Publishers, USA.
5. Cooper, G.M. and Hausman, R.E. 2009. The Cell: A Molecular Approach. 5th edition. ASM Press and Sunderland, Washington, D.C. Sinauer Associates, MA.
6. De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology 8th edition. Lippincott Williams and Wilkins, Philadelphia.
7. Glick, B.R. and Pasternak, J.J. 2003. Molecular Biotechnology: Principles and Applications of recombinant DNA. ASM Press, Washington.
8. Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th edition. John Wiley and Sons. Inc. New jersey, USA.
9. Mascarenhas, A.F. 1988. Hand book of Plant tissue culture. Publication and information. Div., ICAR, New Delhi.
10. Purohit, S.S. and Mathur, S.K. 1996. Biotechnology Fundamental and Application. Agro Botanical Publisher, Bikaner.
11. Razdan, M.K., 1993. An introduction to Plant tissue culture. Publication and Information Div., ICAR, New Delhi.
12. Rana, S.V.S. 2012. Biotechnology theory and practice. (Third Ed.) Rastogi Publication, Meerut.
13. Rastogi, V.B. 2008. Fundamentals of Molecular Biology.Ane Books, Meerut, India.
14. Smith, R. H. 2000. Plant Tissue Culture: Techniques and Experiments. 2nd edition, Academic Press, USA.
15. Upadhyaya, A. and Upadhayaya, K. 2005. Basic Molecular Biology. Himalaya Publishers. New Delhi.

Botany-Paper-II : Biotechnology

Objectives:

- ❖ To know the whole concept of Biotechnology
- ❖ To distinguish between morphogenesis and micro propagation
- ❖ To aware about the mechanism of plant tissue culture.
- ❖ To learn about the isolation, culture and somatic cell hybridization
- ❖ To acquire knowledge about recombinant DNA technology and PCR technique.
- ❖ To understand the introduction, process of transgenic plants.

UNIT I: Biotechnology and Plant tissue culture

Biotechnology: Functional definition. Basic aspects of Plant tissue culture, Basal medium, Media preparation and aseptic culture technique. Concept of cellular totipotency, Differentiation and morphogenesis and Micropropagation.

UNIT II: Protoplast, Anther and Embryo culture

Protoplast isolation, culture and Somatic cell hybridization, Anther culture , Embryo culture and their Applications, Applications of Plant tissue culture,

UNIT III:Recombinant DNA technology

Techniques used in rDNA technology. Restriction enzymes. Vectors for gene transfer. Plasmids and Cosmids. Genomic and c-DNA library, Polymerase Chain Reaction (PCR), Applications of PCR technique, DNA Finger Printing.

UNIT IV: , **Transgenic plants**

Introduction , Process of production of transgenic plants, types of transgenic plants ,
Application of transgenic plants and Biotechnology

Learning Outcomes: After complition the course student would able to:

- Comprehend the concept of Biotechnology
- Distinguish between morphogenesis and micro propagation
- Describe the role of plant tissue culture.
- Explain the isolation, culture and somatic cell hybridization
- Acquire knowledge about recombinant DNA technology and PCR technique.
- Interpret the transgenic plants.

Suggested Readings:

1. Becker, W.M., Kleinsmith, L.J., Hardin, J. and Bertoni, G. P. 2009. The World of the Cell. 7th Edition. Pearson Benjamin Cummings Publishing, San Francisco.
2. Brown, T. A. 2010. Gene cloning and DNA analysis: An Introduction. Blackwell Publication, USA.
3. Buchanan, B., Gruissem, W. and Jones, R. 2000. Biochemistry and Molecular Biology of Plants. American Society of Plant Biologists., USA.
4. Chrispeel, M.J. and Sadava, D.E. 1994. Plants, Genes and Agriculture**.** Jones and Barlett Publishers, USA.
5. Cooper, G.M. and Hausman, R.E. 2009. The Cell: A Molecular Approach. 5th edition. ASM Press and Sunderland, Washington, D.C. Sinauer Associates, MA.
6. De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology 8th edition. Lippincott Williams and Wilkins, Philadelphia.
7. Glick, B.R. and Pasternak, J.J. 2003. Molecular Biotechnology: Principles and Applications of recombinant DNA. ASM Press, Washington.
8. Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th edition. John Wiley and Sons. Inc. New jersey, USA.
9. Mascarenhas, A.F. 1988. Hand book of Plant tissue culture. Publication and information. Div., ICAR, New Delhi.
10. Purohit, S.S. and Mathur, S.K. 1996. Biotechnology Fundamental and Application. Agro Botanical Publisher, Bikaner.Razdan, M.K., 1993. An introduction to Plant tissue culture. Publication and Information Div., ICAR, New Delhi.
11. Rana, S.V.S. 2012. Biotechnology theory and practice. (Third Ed.) Rastogi Publication, Meerut.
12. Rastogi, V.B. 2008. Fundamentals of Molecular Biology.Ane Books, Meerut, India.
13. Smith, R. H. 2000. Plant Tissue Culture: Techniques and Experiments. 2nd edition, Academic Press, USA.
14. Upadhyaya, A. and Upadhayaya, K. 2005. Basic Molecular Biology. Himalaya Publishers. New Delhi.

Botany-Paper-III : Plant Physiology I

.**Objectives:**

- To understand structure, properties, components and phenomenon of water
- To know about different theories related to water absorption.
- To learn about Nitrogen and phosphorous cycle
- To get knowledge about concept and process of photosynthesis and respiration.
- To distinguish Aerobic and anaerobic pathways

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UNIT I: Water

Structure and properties of water, osmosis, water potential and its components, absorption of water, root pressure, pathway of water movement; concepts of symplast and apoplast. Ascent of sap, mechanism of stomatal movements, factor affecting transpiration, it's theories, mechanism and significance, antitranspirants and guttation.

UNIT II: Mineral Nutrition

Transport of ions across cell, mechanism of active and passive transport, translocation of, macro and micro nutrients; role of essential nutrients in plant metabolism and their deficiency symptoms. Outline of Nitrogen and phosphorus cycle. Transamination and deamination.

UNIT III: Photosynthesis

Photosynthesis, discovery and structure of pigments (chlorophyll and accessory pigment) ,light harvesting units, law of limiting factors. Light reaction- photophosphorylation- (cyclic and non cyclic), dark Reaction- Calvin and Benson cycle, Hatch and Slack pathway, Crassulacean acid metabolism and photorespiration.

UNIT IV: Respiration

Respiration: Aerobic and anaerobic, glycolysis, tricarboxylic acid cycle, oxidative phosphorylation, and factors affecting oxidative processes, pentose phosphate pathway, fermentation.

Learning Outcomes: After complition the course student would able to:

- Understand structure, properties, components and phenomenon of water
- C out different theories related to water absorption.
- Explain the Nitrogen and phosphorous cycle
- Get knowledge about concept and process of photosynthesis and respiration
- Distinguish Aerobic and anaerobic pathways

Suggested Readings:

1. Hopkins, W.G. and Huner, P. A. 2008. Introduction to Plant Physiology**.** John Wiley and Sons, USA.
2. Jain, V.K. 2013. Fundamental of Plant Physiology. S. Chand and Company Ltd., New Delhi.
3. Malik, C. P. and Srivastava A.K. 1982. Text book of Plant Physiology. Kalyani publication, New Delhi.
4. Mukherjee S., Ghosh A. K. 2006. Plant Physiology. New Central Book Agency, Calcutta.
5. Parashar, A. N. and Bhatia, K. N. 1985. Plant Physiology. Trueman Book Company, New Delhi.
6. Sinha, R. K. 2007. Modern Plant Physiology. 2nd Edition Tata McGraw, New Delhi.
7. Taiz, L. and Zeiger, E. 2006. Plant Physiology**.** 4th Edition, Sinauer Associates Inc. Publishers, Massachusetts, USA.

8. Verma, S. K. and Verma, M. 2000. A Text book of Plant Physiology, Biochemistry and Biotechnology. S. Chand and co. Ltd., New Delhi.
9. Verma, V. 2007. Text Book of Plant Physiology. ANE Books, India.

BOTANY PRACTICAL III

1. To determine the water potential of given plant material.
2. Demonstration of phenomenon of osmosis using potato osmometer.
3. Demonstration of phenomenon of plasmolysis.
4. To study the permeability of plasma membrane using different concentration of organic solvents.
5. To study the effect of temperature on permeability of plasma membrane.
6. To demonstrate root pressure.
7. Study of effect of temperature on rate of transpiration.
8. Study of transpiration rate in dorsiventral and isobilateral leaves by use of potometer.
9. Study of the mechanism of stomatal opening and closing.
10. Rate of photosynthesis under varying HCO_3 concentration in an aquatic plant using bicarbonate (Wilmott and Bubbler).
11. Demonstration of O_2 evolution during photosynthesis by inverted funnel method.
12. To study that light is necessary for photosynthesis by using ganong screen.
13. To demonstrate of anaerobic and aerobic respiration.
14. To study that $C_{O2,}$ light and chlorophyll is essential for photosynthesis (Moll's half experiment).
15. Study C3 andC4 plant with the kranz anatomy.
16. To study the R.Q. by Ganong's respirometer.

Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 305	Zoology-I	CE*	4	15	20	100
	Zoology-II				20	
	Zoology-III				20	
	Zoology Practical				25 Practical	

Zoology-Paper-I: Life and Diversity of animals – Chordata- I

Objectsives:

- To explain what the vertebrates are.
- To understand the general characters of each class of vertebrates.
- To understand the origin and evolutionary relationship in different classes of vertebrates.
- To understand the classification of pisces
- To develop the general characters and classification in Amphibia

Unit I: Protochordates

1.1 **Protochordata**: General characters and classification up to order Type Study:

1.2 ***Herdmania*** : Morphology, digestive system, Nervous System and sense organs, Excretory System, Reproductive system, Ascidian tadpole larva

1.3 ***Amphioxus***: Structure, digestive system, respiratory system, circulatory system, senseOrgans, excretory system

Unit – II Agnatha and Pisces

2.1 Agatha: GeneralFeatures of Agnatha and classification up to classesType study: General Features of Petromyzon, Ammocete Larva

2.2 Pisces: Classfication of Pisces upto classes; Difference between Chondrichthyes and Osteichthyes Type Study**:** General Morphology and anatomy of Scoliodon

Unit-III Tetrapoda

3.1 Amphibia: Classification and characters with suitable examples, adaptations for amphibious life

3.2 Reptilia: Classification and characters with suitable examples,

3.3 Aves: General classification and characters with important examples;

3.4 Mammalia-I: Classification and characters with suitable examples

Unit – IV Miscellaneous

4.1 Protochordates: General features and phylogeny of Urochordates &cephalochordates; Retrogressive metamorphosis

4.2 Pisces: Fins (structure and origin); Types of scales; Migration; Parental Care

Learning Outcomes: After complition the course student would able to:

- Discuss and study the classification of Protochordata, Ascidia & Amphioxus
- Understand the classification of Agnatha & Gnathostomata, Characters of Petromyzon, Ammocoet larva, .
- Learn about the classification of Pisces, and basics of pisciculture, Scales, Fins, migration in fishes.

- ❖ Understand the classification of Amphibia, Reptilia, and the General Topics like Adaptive radiation in Amphibian, Neoteny, Parental care in Amphibians,
- ❖ Understand the classification of Aves, Mammals and the General Topics like perching mechanism, flight adaptation, migration and feathers in birds and adaptation, hair and dentition in Mammals

Zoology-Paper-II:Microbiology & Parasitology

Objectsives:

- ❖ To understand the classification Microorganisms.
- ❖ To Understand and study the Bactria.
- ❖ To Understand the Parasite Protozoan's.
- ❖ To Understand the Virus, Hepatitis and HIV.
- ❖ To explain the morphology of bacteria

Unit –I: Microbiology

1.1 The scope of Microbiology: Characterization, Classification and identification of Microorganisms.

1.2 History and landmark events in Microbiology: Working of A.V. Leeuvenhock, Louis Pasteur, Robert Koch, Germ Theory of diseases.

1.3 World of Microbes: General Morphology of Protozoa, fungi – Molds and Yeasts

Unit-II: Bacteria

2.1 The World of Bacteria – Morphology of Bacteria; Difference between Gram-positive and Gram-negative Bacteria

2.2 Basic idea of Culture: Types of culture media, Maintenance of pure cultures

2.3 Growth & Reproduction: Bacterial division, growth curve, generation time, measurement of growth. Asepsis, sterilization with physical and chemical agents; Reproduction- Asexual and sexual

Unit-III: Other Microbes

3.1 Virus: Structure, Classification; Life Cycle- Lytic and Lysogeny; A Bacteriophage

3.2 Hepatitis: Structure and types of causative agent, Precaution, Prevention and Control

3.3 HIV and AIDS: Epidemiology, prevention, control and treatment

Unit-IV: Parasitology

4.1 Parasitic Protozoans: life cycle, pathogenesis and disease caused by Entamoebae; Plasmodium, Trypanosoma, Leishmania

4.2 Epidemiology of infectious diseases with reference of Human:

- Bacterial [Tuberculosis, Leprosy, Meningitis]
- Fungal[any one]diseases

Learning Outcomes: After complition the course student would able to:

- ❖ Applies the classification Microorganisms.
- ❖ Understand and study the Bactria.
- ❖ Explain the Parasite Protozoans.
- ❖ Classify the Virus,Hepatitis and HIV.
- ❖ Interprets the plasmodium, trypanosome, leishmania.

Zoology-Paper-III: Physiology- I

Objectsives:

- To develop the metabolic activities in mammalian body.
- To understand the various Biomolecules in body.
- To understand the structural chemistry of proteins, carbohydrates, fats.
- To understand the functions of Biomolecules in body Secretion.
- To explain the process of digestion.

Unit I Respiration

1.1 Mechanism and regulation of Respiration

1.2 Transport of oxygen and carbon dioxide, Respiratory Pigments

1.3 Respiratory quotient, Respiratory volumes and capacities

1.4 Respiratory Disorders and effect of smoking

Unit II Circulation

2.1 Body Fluid: Composition and functions of blood; Lymph composition & function; Blood Pressure, Regulation of Blood Pressure

2.2 Blood clotting – Intrinsic and extrinsic factors, Blood groups and Rh factor

2.3 Physiology of cardiac muscles, structure & function of heart; Human Cardiac Cycle; Cardiac Rhythm; Origin of Heart Beat; Regulation of Heart Beat

2.4 Elementary idea of Haemostasis, ECG, factors contributing to heart problems; Angioplasty; Angiography

Unit III Nutrition and Digestion

3.1 Balanced diet

3.2 Digestion and absorption of carbohydrates, proteins and fats

3.3 Hormonal regulation of gastrointestinal function

3.4 Vitamins- Fat soluble and water soluble vitamins; Sources, deficiency and diseases

Unit IV Excretion

4.1 Types of Nitrogenous waste products (ammonotelic, uricotelic, ureotelic)

4.2 Structure and function of kidney; Nephron; Renal blood supply

4.3 Mechanism of Urine formation in mammals; Counter Current Principle

4.4 Hormonal control of renal function; Rennin- Angiostensin System, Micturition, Regulation of Body Fluids & Acid Base balance

Learning Outcomes: After complition the course student would able to:

- Understand the Physiology of Digestion & Respiration.
- Discuss the Physiology of Circulation & nerve impulse and Reflex Action.
- Understand the Physiology of Excretion
- Describe in nitrogenous waste products.
- Interprets in hormonal control of renal function

Zoology -----Practical Based on paper I, II and III

Paper-I: Study of Chordates:

A. Study of Specimen.

a) **Protochordata**: Herdmania, Ciona, Salpa, Doliolum, Amphioxus

b) **Lower Chordates**: Petromyzon, Myxine/Bdellostoma, Ammocete larva,

c) **Pisces:** Sphyrna, Trygon (Sting ray), Pristis (Saw Fish), Raja (Skate),Torpedo, Chimaera (Rat Fish), Acipensor, Amia, Lepidosteus, Notopterus, Labeo, Clarius, Anguilla (eel), Exocoetus, Hippocampus, Echenesis Sucker Fish), Protopterus,

d) **Amphibia:** Icthyophis, Cryptobranchus, Ambyostoma (Tiger Salamander), Axolotl Larva, Salamandra, Proteus, Siren, Alytes, Pipa, Hyla, Rhacophorous (Flying Frog)

B. Study of Slides.

a) Tadpole larva of Herdmania, Herdmania Spicules, T.S. of Amphioxus (Through Oral hood, Pharyngeal, Intestinal and Caudal regions)

b) V.S. of Skin of Scoliodon, Amphibia

C. Mounting.

a) Herdmania Spicules, Placiod Scale

D. Dissection: [Through demonstration by chart/ CAL/ Video]

a) **Major:** Afferent branchial vessels; Efferent branchial vessels; Cranial nerves ofScoliodon.

b) **Minor:** Internal Ear; Eye Muscles; Ampulla of Lorrenzini

Paper-II : Microbiology and Parasitology

1. Preparation and use of culture media for microbes
2. Study of microbes in food material (milk, Curd etc.)
3. Staining procedure for parasites
4. Identification of Protozoan parasites from permanent slides.
   - Trypanosoma(epimastigote or trypomastigote form); Leishmania (promastigote and amastigote form); Plasmodium (sporozoites and signet ring); Giardia; Entamoeba (trophozoites);;
5. Identification and characterization of helminth parasites from permanent slides
   - Cercaria of Fasciola; Eggs of Schistosoma; Cyst of Echinococcus granulosus; Microfilarie of Wuchereria

Paper: III Physiology:

1. Demonstration of ptyalin enzyme activity
2. Estimation of haemoglobin content; RBC Counting, WBC Counting; Haematocrit value and ESR of given blood sample
3. Histological Slides of mammalian T.S. of spinal Cord, stomach, duodenum, ileum, liver, lung, kidney

Suggested Readings:

Chordates:

1. Colbert's evolution of the vertebrates; Colbert, E.H; John Wiley & Sons
2. Text book of Chordate Zoology vol. II ; Sandhu, G.S. and Sandhu, G.S; Campus Books.
3. Modern text book of Zoology-Vertebrates; Kotpal, Rastogi Publication.
4. Vertebrate Zoology; Rastogi, V.B.; Ramnath & Kedarnath.
5. Young, O.Z.: The Life of Vertebrates, Oxford University Press, Oxford.
6. Young,J.Z,: The life of vertebrates. Oxford University Press London 1962(Low Priced Text Reprint English Language Book Socieety London,1962).
7. Barrington,E.J.W.: The Biology Hemichordata & Protochordata Oliver & Boyd,London,1965
8. Young J. Z : The life of mammals Oxford University Press London 1963
9. R.L Kotpal,2015, Chordata, Rastogi Publishing, Meerut, Delhi

Parasitology:

1. Burton J Bogitsh Human Parasitology 3rd edition Elsevier.
2. Roberts, L. S. and J. Janovy, Jr. 2004. Foundations of Parasitology. 7th Edition. McGraw Hill, Boston.
3. Smith. Animal Parasitology 1996. Cambridge University Press.
4. Marr et al. Molecular Medical Parasitology 2003, Elsevier.
5. Lawrence R. Ash and Thomas C. Orihel. Atlas of Human Parasitology. American Society for clinical pathology press 5th edition, 2007.
6. Janet Amundson Romich. Understanding Zoonotic Diseases. 2007
7. Paul Schmid-Hempel. The Integrated Study of Infections, Immunology, Ecology, and Genetics (Oxford Biology), 2011
8. H.S Singh &P. Rastogi,2016, Parasitology, Himalaya Publishing House, pvt. Ltd. Delhi

Microbiology

1. Mani,A., Selvaraj, A.M., Narayanan, L.M. & Arumugam, N. 1996 : Microbiology – saras publications – Nagercoil-India.
2. Sharma, P.D. 1998: Microbiology – Rastogi Publ. Meerut, India
3. Subba Rao, N.S., 1999: Soil Microbiology, Oxford IBH Co. New Delhi, India.
4. Sullia,S.B. & Santharam,S. 2004-General Microbiology, Oxford IBH, India.
5. Meenakumari, S. Microbial Physiology, MJP-Publ.-Chennai, India.
6. Purushotam Kaushik, 2005: Microbiology –S.Chand & Co. New Delhi, India
7. Vijaya Ramesh, 2005: Environmental Microbiology, MJP.Publ., Chennai, India
8. Vijaya Ramesh, 2007: Food Microbiology, MJP.Publ. Chennai, India.
9. Rajan,S. 2007: Medical Microbiology – MJP.Publ. Chennai, India.
10. Purohit, S.S. 2007: Microbiology - Agrobios Publ. India
11. Trivedi, P.C.2008: Applied Microbiology - Agrobios Publ. India
12. Prescott, 2009: Industrial Microbiology - Agrobios Publ. India
13. Parihar, L. 2008: Advances in Applied Microbiology - Agrobios Publ. India
14. Agarwal,A.K.2008: Industrial Microbiology, Agrobios Publ. India.
15. Bohra, A. 2006: Food Microbiology, Agrobios Publ. India
16. Bhastiya&Jain,2015, Immunology, microbiology,&Biotechnology, Himalaya Pubishing House pvt. Ltd. Delhi

Physiology:

1. Ganong: Review of Medical Physiology (22nd ed. 2005, Lange Medical)
2. Guyton and Hall: A text book of Medical Physiology (11th ed. 2006, Saunders).
3. Keele & Neil: Samson Wright's Applied Physiology (13th ed. 1989, Oxford)
4. Hall of India Pvt. Ltd., New Delhi - 110 001.
5. Wood, D.W., 1983. Principles of Animal Physiology 3rd Ed.,
6. Prosser, C.L. Brown 1985. Comparative Animal Physiology, Satish Book Enterprise, Agra - 282 003.
7. Wilson, J. A. Principles of animal physiology. Collins MacMillan Publ.
8. Chordate zoology and animal physiology. S. Chand and Co
9. K.V. Shastri, 2015, Animal Physiology and Biotechnology, Rastogi Publication, Merrut, Delhi

1.

Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 401	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	ChemistryPractical				**25 Practical**	

Chemistry-Paper -I: Inorganic chemistry

Objectives:

- To develop the knowledge about chromatography, oxidation reduction and polymerization.
- To aware about the conceptual knowledge of chromatography, polymer chemistry and bioinorganic chemistry.
- To acquaint about the classification of acids, non aquous solvents and separation methods.
- To give information about solvent systems, diagrams and preparation methods.
- To develop understanding about phosphazenes, trace elements and nitrogen fixation.

Unit I : Chromatography

Types of chromatographic methods and their applications, principle of differencial migration, Adsorption phenomenon, nature of the adsorbent, solvent systems, Rf values.

Unit II : Oxidation and Reduction

Use of redox potential data, analysis of redox cycle, redox stability in water, disproportionation, Frost, the diagrammatic representation of potential data, Latimer and Pourbaix diagrams, principles involved in the extraction of the elements.

Unit III : Polymer chemistry of Silicones& Phosphazenes

Classification, Preparation and Structure of silicons, silicon resin, silicon rubber, silicon fluid, industrial application of silicones.

Preparation, properties, substitution reaction and structure of Phosphazenes

Unit IV : Bioinorganic chemistry

Essential and trace elements in biological processes, metalloporphyrins with special reference to haemoglobin and myoglobin. Biological role of alkali and alkaline earth metal ions with reference to Na^+, K^+, Ca^{+2} and Mg^{+2}, nitrogen fixation.

Learning Outcomes: After complition the course student would able to:

- Differentiate between oxidation & reduction and structures of silicons .
- Describe the principles related to differential migration, substitution and biochemistry .
- Apply the methods of chromatography, industrial uses of silicon and biochemistry to solve different issues.
- Interpret the diagrams related to redox reaction, structure and processes of polymerization.

Chemistry-Paper -II :Organic chemistry

Objectives:

- To develop knowledge about classification & nomenclature of carboxylic acid and dicarboxylic acid .
- To aware about the chemical reactions, mechanism and properties of polymers, halonitroarenes and amines.
- To develop concept of various laws related to synthesis and catalyzing process.
- To aquaint the various reactions on the basis of their mechanism.

Unit I : Carboxylic acids & Dicarboxylic acids

Nomennclature, structure and bonding, physical properties, acidity of carboxylic acids, effects of substituents on acid strength, preparation of carboxylic acids, reactions of carboxylic acids – Hell Volhard Zelinisky reaction, synthesis of acid chlorides, esters and amides, reduction of carboxylic acids, mechanism of decarboxylation. Method of formation and chemical reaction of haloacids, hydroxyl acids, malic tartaric and citric acids. Methods of formation and chemical reactions of α, β- unsaturated monocarboxylic acids. methods of formation and effect of heat and dehydrating agents (succinic, glutaric and adipic acids).

Unit II : Carboxylic acids derivatives & Synthetic polymers

Structure and nomenclature of acid chlorides, esters, amides (urea) and acid anhydrides, relative stability of acyl derivatives. Physical properties, inter conversion of acid derivatives by nucleophilic acyl substitution. Preparation of carboxylic acid derivatives, chemical reactions, mechanism of esterification and hydrolysis (acidic and basic).

Addition or chain growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler Natta polymerization and vinyl polymers. Condensation or step growth polymerization. Polyesters, polyamides, phenol-formaldehyde resin, urea-formaldehyde resin, epoxy resins and polyurethanes. Natural and synthetic rubbers.

Unit III : Alkyl nitrates, Nitroarenes & Halonitroarenes

Preparation of nitroalkanes and nitroarenes. chemical reactions of nitro alkanes, mechanism of nucleophilic substitution in nitro arenes and their reduction in acidic, neutral and alkaline medium, picric acid.

Reactivity, structure and nomenclature of amines, physical properties, stereochemistry of amines. Separation of mixture of primary, secondary and tertiary amines, structural features effecting basicity of amines.

Unit IV Amines

Amines salts as phase transfer catalyst, preparation of alkyls and aryl amines (reduction of nitro compounds, nitriles), reductive amination of aldehylic and ketonic compounds. Gabriel- Pthalamide reaction, Hofmann bromamide reaction.

Reaction of amines, electrophilic aromatic substitution in aryl amines, reaction of amines with nitrous acids. Diazotization, mechanism, synthetic transformation of aryl diazonium salts, azocoupling.

Learning Outcomes: After complition the course student would able to:

- Calssify the various organic compounds on the basis of mechanism and structure.
- Apply the knowledge of processing derivatives for synsthesize various products.
- Describe and discuss about technical terminology related to acids, alkyl nitrates and amines.

- ❖ Discuss about the methods of formation, structural features and mechanism of various compounds.

Chemistry-Paper -III:Physical Chemistry

Objectives:

- ❖ To aware about laws of thermodynamics, pH, polarization of molecular structure.
- ❖ To develop conceptual knowledge about entrophy, electrolytes dipole moment etc.
- ❖ To develop analytical view about evaluation of absolute entrophy, activity coefficient and magnetic propertires of compounds.
- ❖ To give information about carnt theorem, mixing of gases, overvoltage and referectivity.

Unit I : Second and Third law of thermodynamics & Concept of entropy

Need for the law, different statements of the law, Carnot cycle and its efficiency. Carnot theorem. Thermodynamic scale of temperature.

Entropy as a state function, entropy as a function of Volume and temperature, entropy as a function of pressure and temperature, entropy change in physical change, Clausius inequality, entropy as a criteria of spontaneity and equilibrium, Entropy change in ideal gases and mixing of gases

Nernst heat theorem, statement and concept of residual entropy, evaluation of absolute entropy from heat capacity data. Gibbs and Helmholtz functions: Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities, A & G as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change. Variation of G and A with P, V and T.

Unit II : Electrochemistry II

Types of reversible electrodes, gas metal ion, metal-metal ion, metal insoluble salt-anion and redox electrodes. Electrode reactions, Nernst equation, derivation of cell E.M.F. and single electrode potential, standard hydrogen electrode, reference electrodes, standard electrode potential, sign convention, electrochemical series and its significance.

Electrolytic and Galvanic cells-reversible and irreversible cells, conventional representation of electrochemical cells.

EMF of a cell and its measurements, computation of cell EMF, calculation of thermodynamic quantities of cell reactions (ΔG, ΔH and K), polarization, over potential and overvoltage.

Concentration cell with and without transport, liquid junction potential, application of concentration cells, solubility product and activity coefficient, potentiometric titrations.

Unit III : pH & Corrosion

Definition of pH and pKa determination of pH using hydrogen, quinhydrone and glass electrodes, by poteniometric methods. Buffers- mechanism of buffer action. Henderson- Hazel equation. Hydrolysis of salts.

Fundamental of electrolytic corrosion: theories and kinetics, corrosion prevention. Batteries, fuel cells

Unit IV : Physical properties and molecular structure

Optical activity, polarization (Clausius-Mosotti equation) orientation of dipoles in an electric field, dipole moment, induced dipole moment, measurement of dipole moment temperature method and refractivity method, dipole moment and structure of molecular magnetic properties- paramagnetism, dimagnetism and ferromagnetics.

Learning Outcomes: After complition the course student would able to:

- ❖ Classify the electrodes, cells and properties of organic compounds.
- ❖ Determine and interpret the function of volumes, equations, coefficients related to entrophy, corrosion and molecular structures.
- ❖ Describes various properties of compounds on the basis of energy, potential and dipole moment etc.
- ❖ Measure the entropy change, pH and polarization and magnetic properties of compounds.

Practicals

Organic Chemistry

TLC/ Paper chromatography

(a) Separation of fluorescein and methylene blue

(b) Separation of leaf pigments from spinach leaves

Synthesis of organic compounds (Any Four)

(a) Acetylation of salicylic acid aniline glucose and hydroquinone

(b) Aliphatic electrophilic substitution - Preparation of iodoform from ethanol and acetone

(c) Aromatic electrophilic substitution

- Nitration
- Preparation of m-dinitrobenzene Preparation of p-nitroacetanilide Halogenations
- Preparation of p-bromoacetanilide
- Preparation of 2,4,6-tribromophenol

(d) Diazotization/Coupling

- Preparation of methyl orange and methyl red

(e) Oxidation

- Preparation of benzoic acid from toluene

(f) Reduction

- Preparation of aniline from nitrobenzene
- Preparation of m-nitroaniline from m-dinitrobenzene
- Physical Chemistry

Phase Equilibrium :

1. To study the effect of a solute (e.g. NaCl,succinic acid) on the critical solution temperature of two partially
2. miscible liquids (e.g. Phenol-Water system) and to determine the concentration of that solute in the given phenol-water system.
3. To construct the phase diagram of two component (e.g. diphenylamine-benzophenone) system by cooling curve method.

Transition Temperature:

1. Determination of the transition temperature of the given substance by thermometric/dialometric method (e.g. MnCl2
   4H2O/SrCl2 2H2O).

Thermochemistry :

1. To determine the solubility of benzoic acid at different temperature and to determine H of the dissolution process.

2. To determine the enthalpy of neutralization of a weak acid/weak base versus strong base/strong acid and determine the enthalpy of ionization of the weak acid /weak base.
3. To determine the enthalpy of solution of solid calcium chloride and calculate the lattice energy of calcium chloride from its enthalpy data using Born Haber cycle.

Viva-Voce and Record

Suggested Reading:

1. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
2. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
3. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
4. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
5. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
6. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
7. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
8. भौतिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाउस, जयपुर

Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 402	Physics-I	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Prcatical				**25 Practical**	

Physics-Paper -I: Statistical And Thermodynamical Physics-II

Objectives:

- To aware kinetic theory of gases.
- To Understand the transport phenomenon of gases.
- To give knowledge about the classical statistics.
- To develop concept of quantum statistics.

UNIT I Kinetic Theory of Gases:

Distribution law of molecular velocities, most probable, average and RMS velocities, Energy distribution function;Experimental verification of the Maxwell velocity distribution the principle of equipartition of energy.

UNIT II Transport Phenomenon of Gases:

Transport Phenomenon: Mean free path, distribution of free paths, coefficients of viscosity, thermal conductivity,diffusion and their interrelation.

UNIT III Classical Statistics:

Validity of classical approximation, Phase space, micro and macro states; Thermodynamical probability, entropyand thermodynamic probability; Monoatomic ideal gas; Barometric equation ; Specific heat capacity of diatomicgas; Heat capacity of solids.

UNIT IV Quantum Statistics:

Black body radiation and failure of classical statistics, Postulates of quantum statistics, indistingushability , wavefunction and exchange degeneracy, a priori-probability; Bose Einstein statistics and its distribution function ;Plankdistribution function and radiation formula ;Fermi Dirac statistics and its distribution function ,contact potential,thermionic emission ;Specific heat anomaly of metals ;Nuclear spin statistics (para and ortho hydrogen)

Learning Outcomes: After complition the course student would able to:

- Analyze phase equilibrium condition and identify types of phase transitions of physical systems.
- Make connections between applications of general statistical theory in various branches of physics.
- Design, set up, and carry out experiments, analyze data recognising and accounting for errors and compare with theoretical predictions.
- Differentiate between B-E statistics & F-D statistics
- Discuss on the nuclear spin statistics.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना,, उष्मा गतिकी एवं सांख्यकीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015–16

Physics-Paper -II:Optics –II

Objectives:

- To aware fraunhofer diffraction.
- To Understand the Fresnel class of diffraction and resolving power.
- To give knowledge about the optical activity and holography.
- To develop concept of lasers.

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UNIT-I Fraunhofer Diffraction:

Fraunhofer diffraction at single slit and a circular aperture, intensity distribution and width of central maxima, anddetermination of slit size, two slit diffraction and its intensity distribution with missing orders. Diffraction due to Nslits with intensity distributions. Plane transmission grating its formation and intensity distribution.

UNIT-II Fresnel class of Diffraction & Resolving Power:

Fresnel class of diffraction, half period zones, zone plate, diffraction due to circular aperture. Diffraction at straightedge, thin and thick wire, rectangular slit. Rayleigh's criterion, resolving power of prism, telescope, microscope andplane transmission grating.

Unit-III Optical Activity and Holography:

Optical activity, Specific rotation, biquartz and half shade polarimeters. Basic concepts of holography, constructionof a hologram and reconstruction of the image, important features of hologram and uses of holography.

Unit-IV Lasers:

Difference between ordinary and laser source, stimulated and spontaneous emission, stimulated absorption. Einstein's A and B coefficients, population inversion, conditions for laser action, meta-stable states, pumping. Typesof lasers, construction, working and energy level schemes of He-Ne and Ruby laser. Properties and uses of lasers.

Learning Outcomes: After complition the course student would able to:

- Applies interference in design and working of interferometers.
- Discuss on the resolving power of different optical instruments.
- Identify the working of holography and their applications in various fields.
- Classify the optical fiber and their applications in communication.
- Differentiate between simple light source and laser

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, प्रकाशिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015–16

Physics-Paper -III:Electronics & Solid State Devices –II

Objectives:

- To aware about transistor.
- To Understand the amplifiers with feedback.
- To give knowledge about the amplifiers and oscillators.
- To develop concept of field effect transistor and digital circuits.

UNIT-I Transistor:

Notations and volt -ampere characteristics for bipolar junction transistor, concept of load line and operating point,hybrid parameters. Transistor as Amplifiers: CB, CE, CC configurations, its characteristic curves and theirequivalent circuits. Analysis of transistor amplifiers using hybrid parameters and its frequency response. Fixed andemitter biasing, bias stability in transistor circuits.

UNIT-II Amplifiers with Feedback:

Concept of feedback, positive and negative feedback, voltage and current feedback circuits, Advantages of negativefeedback- stabilization of gain by negative feedback, Effect of feedback on output and input resistance. Reduction ofnonlinear distortion by negative feedback. Effect on gain- frequency response.

UNIT-III Operational Amplifier & Oscillators:

Differential amplifier, DC levels shifter, operational amplifier, input and Output impedances, input offset current.Application: Unity gain buffer, Adder, Subtractor, Integrator and Differentiator. Feedback requirements foroscillations, circuit requirement for oscillation, basic oscillator analysis. Colpitt and Hartley oscillators. R-Coscillators, piezoelectric frequency control.

UNIT-IV Field Effect Transistor and Digital Circuits:

Field Effect Transistor (FET) and its characteristic biasing JFET, ac operation of JFET and MOSFET.
Binary, Hexadecimal and Octal number systems. Binary arithmetic. Logic fundamentals AND, OR, NOT, NOR.,NAND, XOR gates, Boolean theorems, transistor as a switch, logic gates: circuit realization of logic functions.Analog to digital and digital to analog analysis. DDL, RTL, TTL circuits.

Learning Outcomes: After complition the course student would able to:

- Identify characteristics of transistor (common base configuration, common emmiter configuration, common collector configuration).
- Discuss on the amplifiers with feedback.
- Discuss on the concept of operational amplifier & oscillators.
- Classify the field effect transistor and digital circuits.
- Differentiate between TTL and RTL.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, इलेक्ट्रोनिकी एवं ठोस प्रावस्था युक्तियां, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015–16

Physics Practical: IV

1. Plot thermo emf versus temperature graph and find the neutral temperature (Use sand bath)
2. Study of power supply using two diodes/bridge rectifiers with various filter circuits.
3. Study of half wave rectifier using single diode and application of L and π section filters.
4. To study characteristics of a given transistor PNP/NPN (Common emitter, common base and commoncollector configurations

5. Determination of band gap using a junction diode.
6. Determination of power factor (cos □) of a given coil using CRO.
7. Study of single stage transistor audio amplifier (Variation of gain with frequency).
8. To determine e/m by Thomson's method.
9. Determination of velocity of sound in air by standing wave method using speaker, microphone and CRO
10. Measurement of inductance of a coil by Anderson's bridge.
11. Measurement of capacitance and dielectric constant of a liquid and gang condenser by de- Sauty Bridge.
12. Any experiment according to theory paper.

Suggested Reading :

1. प्रभा दशोरा,, द्वितीय वर्ष प्रायोगिक भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015–16

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 403	Mathematics-I	CE*	4	15	20	100
	Mathematics-II				20	
	Mathematics-III				20	
	Mathematics Practical				25 Practical	

Mathematics-Paper-I: Real analysis and matric space

Objectives:

- To give information about the Sequence and Series of Functions.
- To aware about the Term by Term Differentiation and Integration.
- To develop knowledge about the Metric Space
- To develop knowledge about the Subspace.

Unit 1 . Sequence and series of functions —

Pointwise and Uniform convergence, Cauchy's criterion, Weierstrass M-test, Abel's test, Dirichlet's test for uniform convergence of series of functions, Uniform convergence and Continuity of series of functions,

Unit 2; Term by term differentiation and integration. Metric space —

Definition and examples, Open and Closed sets, Interior and Closure of a set, Limit point of a set.

Unit 3:

Subspace of a metric space, Product space, Continuous mappings, Sequence in a metric space, Cauchy sequence. Complete metric space,

Unit 4 : Baire's theorem, Compact sets and Compact spaces, Connected metric spaces.

Learning Outcomes: After complition the course student would able to:

- Discuss on the Sequence and Series of Functions.
- Calculate the Term by Term Differentiation and Integration.
- Classify the Metric Space, Subspace.
- Applies the Compact Sets and Compact Space.
- Calculate the connected matric space.

Suggested Reading:

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी रियल एनालिसिस एण्ड मैट्रिक स्पेस, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली,2015–16
2. जी.सी. गौखरू सैनी, रियल एनालिसिस एण्ड मैट्रिक स्पेस, जयपुर पब्लिशिंग हाउस, जयपुर,2015

Mathematics-Paper-II: Differential Equations II

Objectives:

- To give knowledge about the exact linear differential equations of nth order.
- To aware about the linear differential equations of second order.

- ❖ To know the partial differential equations of first order.
- ❖ To Understand the homogeneous and non-homogenous linear partial differential equation.

Unit 1 ; Exact linear differnitial equations, of nth order. Existence and uniqueness theorem.

Unit 2: Linear differential equations of second order. Linear independence of solutions. Solution by transformation of the equation by changing the dependent variable/the independent variable, Factorization of operators, Method of variation of parameters, Method of undetermined coefficients.

Unit 3: Partial differential equations of the first order. Lagrange's linear equation. Charpit's general method of solution.

Unit 4 ; Homogeneous and non-homogeneous linear partial differential equations with constant coefficients. Equations reducible to equations with constant coefficients.

Learning Outcomes: After complition the course student would able to:

- ❖ Calculate the exact linear differential equations of nth order.
- ❖ Classify the linear differential equations of second order.
- ❖ Discuss the partial differential equations of first order.
- ❖ Identify the homogeneous and non-homogenous linear partial differential equation.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी रियल एनालिसिस एण्ड मैट्रिक स्पेस, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, रियल एनालिसिस एण्ड मैट्रिक स्पेस, जयपुर पब्लिशिंग हाउस, जयपुर,2015

Mathematics- Paper-III: Optimization Theory vector calculus

Objectives:

- ❖ To aware about the Linear Programming Problem.
- ❖ To develop knowledge of properties and Elementary Theorems on Duality Only.
- ❖ To understand the Differentiation & Integration of vector Point functions.
- ❖ To conceptualize the Divergence & Curls.

Unit 1: The linear programming problem. Basic solution. Some basic properties and theorems on convex sets.. Fundamental theorem of L.P.P.

Unit 2 ; Theory of simplex method only Duality. Fundamental theorem of duality, properties and elementary theorems on duality only.

Unit 3: Scalar and Vector point functions. Differentiation and integration of vector point functions. Directional derivative. Differential operators.

Unit 4: Gradient, Divergence and Curl. Theorems of Gauss, Green, Stokes (without proof) and problems based on these theorems.

Learning Outcomes: After complition the course student would able to:

- ❖ Applies Linear Programming Problem.
- ❖ Classify the Properties and Elementary Theorems on Duality Only.
- ❖ Discuss on the Differentiation & Integration of vector Point functions.
- ❖ Identify the Divergence & Curls.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी रियल एनालिसिस एण्ड मैट्रिक स्पेस, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, रियल एनालिसिस एण्ड मैट्रिक स्पेस, जयपुर पब्लिशिंग हाउस, जयपुर,2015

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 404	Botany-I	CE*	4	15	20	100
	Botany-II				20	
	Botany-III				20	
	Botany Practical				25 Practical	

Botany-Paper-I : Pteridophytes

Objectives:

- To develop knowledge on pteridophytes with its origin and classification
- To know general characteristics of psilophyta.
- To understand the life cycle of class lycophyta and sphenophyta.
- To discuss economic importance of pteridophytes.
- To compare pteridophyte with bryophyte and gymnosperms.

UNIT I:

Pteridophytes**:** General account of Pteridophytes, origin, classification (G.M. Smith), evolution of stele, development of sporangia (eusporangiate and leptosporangiate) and life cycle patterns of homosporus and heterosporus pteridophytes.

UNIT –II:

Heterospory and seed habit, Apospory and Apogamy. General characteristics of Psilotophyta: Morphology, anatomy and reproduction of *Psilotum*

UNIT-III:

General characteristic of Lycophyta and Sphenophyta: Morphology,anatomy and reproduction of *Seleginella* and *Equisetum*

UNIT-IV:

General characteristics of Filicophyta: Morphology, anatomy and reproduction of *Pteridium* and *Marsilea*. Economic importance of Pteridophytes.

Learning Outcomes: After complition the course student would able to:

- Develop knowledge on pteridophytes with its origin and classification
- Explain general characteristics of psilophyta.
- Understand the concept of lycophyta and sphenophyta.
- Discuss concept of filicophyta and their economic importance
- Compare pteridophyte with bryophyte and gymnosperms.

Suggested Readings:

1. Bierhorst, D.W. 1971. Morphology of Vascular Plants. MacMillan Co., N.Y. and Collier-MacMillan Ltd., London.
2. Parihar, N.S. 1996. The Biology and Morphology of Pteridophytes**.** Central Book Depot, Allahabad.

3. Singh, V., Pandey, P. C. and Jain, D. K .2013. A text book of Botany. IV edition, Rastogi publication, Meerut.
4. Sharma, O. P. 1990. Textbook of Pteridophyta, MacMillan India Ltd., Delhi.
5. Vashishta, P.C. 1997. Botany for Degree Students- Pteridophyta. S. Chand and Company, New Delhi.
6. Wilson, N. S. and Rothewall, G. W. 1993. Paleobotany and Evolution of Plants. (2nd Edition), Cambridge University Press, U. K.

Botany- Paper-II:Gymnosperms And Paleobotany

Objectives:

- To know the general characteristics, distribution, classification of gymnosperms
- To learn about the economic importance of gymnosperms
- To understand the morphology anatomy, reproduction of the cycadales .
- To acquire knowledge about Ephedrales and Palaeobotany.
- To discuss the dominant fossils flora of different ages.

UNIT I:

Gymnosperm: General characteristics, distribution, classification (K. R. Sporne, 1965) and economic importance. Brief account of Progymnosperm, affinities of Gymnosperms with Pteridophytes and Angiosperms.

UNIT: II

General characteristics of Cycadales, Coniferales: Morphology, anatomy, reproduction and life cycle with special reference to the genera *Cycas* and *Pinus.*

UNIT: III

General characterstics of Ephedrales: Morphology, anatomy, reproduction and life cycle of *Ephedra.* Palaeobotany: Geological time scale, fossil types and their formation, technique ofstudy of fossils.

UNIT IV:

General account of dominant fossils flora of different ages, palaeobotany in relation to exploration of fossil fuels. Primitive land plant: *Rhynia*, Fossil pteridophytes: reconstructed plant-*Lepidodendron* and *Calamites*, Fossil gymnosperm-*Williamsonia*.

Learning Outcomes: After complition the course student would able to:

- Interpret the general characteristics, distribution, classification of gymnosperms
- Acquaint with the economic importance of gymnosperms
- Discuss the morphology anatomy, reproduction of the cycadales .
- Acquire knowledge about Ephedrales and Palaeobotany.
- Explain the dominant fossils flora of different ages.

Suggested Readings:

1. Bhatnagar, S. P. and Moitra, A. 1997. Gymnosperms. New Age International (P) Ltd., Publisher, New Delhi.
2. Clark, D. L. 1976. Fossils, Palaeobotany and Evolution. W.M.C. Brown Company, New York.
3. Meyen, S. V. 1978. Fundamentals of Palaeobotany. Chapman and Hall, London.
4. Sharma, O. P. 1997. Gymnosperms. Pragati Prakashan, Meerut, India.

5. Sporne, K. R. 2002. The Morphology of Gymnosperms. B. I. Pub. Pvt. Ltd. Mumbai, Kolkata, Delhi.
6. Thomas, B. A. and Spice, R. A. 1986. The Evolution and Palaeobotnay of land Plants. Publ. Crom. Helm London and Sydney.
7. Vasishta P.C. 1980. Gymnosperms. S. Chand and Co. Ltd., New Delhi.

Botany- Paper-III:Plant Physiology Ii And Biochemistry

Objectives:

- To know structure, biosynthesis and physiological role of plant hormones
- To understand structure, physiological role with distinguishable factors of hormones
- To provide knowledge of vernalization and photoperiodism.
- To comprehend the introduction, importance, nomenclature and classification of carbohydrates lipids, proteins.
- To acquire knowledge about enzymes.

UNIT I:

Seed dormancy and germination, phases of growth and development; plant movement and biological clock and their regulatory factor.Growth hormones: Structure, biosynthesis, and physiological role of auxins, gibberllins.

UNIT II:

Structure, biosynthesis and physiological role of Cytokinine and Ethylene. Growth inhibitors: ABSEisic acid.Physiology of Flowering: Photoperiodism, flowering stimulus, florigen concept, vernalization. Discovery, chemical nature and role of phytochrome in photomorphogenesis and senescence.

UNIT III:

Carbohydrates: Introduction, Importance, Nomenclature and Classification of Carbohydrates , Molicular Structure and Function of monosaccharides, oligosaccharides andpolysaccharides. Glycisidic linkage and Glycoprotein.

Lipids–Structure and classification of lipids, fatty acids- saturated and unsaturated, Alpha Oxidation, Bita oxidation and Glyoxalate Cycle, oxidation of fatty acids.

UNIT IV:

Proteins- Amino acids as basic units, structure and classification of proteins (primary,secondary, tertiary and quaternary), Physical and Chemical Properties.

Enzymes :Structure, Nomenclature and classification of enzymes, Characteristics of Enzymes, mechanism of action, Multi Enzyme System, Regulation of Enzyme Activity.

Learning Outcomes: After complition the course student would able to:

- Get knowledge about structure, biosynthesis and physiological role of plant hormones
- Understand structure, physiological role with distinguishable factors of hormones
- Discuss the concept of vernalization and photoperiodism.
- Describe the importance, nomenclature and classification of carbohydrates lipids, proteins.
- Acquire knowledge about enzymes

Suggested Readings:

1. Berg, J.M., Tymoczko, J.L., Stryer, L. 2006. Biochemistry. 6th Edition, W.H. Freeman and Company, New York.
2. Buchanan, B., Gruissem, W. and Jones, R. 2000. Biochemistry and Molecular Biology of Plants. American Society of Plant Biologists, USA.
3. Conn, E.E., Stumpf, P.K. and Bruening, G. 2006. Outlines of Biochemistry. 4th Edition, John Wiley and Sons Inc. New Jersey, USA.
4. Elliot, W.H. and Elliot, D.C. 2009. Biochemistry and Molecular Biology. Oxford Publishers, India.
5. Hopkins, W.G. and Huner, P.A. 2008. Introduction to Plant Physiology. John Wiley and Sons, USA.
6. Mukherjee, S., Ghosh, A.K. 2006. Plant Physiology. New Central Book Agency, Calcutta.
7. Nelson, D.L. and Cox, M.M. 2004. Lehninger Principles of Biochemistry, 4th edition, W.H. Freeman and Company, New York, USA.
8. Ranjit, K. 2008. Research methodology: A step by step guide for beginners. Pearson, India.
9. Sinha R. K., 2007. Modern Plant Physiology. 2nd Edition Tata McGraw, New Delhi.
10. Taiz, L. and Zeiger, E. 2006. Plant Physiology. 4th Edition Sinauer Associates Inc. Publishers, Massachusetts, USA.
11. Voet, D. and Voet, J.G. 2000. Biochemistry, John Wiley, New York.
12. Wilson, K. and Walker, J. 2008. Principles and techniques of Biochemistry and Molecular Biology, Cambridge University Press.

BOTANY PRACTICAL IV

1. Double staining technique and technique for preparation of permanent slides.
2. Study of following with the temporary slide preparation and specimens:
   Pteridophytes: *Psilotum, Selaginella, Equisetum, Pteridium*and*Marselia*(Vegetativeand reproductive).
3. **Gymnosperm:** *Cycas*(coralloid root, T.S. of coralloid root, T.S. of leaflet, petiole, malecone and L.S. of male cone, microsporophyll, megasporophyll, T.S. of microsporophyll, ovule, L.S. of ovule and seed).
4. *Pinus* (T.S. of stem and needle, male cone and female cone, L.S. of male cone and femalecone, seed).
5. *Ephedra* (Stem T.S., leaf T.S., male and female cones, L.S. of ovule, seed).
6. Study of fossil specimens.
7. Principle, working and use of colorimeter and spectrophotometer.
8. Principle, types and application of centrifuges.
9. Principle and types of Chromatography.
10. Separation of amino acids by paper chromatography and thin layer chromatography.
11. Microchemical tests for carbohydrates (Fehling's test, Benedicts test) and proteins (Ninhydrin test, Xanthoproteic test).
12. Separation of chlorophyll and carotenoid pigments by solvent method
13. Separation of chlorophyll and carotenoid pigments by paper chromatography .
14. Estimate chlorophyll and carotenoid content in C3 andC4 plant.
15. To test the presence of ascorbic acid in different plant juices.
16. Bioassay of plant growth hormone(auxin,gibberellins and cytokinin).
17. Measurement of growth using auxanometer.

Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 405	Zoology-I	CE*	4	15	20	100
	Zoology-II				20	
	Zoology-III				20	
	Zoology Practical				25 Practical	

Zoology-Paper-I : Life and Diversity of animals – Chordata II

Objectives:

- To learn about the comparative study scoliodon and Rana of Integumentary system i.e. Structure of skin.
- To Understand and study the comparative study scoliodon and Rana of Heart and brain.
- To Understand and study the comparative study scoliodon and Rana of Bones.
- To Understand and study the Poisonous and nonpoisonous snakes.
- To explain the flight adaption

UNIT-I: Comparative Anatomy of Vertebrates-I

Comparative anatomy of the following organ systems of Scoliodon, Rana,

1.1 Integument and its derivatives.

1.2 Alimentary canal and accessory digestive glands.

1.3 Respiratory organs.

UNIT-II Comparative Anatomy of Vertebrates-II

Comparative anatomy of the organ systems of Scoliodon, Rana,

2.1 Heart, aortic arches and their evolution.

2.2 Brain and cranial nerves,

2.3 Comparative structure and evolution of urinogenital system (pro, meso and metanephric kidney and genital ducts in males and females).

Unit III: Comparative Anatomy of Vertebrates-III

Comparative anatomy of the organ systems of Scoliodon, Rana,

3.1 Osteology**:** Girdles, limb bones, Vertebrae, ribs and sternum; jaw suspension, Structure and types of vertebrae

3.2 Sense Organ**:** Comparative anatomy of eye

3.3 Sense Organ**:** Membranous labyrinth; sound production

Unit IV: Miscellaneous

4.1 Reptila**:** Poisonous and Non Poisonous Snakes of India.

4.2 Aves: Flight Adaptation; Flight Muscles; Perching Mechanism

4.3 Mammals-I**:** Dentition; Adaptive radiation

Learning Outcomes: After complition the course student would able to:

- Understand and study the comparative study scoliodon and Rana of Integumentary system i.e. Structure of skin.
- Study the comparative study scoliodon and Rana of Heart and brain.
- Comparative study scoliodon and Rana of Bones.
- Interprete Poisonous and nonpoisonous snakes.
- Discuss the flight adaption

Zoology-Paper-II: Biochemistry and Endocrinology

Objectives

- To explain the function of Carbohydrates and other metabolism.
- To aware the function of Lipids and metabolism
- To understand the importance of Bio molecules
- To learn about the function of Proteins and metabolism
- To aware the Types of Endocrine glands

Unit I: Carbohydrates and their metabolism

1.1 Biomolecule: Structure, types, function and properties of Carbohydrate
1.2 Metabolism: Glycolysis; fermentation; citric acid cycle; gluconeogenesis;
1.3 Glycogen metabolism (glycogenesis and glycogenolysis).

Unit II: Lipids and their metabolism

2.1 Biomolecule: Structure, types, function and properties of Lipid
2.2 Fatty acid; Triglycerides and Steroids
2.3 Metabolism: Biosynthesis and β-oxidation of saturated fatty acids, ketogenesis
2.4 LipidDisorders: Ketosis, Lipidosis

Unit III: Proteins and their metabolism

3.1 Biomolecule: Amino acids; essential and non-essential amino acids
3.2 Biomolecule: Structure, types, function and general properties of Proteins; four levels of structures in proteins
3.3 Enzymes: Major classes, Basic mechanism of action, kinetics and factors affecting enzyme activities

Unit IV: Endocrine Glands and Disorders

Structure, biological actions and regulation of following endocrine glands:

4.1 Pituitary
4.2 Thyroid; Thymus
4.3 Adrenal; Pineal; Pancreas
4.4 Testes and Ovary

Learning Outcomes: After complition the course student would able to:

- Interprets the function of Carbohydrates and other metabolism.
- Explain the function of Lipids and metabolism
- Interprete the importance of Bio molecules
- Understand the function of Proteins and metabolism
- Explain the Types of Endocrine glands

Zoology-Paper-III:Physiology- II

Objectsives:

- To Understand the Nerve and Muscles.
- To explain the Sensory Physiology.
- To Understand the Reproduction.
- To understand the hormones action.

- ❖ To learn about the human ear mechanism of hearing

Unit –I: Nerve and Muscle Physiology

1.1 Nerves: Types of neurons, E.M. structure of neuron; Myelinated and non-myelinated nerve fibres

1.2 Muscles: Ultra structure of striated muscle, Physiology of Muscle Contraction; sliding filament theory of muscle contraction; Neuromuscular Junction

Unit II: [Sensory Physiology]

2.1 Structure of human eye; image formation and colour vision

2.2 Structure of human ear, mechanism of hearing

2.3 Elementary idea of EEG, MRI, CT-scan, mental health (epilepsy, neurosis, psychosis)

Unit III [Reproduction]

3.1 Oestrous and menstrual cycle

3.2 Male and female sex hormones

3.3 Causes of infertility in male and female

Unit IV [Hormones]

4.1. General mechanism of hormone action: Peptide hormone; Steroid hormone

4.2 Neurohypophysial hormones – Oxytocin and Vasopressin

4.3 Hormones of the Adenohypophysis; Hypothalamic control of Adenohypophysis; Dwarfism; Acromegali

Learning Outcomes: After complition the course student would able to:

- ❖ Interprets the Nerve and Muscles.
- ❖ Understand the Sensory Physiology.
- ❖ Understand the Reproduction.
- ❖ Classify the hormones action.
- ❖ Describe the human ear mechanism of hearing

Zoology Practical- IV

Paper-I: Study of Chordates:

A. Study of Specimen.

a) **Reptilia:** Chelone, Trionyx, Testudo, Sphenodon, Hemidactylus, Draco,Phrynosoma, Chamaeleon, Typhlops, Python, Eryx (Sand Boa), Bungarus, Naja, Vipera, Hydrophis, Crocodylus, Alligator, Gavials

b) **Aves:** Archeopteryx, Pavo cristatus, Psittacula (parrot), Great Indian Bustard,Saras crane

c) **Mammals:** Echidna (Tachyglossus/ Spiny Anteater), Ornithorhyncus (Duck-billed Platypus), Macropus (Kangaroo), Bat, Loris, Manis, Herpestes (Mongoose)

B. Study of Permanent Slides.

a. V.S. of Skin of Reptiles, Aves and Mammals.

C. Osteology (Comparative study of amphibia to mammals articulated and disarticulated)

a) Vertebrae.

b) Limb bones.

c) Girdles.

d) Ribs.

D. Dissection:

a) A Rat: External Feature, General anatomy, General Viscera [through chart/ video/ CAL]

Paper-II: Biochemistry

1. Biochemical detection of carbohydrates, proteins and lipids in a given sample
2. Calorimetric estimation of glucose / Protein in a given solution

Paper-III: Physiology II

I. Study of Permanent Slides

a. Histological Slides: Bone, Cartilage, Striated Muscle Fibre
b. Endocrine Glands: Pituitary, Thyroid, Parathyroid, Thymus, Adrenal cortex, Adrenal Medula, ovary, testis
c. To study the knee jerk reflex in man

Suggested Readings:

Biochemistry:

1. Stryer, I. (1988). Biochemistry II. Freeman and Co.
2. Plummer, L. (1989). Practical biochemistry. Tata McGraw.
3. Murray, R. K. et al (1995). Harper's biochemistry, 24th ed. Prentice Hall.
4. Lewin, B. (2000). Gene. John Wiley & sons.
5. Strikburger, M. W. (1994). Genetics. Macmillan Publ. Co.
6. Russel, P. J. (1998). Genetics. The Benjamin Cummins Publishing Co.
7. Lehninger (2004). Principles of biochemistry 4th ed.
8. Gilbert, F. (2000). Basic concepts in biochemistry: A student's survival guide.2nd ed. McGrawHill
9. Price, N. E. & Stevens, L. (1982). Fundamentals of enzymology. OUP
10. K.V. Shastri, 2015, Animal Physilogy and Biochemistry, Rastogi Publication, Meerut, Delhi

Physiology:

1. Ganong: Review of Medical Physiology (22nd ed. 2005, Lange Medical)
2. Guyton and Hall: A text book of Medical Physiology (11th ed. 2006, Saunders).
3. Keele & Neil: Samson Wright's Applied Physiology (13th ed. 1989, Oxford)
4. K.V. Shastri : Physiology
5. William S. Hoar, 1976. General and Comparative Physiology, Prentice
6. K.V. Shastri, 2015, Animal Physilogy and Biochemistry, Rastogi Publication, Meerut, Delhi

Endocrinology

1. Hadley: Endocrinology (5th ed. 2000, Prentice Hall)
2. Turner and Bagnara: General Endocrinology (6th ed. 1984, Saunders)
3. Norris: Vertebrate Endocrinology, Fourth Edition, 2007, Academic Press

Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 501	Chemistry-I	Any Three CC	4	15	**20**	100
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	Chemistry Practical				**25** Practical	

Chemistry-Paper-I : Inorganic Chemistry

Objectives:

- To develop the knowledge about coordination compound, lanthanides and actinides.
- To aware about the conceptual knowledge of valance bond theory, nomenclature, spectral properties of elements of transition series.
- To give information about coordination theory, magnetic moments, spectral properties and electronic configuration of various elements of transition series.
- To develop understanding about correlation between periodicity and general features of various elements .

UnitI: CoordinationCompounds

Werner'scoordinationtheoryanditsexperimentalverification,effectiveatomic numberconcept, chelates, nomenclature ofcoordination compounds, isomerismincoordination compounds,Valencebondtheoryoftransitionmetalcomplexeswithreferencetotetrahedral, octahedralandcubiccomplexes, backbonding, Limitationsofvalencebond theory.

UnitII: Chemistryofelementsoffirsttransitionseries

Characteristicpropertiesofdblockelements,properties ofthe elements of the first transition series, complexes illustrating relative stability of their oxidation states, coordination number and geometry, Types of magnetic behaviour, magnetic and molar susceptibility, determination of magnetic susceptibility, orbital contribution of magnetic moments , spin-only formula, correlation of μ_S and μ_{eff} values, applications ofmagnetic moment.

UnitIII: Chemistryoflanthanide elements

Positioninperiodic table,occurrence and isolation,Electronicstructure, oxidationstatesandionic radii, lanthanidecontraction and itsconsequences,complexformation,spectral properties, magnetic properties, Separation of lanthanidesApplication oflanthanides.

UnitIV: Chemistryofactinides

Occurrence,electronicconfiguration,Generalfeaturesandchemistry ofactinides, oxidationstatesandstereochemistry,spectralproperties,magneticproperties, chemistry ofseparationofNp,Pu and AmfromU, comparison oflanthanideand actinide.

Learning Outcomes: After complition the course student would able to:

- Differentiate between lanthanides and actinides on the basis of their properties.
- Measure the correlation of various values, complex formation and spectral properties of elements of transistion series.

- ❖ Classify the coordination compounds, magnetic behavior and stereochemistry of lanthanides and actinides.
- ❖ Define the separation process, structural properties and electronic configuration of compounds

Chemistry- Paper-II : Organic Chemistry

Objectives:

- ❖ To develop conceptual knowledge about infrared absorption spectroscopy,nomenclature of organometallic compounds.
- ❖ To aquaint about various laws of spectroscopy and methods of synthesis related to organmetallic and heterocyclic compounds.
- ❖ To aware about laws related to IR spectrum, types of tranisitions and preparation of heterocyclic compounds.
- ❖ To develop understanding about effects of solvents, structural features and basicity of pyridine, piperidine and pyrrole.

UnitI Electromagneticspectrum: Absorptionspectra(UV) &InfraredIRabsorptionspectroscopy

Ultravioletabsorptionspectroscopy- absorption laws (Beer- LambertLaw)molarabsorptivity, presentationandanalysisofUVspectra,typesofelectronictransitions, effectofsolventsontransitions,effectofconjugation, conceptofchromophoreandauxochrome.Bathochromic, hypsochromic andhyperchromic and hypochromic shifts, UVspectra ofconjugated enes andenones. Molecularvibrations,Hookeslaw,selectionrules,intensity andposition ofIRbands,measurementofIRspectrum,fingerprint region, characteristicabsorptionsofvarious functional groups andinterpretationofIRspectra ofsimple organic compounds

UnitII : Organometalliccompounds

TheGrignardreagent-formation,structureandchemicalreaction,organozinc compound: formation and chemicalreactions.Organolithiumcompounds-Formation and chemical reactions. **N**omenclature,structuralfeatures,methodsofformationandchemicalreactions of thiols,thioethers, sulphonic acids, sulphonamide and sulpha guanidine.

UnitIII : Heterocyclic compounds- I

Introduction, molecular orbital picture and aromatic characteristic of pyrrole, furane,thiophene andpyridine.Methodsofsynthesisandchemicalreactionswithparticularemphasisonthe mechanism ofelectrophilicsubstitution.Mechanism ofnucleophilicsubstitution reaction inpyridinederivatives. Comparisionofbasicityofpyridine, piperidine and pyrrole

UnitIV : Heterocycliccompounds-II:

Introductiontocondensedfiveandsixmemberedhetrocycles.Preparationand reactionofindole,quinolineand isoquinolinewithspecialreference tofischer indolesynthesis,skraupsynthesis andBischler-Napieralskisynthesis,mechanismofelectrophilicsubstitution reactionofindole,quinolineandiso quinoline.

Learning Outcomes: After complition the course student would able to:

- ❖ Calssify the various organic compounds on the basis of UV spectra and transition.
- ❖ Describe and discuss about formation, structure and chemical reactions of heterocyclic compounds.
- ❖ Draw and interpret the molecular orbit picture and aromatic characteristics of organometallic and heterocyclic compounds.

- Define various devivatives and reaction mechanism of synthesis and substitution related to heterocyclic compounds.

Chemistry- Paper-III : Physical Chemistry

Objectives:

- To aware about degree of freedom, phase equilibria and quantum mechanism.
- To develop conceptual knowledge about entrophy, electrolytes dipole moment etc.
- To develop analytical view about evaluation of absolute entrophy, activity coefficient and magnetic propertires of compounds.
- To give information about carnt theorem, mixing of gases, overvoltage and referectivity.

UnitI: PhaseEquilibriumI

Statementandmeaning of the terms-phase,componentand degree of freedom, thermodynamicderivationofGibbsphaserule,phaseequilibriaofonecomponentsystem-water,CO_2 andS systems.

Phaseequilibriaoftwocomponentsystem:Solid-liquidequilibria,simpleeutecticBi-Cd,Pb-Ag systems, desilverisationoflead.

Solidsolutions**:**Compoundformationwithcongruentmelting point(Mg-Zn)andincongruentmeltingpoint, (NaCl-H_2O),($FeCl_3$-H_2O) and $CuSO_4$-H_2O) system. Freezingmixtures,acetone-dryice.

UnitII : PhaseEquilibriumII

Liquid–Liquidmixtures- Idealliquidmixtures.Raoult`s andHenry`slaw.Nonideal system-azeotropes-HCl–$H_2O$and ethanol-watersystems.

Partially miscible liquids- Phenol-water, trimethylamine-water, nicotine-water systems. Lower and upper consulate temperature. Effectof impurityon consulattemperature.

Immiscible liquids,steamdistillation. Nernstdistribution law-Thermodynamic derivation,applications.

UnitIII : QuantumMechanicsI

Black-bodyradiation,Planck`sradiationlaw,photoelectriceffect,heatcapacityof solids, Behr,s modelofhydrogenatom(noderivation)andits defects. ComptonEffect.De Brogliehypothesis, Heisenberg,suncertainty principle,Sinusoidalwaveequation,Hamiltonianoperator,Schrodingerwaveequation anditsimportance,physicalinterpretationofthewavefunction,postulatesofquantummechanics,particleina one dimensionalbox.

SchrodingerwaveequationforH-atom,separationintothreeequations(withoutderivation),quantumnumbers and their importance, hydrogen like wave functions, radialwave functions,angularwave functions.

UnitIV : Adsorption

Differencebetween adsorption,absorptionandsorption, Chemisorption,adsorbentandadsorbate, reversible and irreversible adsorption, Characteristics of adsorption ,adsorption of gases by solids, factors affecting adsorption,typesofadsorption, typesofadsorptionisotherms,FreundlichandLangmuiradsorption isotherms.

Learning Outcomes: After complition the course student would able to:

- ❖ Classify the electrodes, cells and properties of organic compounds.
- ❖ Determine and interpret the function of volumes, equations, coefficients related to entrophy, corrosion and molecular structures.
- ❖ Describes various properties of compounds on the basis of energy, potential and dipole moment etc.
- ❖ Measure the entropy change, pH and polarization and magnetic properties of compounds.

Term paper/ practicals

Inorganic chemistry:

Preparation:

1. Preparation ofsodiumtrioxalato ferrate (III), $Na_3[Fe(C_2O_4)_3]$ (b)preparation ofNi-DMG complex$[Ni(DMG)_2]$
2. Preparation ofcopper tetraammine complex $[Cu(NH_3)]SO_4$
3. Preparation ofcis-and trans-bisoxalato diaquachromates (III) ion
4. Preparation ofsodiumtetrathionate

Organic Chemistry

Qualitative analysis: Analysis ofan organic mixture containingtwo solid componentsusingwater,$NaHCO_3$,and$NaOH$forseparationand preparation ofsuitable derivatives.

Suggested Reading:

1. A New Concise Inorganic Chemistry; Fifth Edition; J.D. Lee; Blackwell Science, London, 1989.
2. Inorganic Chemistry; Third Edition; D.F. Shriver and P.W. Atkins; Oxford University Press, New York, 1999.
3. Inorganic Chemistry; Third Edition; Gary L. Miessler and Donald A. Tarr; Pearson Education Inc. Singapore, 2005.
4. Organic Chemistry; Seventh Edition; T.W. Graham Solomons & Craig B. Fryhle; John Wiley and Sons, 1998.
5. Organic Chemistry; Sixth Edition; Robert Thornton Morrison & Robert Neilson Boyd; PHI Pvt. Ltd, 2004.
6. Organic Chemistry Vol. I ; Fifth Edition; I.L. Finar; Longman Scientific and Technical, Singapore, 1975.
7. Organic Chemistry: Vol 1, Mukerjee and Singh
8. Organic Chemistry: Vol 2, Mukerjee and Singh
9. Organic Chemistry: Vol 3, Mukerjee and Singh
10. A Text Book of Physical Chemistry; A.S. Negi, S.C. Anand; New Age International (P) Limited, New Delhi, 2002.
11. The Elements of Physical Chemistry; P.W. Atkins; Oxford University Press, 1996.
12. University General Chemistry; C.N.R. Rao; Macmillan India Ltd., New Delhi, 1998.
13. Physical Chemistry: Puri Sharma and Pathania
14. Physical Chemistry: J. Moore
15. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
16. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
17. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
18. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
19. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
20. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर

21. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
22. प्रायोगिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाऊस, जयपुर
23. कार्बनिक रसायन, वी.के. रस्तोगी, यसपाल सिंह, कॉलेज बुक हाउस, जयपुर

Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 502	**Physics-I**	CE*	4	15	**20**	100
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25** Practical	

Physics-Paper-I :Mathematical Physics and Special Theory of Relativity – I

Objectives:

- To understand the concept of co-ordinate transformation.
- To know the concept of tensor analysis and dirac delta function.
- 3.To understand the Special functions (Legendre, Bessel, hermite and laguerre) .
- To aware the techniques of variables and its application to boundary value problems

UNIT I Coordinate Transformation:

Orthogonal curvilinear coordinate system, scale factors, expression for gradient, divergence, curl and their application to Cartesian, circular cylindrical and spherical polar coordinate. Coordinate transformation and Jacobian.

UNIT II Tensor analysis & Dirac Delta function:

Transformation of covariant, contravariant and mixed tensor; Addition, multiplication and contraction of tensors; Metric tensor and its use in transformation of tensors. Dirac delta function and its properties.

UNIT III Special functions:

The second order linear differential equation with variable coefficient and singular points, series solution method and its application to the Hermite, Lagendre and Laguerre differential equations: basic properties like orthogonality, recurrence relation, graphical representation and generating function of Hermite, Lagendre , Leguerre functions (simple applications)

UNIT IV Boundary Value Problems:

Techniques of separation of variables and its application to following boundary value problems
(i) Laplance equation in three dimensional Cartesian coordinate system- line charge beween twoearthed parallel plates (ii) Helmholtz equation in circular cylindrical coordinates – cylindricalresonant cavity, (iii) Wave equation in spherical polar coordinates – the vibrations of a circularmembrane, (iv) Diffusion equation in two dimensional Cartesian coordinate system – leatconduction in a thin rectangular plate, (v) Laplace equation in spherical coordinate system –electric potential around a spherical surface.

Learning Outcomes: After complition the course student would able to:

- Discuss the concept of co-ordinate transformation.
- Classify the concept of tensor analysis and dirac delta function.
- 3.Differentiate the Special functions (Legendre, Bessel, hermite and laguerre) .

- ❖ Applies the techniques of variables and its application to boundary value problems.
- ❖ 5 Identify the laplace equation in spherical co ordinate system.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, गणितीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics- Paper-II :Quantum Mechanics – I

Objectives:

- ❖ To Understand the Origin and Experimental Evidence of Quantum theory.
- ❖ To aware the Uncertainty Principles and Schrodinger's Wave Mechanics.
- ❖ To develop concept the Postulates and Operators of Quantum Mechanics.
- ❖ To understand the Simple Solutions of Schrodinger Equation.

UNIT I Origin and Experimental Evidence of Quantum Theory:

Development of quantum theory –Historical development and experimental evidence for quantumtheory Electromagnetic Radiation: Black Body Radiation, qualitative discussion of spectral distribution ofenergy, limitation of classical theory, Planck's radiation law, photoelectric effect, Compton effect, MatterWaves: De Broglie hypothesis, Davison Germer experiment.

UNIT–II Uncertainty Principles and Schrodinger's Wave Mechanics :

Uncertainty principle and its consequences gamma ray microscope, diffraction at a single slit, itsapplication such as (i) Non existence of electron in nucleus, (ii) Ground state energy of H–atom, (iii)Ground state energy of harmonic oscillator (iv) Natural width of spectral lines. Schrodinger's equation :Its need and justification, time dependent and time independent forms, physical significance of the wavefunction and its interpretation, probability current density.

UNIT–III Postulate's and Operators of Quantum Mechanics :

Operators in quantum mechanics, definition of an linear operator. Linear and Hermition operator, state function. Expectation value of dynamical variable-position, momentum and energy, Fundamentalpostulates of quantum mechanics, Eigen function and eigen values, Degeneracy. Orthogonality of eigenfunction, Commutation relations, Ehrenfest's theorem and complementarily wave packet, group and phasevelocities, Principle of superposition, Gaussian wave packet.

UNIT IV Simple Solutions of Schrodinger equation :

Time independent Schrodinger equation and stationary state solution, Boundary and continuity conditions on the wave function, particle in one dimensional box, eigen function and eigen values , discrete energy levels, extension of results for three dimensional case and degeneracy of levels.

Learning Outcomes: After complition the course student would able to:*:*

- ❖ Discuss the Origin and Experimental Evidence of Quantum theory.
- ❖ Apply the Uncertainty Principles and Schrodinger's Wave Mechanics.
- ❖ Identify the Postulates and Operators of Quantum Mechanics.
- ❖ Calculate the Simple Solutions of Schrodinger Equation
- ❖ Discuss on the descrete energy level.

Suggested Reading:

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, क्वांटम यांत्रिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics- Paper-III:Solid State Physics

Objectives:

- To know the concept of Crystal Binding and crystal Structure.
- To understand the Thermal and Electrical Properties of the Solids.
- To aware the concept of Band Theory of Solids.
- To develop concept the Magnetic Property of materials.

UNIT-I Crystal Binding and Crystal Structure:

Various types of Bindings: Cohesive energy and compressibility of ionic crystals , Space Lattice andCrystal Structure, Bravis Lattice, Miller Indices and Crystal Structure, Spacing of Planes in CrystalLattice, Determination of different crystal properties for SC, FCC, BCC,HCP and perovaskite structure,X-ray Diffraction and Bragg's Law, Laue equation of X-ray diffraction, Debye Scherer and LaueCamera.

UNIT-II Thermal and Electrical Properties of the Solids:

Concepts of Thermal Energy and Phonons, Internal Energy and Specific Heat, the Various Theories of Lattice Specific Heat of Solids: The Einstein Model, Debye Model, Electronic Contribution of theinternal Energy hence to the Specific Heat of Metals, Thermal Conductivity of the lattice. ElectricalConductivity: Drude-Lorentz Theory of Electrical Conductivity, Boltzmann Transport Equation,Sommerfield Theory of Electrical Conductivity, Mathiessen's Rule, Thermal Conductivity andWildemann-Franz's Law, The Hall Effect.

UNIT-III Band Theory of Solids:

Formation of Bands, Periodic Potential of a Solid, Wave Function in a Periodic Lattice and BlochTheorem, Density of states , Kronig Penny Model, Velocity of the Bloch electrons and DynamicalEffective Mass, Momentum, Crystal Momentum and Physical Origin of the Effective Mass, NegativeEffective Mass and concept of Holes, The distinction between metals, insulators, and semiconductors.

UNIT-IV Magnetic Properties:

Classification of Magnetic Materials, Origin of Atomic Magnetism, Dynamics of Classical Dipole InMagnetic Field, Magnetic Susceptibility, phenomenon of Diamagnetic, Para magnetic susceptibility of Ionic Crystal, Ferromagnetism, Temperature Dependence of Saturation of Spontaneous Magnetization, The Paramagnetic Region, the Nature of Ferromagnetism, Nature and Origin of Weiss Molecular Field, Heisenberg's Exchange Interaction, (Quantum Theory of Ferromagnetism), Relation between Exchange Integral and Weiss Constant, Ferromagnetism Domains, Magnetostriction

Learning Outcomes: After complition the course student would able to:

- Identify the concept of Crystal Binding and crystal Structure.
- Study the Thermal and Electrical Properties of the Solids.
- Classify the concept of Band Theory of Solids.
- Discuss the Magnetic Property of materials.
- Identify relation between exchange integral and Weiss constant.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, ठोस अवस्था भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics Practical: V

1. 1.Study of a RC transmission line at 50 Hz
2. Study of a RC transmission line
   - at fixed frequency
   - at variable frequency
3. Study of resonance in a LCR circuit 9 (Using air core inductance and damping by metal plate)
   - At fixed frequency by varying C, and
   - by varying frequency
4. Study of charecteristics of junction diode and zener diode
5. Study of
   - Recovery time of junction diode and point contact diode
   - Recovery time as function of frequency of operation and switching current
6. To design zener regulated power supply and study the regulation with various loads.
7. To study the characteristics of a field effect transistor (FET) and design/study amplifier of finite gain
8. To study the frequency response of a transistor amplifier and obtain the input and output impendence of the amplifier.
9. To Design and study of an R-C phase shift oscillator and measure output impendence (frequency response with change of component of R and C).
10. To study a voltage multiplier circuit to generate high voltage D.C. from A.C.
11. Using discrete components, study OR, AND, NOT logic gates, compare with TTL integrated circuits (I.C.'s).
12. Application of operational amplifier (OP-AMP) as : Minimum two of the following exercises- (a) Buffer (for accurate voltage measurement) (b) Inverting amplifier (c) Non inverting amplifier (d) Summing amplifier.

Suggested Reading :

1. प्रो. प्रभा दशोरा, तृतीय वर्ष प्रायोगिकी भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, नई दिल्ली,2015

Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 503	Mathematics-I	CE*	4	15	**20**	100
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25** Practical	

Mathematics-Paper-I:Algebra - I

Objectives:

- To Understand the definition and Simple Properties of Group & Subgroup.
- To aware the Cayley's Theorem and Fundamental Theorem of Isomorphism.
- To know the Definition of Ring and Subrings.
- 4 To gain knowledge of morphism of ring.

Unit 1: Definition and simple properties of Groups and Subgroups. Permutation group, Cyclic group. Cosets,

Unit 2 ; Lagrange's theorem on the order of subgroups of a finite order group.

Unit 3: Morphism of groups, Cayley's theorem. Normal, subgroups and Quotient groups. Fundamental theorems of Isomorphism.

Unit 4: Definition and simple properties of Rings and Subrings. Morphism of rings. Embedding of a ring

Learning Outcomes: After complition the course student would able to:

- Discuss on definition and Simple Properties of Group & Subgroup.
- Apply the Lagrange's Theorem on the Order of Subgroups.
- Calculate the Cayley's Theorem and Fundamental Theorem of Isomorphism.
- Discuss the definition of Ring and Subrings.
- Differentiate group, subgroup and quotient group.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी,बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics- Paper-II:Complex Analysis -I

Objectives:

- To Understand the Complex Plane, Connected & Compact Set.
- To Aware the Complex Valued function.
- To know the Complex Integral.
- To study taylor's theorem and laurent's theorem .

Unit 1: Complex plane. Connected and Compact sets. Curves and Regions in complex plane. Jordan curve Theorem (statement only). Extended complex plane. Stereographic projection.

Unit 2 ; Complex valued function — Limits, Continuity and Differentiability. Analytic functions, Cauchy-Riemann equations (Cartesian and polar form). Harmonic functions, construction of an analytic function.

Unit 3 : Complex integration, Complex line integrals, Cauchy integral theorem, Indefinite integral, Fundamental theorem of integral calculus for complex functions. Cauchy integral formula, Analyticity of the derivative of an analytic function, Morera's theorem, Poisson integral formula, Liouville' theorem.

Unit 4 : Taylor's theorem. Laurent's theorem. Maximum modulus theorem

Learning Outcomes After complition the course student would able to:

- Discuss the Complex Plane, Connected & Compact Set.
- Identify the Complex Valued function.
- Classify the Complex Integral.
- Solve the Taylor's Theorem and Maximum Modulus Theorem.
- Discuss on the fundamental theorem of integral calculus for complex functions.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics- Paper-III:Dynamics

Objectives:

- To Understand the Velocity and Acceleration.
- To Study the Motion along Horizontal & Vertical Elastic String.
- To aware the Motion in Resisting medium.
- To know about simple harmonic motion and Hooke's Law.

Unit 1: Velocity and acceleration — along radial and transverse directions, along tangential and normal directions.

Unit 2 : S.H.M., Hooke's law, motion along horizontal and vertical elastic strings.

Unit 3: Motion in resisting medium - Resistance varies as velocity and square of velocity.

Unit 4: Work and Energy. Motion on a smooth curve in a vertical plane. Motion on the inside and outside of a smooth vertical circle.

Learning Outcomes: After complition the course student would able to:

- Discuss the Velocity and Acceleration.
- Classify the Motion along Horizontal & Vertical Elastic String.
- Identify the Motion in Resisting medium.
- Calculate Work and Energy.
- Calculate the motion on the inside and outside of a smooth vertical circle.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 504	Botany-I	CE*	4	15	**20**	100
	Botany-II				**20**	
	Botany-III				**20**	
	Botany Practical				**25** Practical	

Botany-Paper-I:Morphology Of Angiosperms

Objectives:

- To understand the basic plan of flouring plants.
- To get knowledge about the morphology of root system and shoot system.
- To learn the origin, development and types of leaves
- To study the detailed structure of flower.
- To aware students with the concept and significance of seed.

UNIT 1: Plant habit

The basic plan of flowering plants, modular types of growth, diversity of plant formin annuals, biennials and perennials, evolution of tree habit in gymnosperm, monocotyledons and dicotyledons, trees largest and longest lived plants.

UNIT II Morphology of Root System

Root: Structure of root, types and structural modification for storage, physiological and mechanical, interaction of root with other microorganisms.

Stem: Structure, types and modification (storage and mechanical), branching pattern, monopodial and sympodial growth, canopy architecture.

UNIT III: II Morphology of Leaves

Leaves: Origin, development, types, phyllotaxy, venation, lamina parts, shapes, size and modifications, leaf surface features and appendages, leaf surface area, stomata and trichome structure.

UNIT IV: II Morphology of Flower and Seed

Flower: Flower as a modified shoot, detailed structure of flower, types of inflorescence and specialized inflorescence, **fruit** Structure, types and classification,

Seed: detail structure of seed and seed coat (monocot and dicot), significance of seed, suspended animation, dispersal strategies.

Learning Outcomes: After complition the course student would able to:

- Understand the basic plan of flouring plants.
- Carry out the comparative morphology of root system and shoot system.
- Discuss the origin, development, types of leaves
- Get knowledge about the detailed structure of flower
- Interpret the concept of seed with its significance.

Suggested Readings:

1. Eames, A. J. 1981. Morphology of Angiosperms .McGraw Hill, New York.
2. Gifford, E.M. and Foster, A.S. 1989. Morphology and Evolution of Vascular Plants. W.H. Freeman, New York.
3. Sporne, K.R. 1974. Morphology of Angiosperms. Hutchinson University Press, London.
4. Singh, V.P., Pandey, P.C. and Jain, D.K**.** 2011. A Text book of Botany- Angiosperms. Rastogi Publication, Merrut.
5. Trivedi, P.C., Sharma, N. and Dhankad, R. S. 2009. Plant Morphology and Anatomy. Ramesh Book Depot. Jaipur.

Botany- Paper-II :Anatomy Of Flowering Plants

Objectives:

- To understand the structure and classification of tissues
- To distinguish simple and complex tissues.
- To know about the definition, classification, types and function of meristem.
- To study the anatomy of stem, root and leaf.
- To analyze different types of wood with secondary growth

UNIT I: Classification and structure of tissues

Simple tissue: Structure occurrence and function (parenchyma, collenchyma, sclerenchyma), Complex tissues: Structure, origin and function (xylem and phloem), tissue systems, Secretary tissues: Glands, glandular hairs, nectaries, hydathodes, schizogenous and lysigenous ducts, resin ducts, mucilage ducts and laticifers. Vascular bundle: Types (conjoint, collateral, bi-collateral, open closed, radial, concentric: amphicribal and amphivasal).

UNIT II: Meristem

Meristem definition, classification, types and function, Shoot apical meristem theories: Apical cell theory, histogen theory, tunica-corpus theory, continuing meristematic residue, cytohistological zonation. Root apical meristem theories: Apical cell theories, histogen theory, korper-kappe theory, quiescent cell theory,

UNIT III: Analogy of Stem, Root and Leaf

Stem: Primary structure in dicotyledonous and monocotyledonous, primary anomalous structures. Root: Primary structure in dicotyledonous and monocotyledonous, development of lateral roots and adventitious root. Leaf- Internal structure of dorsiventral,isobilateral and centric leaves.

UNIT IV: Secondary growth

Secondary growth in dicot and monocot stem. Secondary structures: Wood structure, types and formation of wood, annual rings, tyloses, dendrochronolgy,periderm,bark and lenticels. Anomalous secondary growth in dicot stem, in monocot stem in dicot roots.

Learning Outcomes: After complition the course student would able to:

- Understand the structure and classification of tissues
- Distinguish simple and complex tissues.
- Explain the definition, classification, types and function of meristem.
- Discuss the anatomy of stem, root and leaf.

- ❖ Analyze different types of woods with secondary growth.

Suggested Readings:

1. Cuttler, E.G. 1971. Plant Anatomy. Part III Organs, Edward Arnold Ltd., London.
2. Cuttler, E.G. 1969. Plant Anatomy. Part I Cells and Tissue. Edward Arnold Ltd., London.
3. Eames, A.J. and MacDaniels, L.H. 1987. An Introduction to Plant Anatomy. Tata MacGraw-Hill Publishing Company Ltd., New Delhi.
4. Esau, k. 1985. Plant Anatomy. 2nd Edition Wiley Eastern, New Delhi.
5. Fahn, A. 1997. Plant Anatomy. Aditya Books (P) Ltd., New Delhi.
6. Fahn, A. 2000. Plant Anatomy. Permagon Press.
7. Gifford, E.M. And Foster, A.S. 1989. Morphology and Evolution of Vascular Plants. W.H. Freeman, New York.
8. Pandey, S.N. and Chadha, A. 2014. A text book of Botany- Plant anatomy and Economic Botany. Vikas publishing house Pvt. Ltd, New Delhi.
9. Vashishta, P.C. 1974. Plant Anatomy. Pradeep Publication, Jalandhar.
10. Singh, V.P., Pandey, P.C. and Jain, D.K**.** 2011. A Text book of Botany- plant Morphology and anatomy. Rastogi Publication, Merrut.
11. Trivedi, P.C., Sharma, N. and Dhankad, R. S. 2009. Plant Morphology and Anatomy. Ramesh Book Depot. Jaipur.

Botany- Paper-III :Anatomy Of Flowering Plants Plant Systematics

Objectives:

- ❖ To understand the scope and importance of plant systematics .
- ❖ To study the different taxonomical tools.
- ❖ To get knowledge about the principle and rules of botanical nomenclature.
- ❖ To aware students with different families with Bentham and hooker classification.
- ❖ To learn about the botanical gardens and herbariums.

UNIT I:

Scope and importance of taxonomy, history and classification of angiosperm (Linneaus, Bentham and Hooker and Engler and Prantl), concept of species, genus and family. Taxonomic tools: Herbarium, E-Flora, botanical garden, monograph, library index, journals, key and icons.

UNIT II:

Principle and rules of botanical nomenclature: Ranks, names, type method, principle of priority and its limitations, Rules of Validity, Rules of Effectivity, Terms and concepts (primitive and advanced, homology and analogy, parallelism and convergence, monophyly, paraphyly and polyphyly

UNIT III:

Taxonomic studies of the following families (Bentham and Hooker), Dicots: Ranunculaceae, Brassicaceae, Malvaceae, Rubiaceae, Fabaceae, Apiaceae, Asteraceae, Apocynaceae and Asclepidaceae.

UNIT IV:

Taxonomic studies of the following families (Bentham and Hooker): Solanaceae, Convolvulaceae, Acanthaceae, Lamiaceae, Amaranthaceae, Euphorbiaceae, Liliaceae, Orchidaceae and Poaceae.

Learning Outcomes: After complition the course student would able to:

- ❖ Understand the scope and importance of angiosperms.
- ❖ Enhance knowledge about the taxonomical tools.
- ❖ Discuss the principle and rules of botanical nomenclature.
- ❖ Compare different families with Bentham and hooker classification
- ❖ Learn about the botanical gardens and herbariums.

Suggested Readings:

1. Naik, V.N.2011. Taxonomy of Angiosperms. TATA McGraw Hill, New Delhi.
2. Pandey, S.N. and Misra, S.P. 2008. Taxonomy of Angiosperms. Ane Books India, New Delhi.
3. Saxena, N.B. and Saxena, S. 2011. Plant Taxonomy. Pragati Prakashan, New Delhi.
4. Sharma, B.D. 1984. Flora of India vol. I. Botanical Survey of India, Calcutta.
5. Sharma, O.P. 1996. Plant Taxonomy. TATA McGraw Hill, New Delhi
6. Simpson, M.C. 2006. Plant Systematics. Elsevier, Amsterdam.
7. Singh, G. 2001. Plant systematics. Oxford and IBH, New Delhi.
8. Sivarajan, V.V. 1991. Introduction to Principles of Plant Taxonomy**.** Oxford and IBH, New Delhi.

BOTANY PRACTICAL V

1. Study of different modifications of root, stem, leaf by using specimens.
2. Study of different epidermal appendages (trichome etc.) by making slides.
3. Study of floral apex.
4. Survey and study of dispersal mechanism of seeds.
5. Microscopic studies on types and anatomy of stomata (monocotyledons and dicotyledons).
6. Study of apical and lateral meristem using plant material and slides
7. Anatomical study of root, stem and leaf (dicotyledons and monocotyledons) by making double stained temporary and permanent slides.
8. Anatomical studies of anomalous secondary structure in stem by making temporary andpermanent slides.
9. Anatomical study of dicot and monocot seed (Cicer, Maize and cotton)
10. Study of vegetative and floral characters of species of the families studied in theory.
11. Identification of selected taxa up to genus using taxonomic keys.
12. Herbarium technique.
13. Familiarity with local flora and preparation of herbarium sheet.

Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 505	Zoology-I	CE*	4	15	**20**	100
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25** Practical	

Zoology-Paper-I: Ethology

Objectives:

- To understand Concepts of Ethology- Motivation, Fixed Action Patterns (FAP), Sign Stimulus; Innate Releasing Mechanism (IRM); Action Specific Energy (ASE); Learning; Imprinting.
- To understand Methods of Studying Behaviour: Studies in Laboratory- Neurotransmitter, physiological and Neurochemical techniques. Brief account on Pheromones,
- To explain the Social organization.
- To learn about the Biological Rhythms
- To explain the control of behavior neural control hormonal control

Unit I: Concept of Ethology

1.1 Introduction and history of Ethology

1.2 Concepts and patterns of behaviour: FAP, Sign Stimulus, Innate Releasing Mechanism, Action Specific Energy, Concept of motivation

1.3 Learned behaviour and types of learning

Unit II: Study of Behaviour

2.1. Methods of studying Brain Behaviour: Neurotransmitter, Physiological and Neurochemical Technique

2.2 Genetic basis of behaviour

2.3 Control of behaviour: Neural control, Hormonal control

2.4 Elementary idea of role of Pheromones

Unit III: Social Organisation

3.1 Elements of Social Behabiour

3.2 Living in groups: Characteristics and advantages with respect to Honey bee, Deer, monkey

3.3 Migration in Birds; Causes of migration and Navigation

Unit IV Biological Rhythms

4.1 Faunal diversity in India and World; Endangered Mammals and Birds of India

4.2 Wild life Conservation with reference to India & Rajasthan

4.3 National Parks, Sanctuaries and Biosphere Reserves of India

Learning Outcomes: After complition the course student would able to:

- Concepts of Ethology- Motivation, Fixed Action Patterns (FAP), Sign Stimulus; Innate Releasing Mechanism (IRM); Action Specific Energy (ASE); Learning; Imprinting.
- Methods of Studying Behaviour : Studies in Laboratory- Neurotransmitter, physiological and Neurochemical techniques. Brief account on Pheromones,
- Understand the Social organization.

- ❖ Interprets the Biological Rhythms
- ❖ Discuss the control of behavior neural control hormonal control

Zoology-Paper-II :Biotechniques, Instrumentation and Bioinformatics

Objectives:

- ❖ To learn about the term Electrophoresis, Radioactivity.
- ❖ To understand the working principle of Centrifuge, Incubator, pH meter.
- ❖ To understand the cell culture techniques and separation techniques in biology.
- ❖ To Understand the Principle, parts, and its application of Microscopic techniques. Understand the working principle of UV-Vis principle, Colorimeter.
- ❖ To aware the recognize the importance of various databases

Unit –I: Biotechniques

1.1 Concepts of sterilization: Filtration, autoclaving, dry heat sterilization, wet sterilization and radiation

1.2 Separation of biomolecules: Centrifugation (Sedimentation, density gradient);Chromatography (Elementary idea of Paper – ascending and Circular, thin layer, gel filtration and ion exchange-Principles and applications)

1.3 Electrophoresis: Agarose Gel Electrophoresis, SDS-PAGE

Unit-II: Micro Technique

2.1 Fixation, dehydration, clearing, embedding & section cutting

2.2 Difficulties encountered during section cutting (causes and remedies)

2.3 Double staining with Haematoxylin and Eosin

2.4 Histochemical staining techniques for carbohydrates (Periodic acid schiff), proteins (Mercury-bromophenol blue) and lipids (Sudan black-B)

Unit-III: Instrumentation

3.1 Microscope: Principle of Microscopy and types

3.2 Principles of colorimeter

3.3 Principles of spectrophotometers

Unit-IV: Bioinformatics

4.1 Bioinformatics: Definition, Scope, Basic concepts in bioinformatics, importance and role of bioinformatics in life sciences

4.2 Bioinformatics databases- introduction, types of databases

4.3 Nucleotide sequence databases, Elementary idea of protein databases

4.4 BLASTA, FASTA, PHYLOGENY TREE Analysis

Learning Outcomes: After complition the course student would able to:

- ❖ Discuss the term Electrophoresis, Radioactivity.
- ❖ Understand the working principle of Centrifuge, Incubator, pH meter.
- ❖ Understand the cell culture techniques and separation techniques in biology.
- ❖ Understand the Principle, parts, and its application of Microscopic techniques. Understand the working principle of UV-Vis principle, Colorimeter.
- ❖ Recognize the importance of various databases

Zoology-Paper-III:Immunology & Biotechnology

Objectives:

- To understand Distinguish Innate immunity and Acquired Immunity
- To understand the importance of Immune system
- To understand Study and understand the DNA Recombinant technology
- To Understand the Scope and Significance of Biotechnology
- To learn about mechanism of Antigen & Antibody reaction

Unit –I: (Basics of Immunology)

1.1 Characteristics of Immune System; Types of immunity: Active, passive, innate and acquired immunity

1.2 Types of antibodies and their structure and function.

1.3Mechanism of Antigen Antibody reactions: Precipitation, agglutination, Neutralisation, Opsonization, Complement

Unit –II: (Cells and Organs in Immunity)

2.1 Immune Cells & Organs: B and T Lymphocytes, Plasma Cell, Null Cell, Primary and Secondary Lymphoid Organs; tonsils, adenoids, thymus, bone marrow, bursa fabricus, macrophages

2.2 Mechanism: Humoral and Cell- Mediated Immunity.

2.3 Complement System, Interferons, Vaccines

Unit –III: (Biotechnology)

3.1 History, Scope and application of recombinant DNA technology; Genetic Engineering

3.2 Basic concepts in recombinant DNA technology, cDNA Library; DNA manipulation enzymes (Nucleases, Ligases, Polymerases)

3.3 Vectors for Gene Transfer (Plasmids and Phages)

Unit –IV: (Applications of Biotechnology)

4.1 Monoclonal antibodies and their production and applications

4.2 Protoplast Fusion and their Application

4.3 Environmental Biotechnology: Metal recovery; Petroleum recovery; Pest Control; Waste Water Treatment

Learning Outcomes: After complition the course student would able to:

- Distinguish innate immunity and Acquired Immunity.
- Understand the importance of Immune system.
- Study and understand the DNA Recombinant technology.
- Understand the Scope and Significance of Biotechnology.
- Discuss the mechanism of Antigen & Antibody reaction

Zoology Practical

Paper-I: Ethology

1. Locomotory behaviour of (Tribolium):
    - Effects of light intensity and light quality on the rate of locomotion
2. Study of individual and social behavioural patterns of a troop of monkey through visual aids

3. Antenal Grooming in Cockroach

Paper-II: Biotechniques, Instrumentation & Bioinformatics

1. Separation of amino acids by paper chromatography and TLC
2. Separation of proteins by electrophoresis technique
3. Double staining method
4. Demonstration of carbohydrates, proteins and lipids by histochemical methods
5. Introduction to basic laboratory instruments and equipments- Autoclave, Centrifuge, pH meter, Micropipettes, Digital balance, Homogenizer, Electrophoresis apparatus; Molar and normal solutions calculations
6. Use of internet for survey of literature using protein and nucleotide databases(NCBI)
7. Use of softwares like Microsoft offices, BLASTA, FASTA

Paper-III: Immunology & Biotechnology

1. Antigen – Antibody interaction by double diffusion method (Ouchterlony)
2. Study of histological slides of organs of immune system – Thymus, Lymph nodes and Spleen
3. Isolation of DNA/ Plasmid (Genomic DNA from any available source) by phenol extraction method.

Suggested Reading:

Biotechnology

1. Elements of Biotechnology – Gupta
2. T. B. of Biotechnology – Dubey
3. Modern Concept of Biotechnology – Kumar H. D
4. Advances in Biotechnology – Jogdand
5. T. B. of Biotechnology – Chatwal
6. Bhatiya and Jain, 2015, Immunology, Microbiology and Biotechnology, Himalaya Publishing House Pvt. Ltd. Delhi

Biotechnique and Microtechnique

1. Animal Tissue Technique – Humason
2. Histological Technique – Devaenport
3. Microtechnique – Jiwaji&Patki
4. Microtechnique – Wankhede
5. Biophysical Chemistry – Upadhyay, Upadhyay and Nath
6. Techniques in Life Sciences – D. B. Tembhare

Bioinformatics

1. Mount W. 2004. Bioinformatics and Sequence Genome Analysis 2nd Editon CBS Pub. New Delhi.
2. Bergman, N. H. Comparative Genomics. Humana Press Inc. Part of Springer Science+BusinessMedia, 2007.
3. Baxevanis, A. D. Ouellate, B. F. F. 2009. Bioinformatics: A Practical Guide to the
4. Analysis of Genes and Proteins.John-Wiley and Sons Publications, New York.
5. Campbell A. M. and Heyer, L. J. 2007. Discovering Genomics, Proteomics and Bioinformatics, 2nd Edition. Benjamin Cummings.
6. Des Higgins and Willie Taylor 2000. Bioinformatics: Sequence, Structure and Databanks.Oxford University Press.
7. Rashidi H. H. and Buehler 2002. Bioinformatics Basics: Applications in Biological Science and Medicine, CRC Press, London.
8. Gibas Cynthia and Jambeck P. 2001. Developing Bioinformatics Computer Skills:
9. ShroffPublishersand Distributors Pvt. Ltd. (O'Reilly), Mumbai.
10. Bhatiya and Jain, 2015, Immunology, Microbiology and Biotechnology, Himalaya Publishing House Pvt. Ltd. Delhi

Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 601	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**100**
	Chemistry-II				**20**	
	Chemistry-III				**20**	
	Chemistry Practical				**25** Practical	

Chemistry-Paper-I: Inorganic chemistry

Objectives:

- To develop understanding about metl ligand bonding, metal complexes and organometallic.
- To aware about the conceptual knowledge of spectral properties and kinetic aspects of metal complexes.
- To develop conceptual knowledge about slection rules, trans effect and substitution reactions .
- To give information about spectrochemical series, kinetic stability and bonding application of alkyls and aryls .

UnitI : Metal– ligandbondingin transition metalcomplexes

Anelementary ideaofcrystal-field theory,crystalfield splitting in octahedral,tetrahedralandsquareplanarcomplexes, factorsaffecting thecrystal– fieldparameters, colouroftransition metalions, limitationsofcrystalfield theory.

UnitII : Spectralpropertiesoftransitionmetalcomplexes

Typesofelectronictransitions,selection rulesfor d-d transitions, spectroscopic ground statesandSpectoscopic terms(L-SCoupling), spectrochemicalseries, orgel- energyleveldiagramfor d^1 and d^9 states,theelectronicspectrumof$[Ti(H_2O)_6]^{+3}$ complex ion.

UnitIII : Thermodynamic and kinetic aspects of metal complexes

Thermodynamic and kinetic stability, thermodynamicstabilityandfactorsaffectingthestability,substitutionreactionsofsquareplanarcomplexes, typesofsubstitutionreactions andtranseffect.

UnitIV : Organometallic chemistry

Definition, nomenclature and classification of organometallic compounds, preparation,properties,bonding nadapplicationsofalkylsandarylsofLi,Al, Hg,SnandTi,abriefaccountof metal–ethyleniccomplexesandhomogenoushydrogenation,mononuclearcarbonylsandthenatureofbonding in metal carbonyls.

Learning Outcomes: After complition the course student would able to:

- Classify the organometallic compounds and metal complexes on the basis of transition, stability and bonding structures.
- Measure the correlation among structural & kinetic properties of metal complexes.
- Apply the knowledge of bonding, spectral properties and structures to define basic properties of compounds.
- Draw and interpret the energy level diagram and spectroscopic series for various states

Chemistry-Paper-II: Organic Chemistry

Objectives:

- To develop conceptual knowledge about nuclear magnetic resonance, industrial uses and structures of compounds .
- To aware about classification, nomenclature and properties of carbohydrates, amino acids,fats and detergents.
- To develop understanding about synthesis, group analysis and insdustrial uses of fat, oil and detergents.

UnitI : Nuclear magneticresonance(NMR)spectroscopy

Protonmagneticresonance ^{1}H-NMR spectroscopy,nuclear shieldinganddeshielding, chemicalshiftandmolecularstructure,spinspinsplittingandcouplingconstant, areas ofsignals, interpretation ofPMRspectraofsimpleorganic moleculessuchasethylbromide, ethanol, acetaldehyde,1,1,2tribromoethane, ethylacetate, tolueneandacetophenone.Problemspertaining to thestructure elucidation ofsimple organic compounds usingUV, IRand PMR spectroscopictechniques.

UnitII : Carbohydrates :

Classification and nomenclature, monosaccharides, mechanismof osazone formation, inter conversionofglucoseandfructose,chainlengthing andchainshortening ofaldose. Configurationof monosaccharide. erythroandthreodiastereomers.Conversionofglucoseintomannose.Formationofglucosides, ethersandesters.Determinationofringsizeofmonosaccharides.CyclicstructureofD(+)-glucose.Mechanism ofmutarotation.Structureofriboseanddeoxy ribose.Anintroduction todisaccharides(maltose,sucrose and lactose)and polysaccharides (starch and cellulose) withoutinvolvingstructure determination.

UnitIII : Aminoacids,peptides,proteinsandnucleicacid

Classification,structure and stereochemistry ofaminoacids. Acidbase behaviourof isoelectric pointand electrophoresis. Preparation and reactionofα aminoacid. Structure and nomenclature ofpeptidesand proteins.Classification ofproteins,peptide structure determination, end group analysis, selectivehydrolysis of peptides. Classicalpeptidessynthesis, solidphasepeptide synthesis. Structreof peptidesandproteins,levelsofproteinstructure.Proteindenaturation /renaturation.
introduction. Constituents ofnucleic acidriboandribonucieosides,nucleotides.The double helicalstructure ofDNA/RNA

UnitIV : Fats, oils and detergents

Natural fats edible and industrial oils of vegetable resin common fatty acids, glycerides,hydrogenation ofunsaturatedoils. saponificationvalue, iodinevalue,acidvalue,soaps,synthetic detergents,alkyland arylsulphonates.

Learning Outcomes: After complition the course student would able to:

- Calssify the various compounds on the basis of structure, stereochemistry and formation process.
- Describe and discuss about formation, structure and chemical reactions of carbohydrates, peptides and nucleic acids.
- Apply the knowledge of industrial uses of fats, oils and detergents to produce

some useful products.

Chemistry-Paper-III: Physical chemistry

Objectives:

- To aware about conceptual knowledge of photochemistry,spectroscopy and mechanics.
- To develop understanding about qualitative and quantitative description of fluorescence,selection rules and isotopes.
- To develop analytical view about laws of photochemistry, degree of freedom and energy levels.
- To give information about transfer process, Raman spectrum and atomic orbitals.

UnitI:Photochemistry:

Interactionofradiationwith matter,differencebetween thermalandphotochemicalprocesses. Lawsofphotochemistry:Grothus-Drapper law, Stark-Einstien law, Jablonskidiagramdepicting various processes occurring intheexcitedstate.,qualitativedescription offluorescence,phosphorescence,non radiative process(internalconversion, intersystemcrossing)quantumyield,photosensitizedreaction-energytransferprocess (simple examples)

UnitII:Spectroscopy I

Introduction:Electromagnetic radiation of the spectrum, basic features of different spectrometers, statementofthe Born Oppenheimerapproximation, degree offreedom.

Rotationalspectrum:Diatomicmolecules,Energy levelsofrigidrotator,(semiclassicalprinciples)selectionrules, spectralintensity,distributionusingpopulationdistribution(MaxwellBoltzmanndistribution), determinationofbond length, qualitative description ofnonrigidrotator, isotopeeffect.

Electronicspectrum: Concept of potential energycurves for bondingand anti bonding molecular orbital's,qualitative description ofselection rulesand Frank–Condon principle.

UnitIII:Spectroscopy II

Vibrational spectrum: Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules,purevibrationalspectrum,intensity.,determinationofforceconstant,qualitativerelationsof force constantsandbondenergy,effectofanharmonicmotionand isotopeson thespectrum,ideaofvibrational frequencies ofdifferent functionalgroups.

Ramanspectrum**:** Conceptofpolarizability,purerotationalandpurevibrationalRamanspectraofdiatomic molecules,selection rules.

UnitIV: QuantumMechanicsII:

Molecularorbitaltheory:BasicideascriteriaforformingM.O.fromA.O.construction ofM.O.`sbyLCAO-H_2^+ ion,calculationofenergylevelsfromwavefunctions,physicalpictureofbondingand antibonding wavefunctions, conceptof σ, σ*andπ, π*orbitals and theircharacteristics.Hybridorbitals sp,sp^2, sp^3,calculationofcoefficients ofatomic orbitalsused in thesehybrid orbitals.

Learning Outcomes: After complition the course student would able to:

- To measure the calculation of energy levels, coefficients and spectral intensity of compounds.
- To plot and interpret the bond energy, force constant, potential energy curves of compounds.
- To describes various properties of compounds on the basis of energy, potential and dipole moment etc.

- ❖ To analyze the various structures of compounds on the basis of quantum mechanics.

Term paper / Practicals

Inorganic chemistry

Calorimetry

a) Jobs

b) Mole ratio method

Adulteration –food stuffs

Effluent analysis water analysis.

PhysicalChemistry

Electrochemistry

(a) To determine the strength of the given acidconductometricallyusingstandard alkalisolution

(b)To determine the solubilityand solubilityproductofasparinglysoluble electrolyte conductometrically

(c) Tostudythe saponificationofethylacetateacetate conductometrically

(d)To determine the ionizationconstantofa weakacid conductrometrically

(e) Totitratepotentiometricallythegivenferrousammoniumsulphatesolutionusing$KMnO_4/K_2Cr_2O_7$ as titrantand calculatetheredox potentialofFe^{++}/Fe^{+++}systemon the hydrogen scale.

Molecularweight determination:

1. Determination ofmolecularweightofa non volatilesolute byRastmethod/Beckmann freezingpoint method.
2. Determinationoftheapparentdegreeofdissociationofanelectrolyte(e.g.NaCl)inaqueoussolutionat differentconcentrations byebullioscopy.

Colorimetry:

ToverifyBeer-LambertlawKMnO4/K2Cr2O7 anddeterminetheconcentrationofthegivensolutionofthe substance.

Viva-Voce&Record

Suggested Reading:

1. A New Concise Inorganic Chemistry; Fifth Edition; J.D. Lee; Blackwell Science, London, 1989.
2. Inorganic Chemistry; Third Edition; D.F. Shriver and P.W. Atkins; Oxford University Press, New York, 1999.
3. Inorganic Chemistry; Third Edition; Gary L. Miessler and Donald A. Tarr; Pearson Education Inc. Singapore, 2005.
4. Organic Chemistry; Seventh Edition; T.W. Graham Solomons & Craig B. Fryhle; John Wiley and Sons, 1998.
5. Organic Chemistry; Sixth Edition; Robert Thornton Morrison & Robert Neilson Boyd; PHI Pvt. Ltd, 2004.
6. Organic Chemistry Vol. I ; Fifth Edition; I.L. Finar; Longman Scientific and Technical, Singapore, 1975.
7. Organic Chemistry: Vol 1, Mukerjee and Singh
8. Organic Chemistry: Vol 2, Mukerjee and Singh
9. Organic Chemistry: Vol 3, Mukerjee and Singh
10. A Text Book of Physical Chemistry; A.S. Negi, S.C. Anand; New Age International (P) Limited, New Delhi, 2002.
11. The Elements of Physical Chemistry; P.W. Atkins; Oxford University Press, 1996.
12. University General Chemistry; C.N.R. Rao; Macmillan India Ltd., New Delhi, 1998.
13. Physical Chemistry: Puri Sharma and Pathania
14. Physical Chemistry: J. Moore
15. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
16. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
17. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
18. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
19. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
20. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
21. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर

Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 602	Physics-I	**CE***	**4**	**15**	**20**	**100**
	Physics-II				**20**	
	Physics-III				**20**	
	Physics Practical				**25** Practical	

Physics- Paper-I: Mathematical Physics and Special Theory of Relativity – II

Objectives:

- To Understand the Lorentz Transformation.
- To know the concepts of Four Vector Formulation, ongitudinal and Transverse Doppler's Effect.
- To aware the Transformation between Laboratory and Centre of mass.
- To develop concept about the Transformation Electric and Magnetic Field.

UNIT – I Lorentz Transformation:

Lorentz transformation and rotation in space-time, time like and space like vector, world line,macro-causality.

UNIT – II Four vector Formulation:

Four vector formulation, energy momentum four vector, relativistic equation of motion,invariance of rest mass, orthogonality of four force and four velocity, Lorentz force as anexample of four force, transformation of four frequency vector, longitudinal and transverseDoppler's effect.

UNIT – III Transformation between Lab and CM:

Transformation between laboratory and center of mass system. Four momentum conservation,kinemations of decay products of unstable particles and reaction thresholds: Pair production,inelastic collision of two particles, Compton effect.

UNIT – IV Transformation electric and Magnetic field:

Transformation electric and Magnetic fields between two inertial frames.

Learning Outcomes: After complition the course student would able to:

- Discuss the Lorentz Transformation.
- Classify the concepts of Four Vector Formulation, Longitudinal and Transverse Doppler's Effect.
- Identify the Transformation between Laboratory and Centre of mass.
- Calculate the Transformation Electric and Magnetic Field.
- Differentiate longitudinal and transverse Doppler 's effect.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, गणितीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics- Paper-II: Quantum Mechanics – II

Objectives:

- To Know the Bound State Problem-I
- To Understand the Bound State Problem-II
- To aware Application of Quantum Theory.
- o gain knowledge about molecular spectroscopy.

UNIT I Bound State Problems - I:

Potential step and rectangular potential barrier, calculation of reflection and transmissioncoefficient, Qualitative discussion of the application to alpha decay (tunnel effect), square wellpotential problem, calculation of transmission coefficient.

UNIT II Bound State Problems- II:

Particle in one dimensional infinite potential well and finite depth potential well, energy valueand eigen functions. Simple harmonic oscillator (one dimensional) eigen function, energy eigenvalues, zero point energy.

UNIT – III Applications of Quantum Theory to Atomic Spectroscopy:

Quantum features of spectra of one electron atoms. Frank–Hertz experiment and discrete energystates. Schrodinger equation for a spherically symmetric potential, Schrodinger equation for aone electron atom in spherically coordinates, separation of variables, Orbital angular momentumand quantization spherical harmonics, energy levels of H–atom, Shapes of n = 1 and n = 2 wavefunctions, Average value of radius of H–atom, Comparison with Bohr Model and BohrCorrespondence Principle. Stern and Gerlach experiment, spin and magnetic moment. Spin orbitcoupling and qualitative explanation of fine structure. Atoms in magnetic field Zeeman spliting.

UNIT – IV Molecular Spectroscopy:

Qualitative features of molecular spectra: Rigid rotator discussion of energy, eigen values andeigen function, rotational energy levels of diatomic molecules, Rotational spectra, vibrationalenergy levels of diatomic molecules, vibrational spectra, vibrational rotational spectra.

Learning Outcomes: After complition the course student would able to:

- Discuss on the Bound State Problem-I (Potential Step, Potential Barrier, Square Well Potential) and Tunnel Effect.
- Classify the Bound State Problem-II(One Dimensional Potential Box, Eigen Value, Eigen Function).
- Applies Quantum Theory to Atomic Spectroscopy.
- Identify the Concept of Molecular Spectroscopy.
- Differentiate vibrational spectra and rotational spectra

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना,, क्वांटम यांत्रिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics- Paper-III: Nuclear Physics

Objectives:

- To Understand the Concept of Nuclear Properties like Quadrupole Moment, Nuclear Spin, Nuclear Energy, Mass spectroscopy and Theory of Nuclear Forces.
- To know the Concept of Nuclear Fission.
- To Aware the Concept of Elementary Particles.
- To develop knowledge about the Concept of Detector and Accelerator.

UNIT-I Nuclear Properties:

Rutherford's theory of a particle scattering, Properties of Nuclei: Quadrupole Moment andNuclear Ellipticity, Quadrupole Moment and Nuclear spin, Parity and Orbital angularmomentum, Parity and its conservation, Nuclear Mass and Mass Spectroscopy, Nuclear Energy,Discovery of neutron and proton-neutron hypothesis, Neutron to proton Ration (n/z), The nuclearpotential, Nuclear mass, Mass Defect and Binding energy, Theory of Nuclear forces.

UNIT-II Nuclear Fission:

The Discovery of Nuclear Fission, The Energy Release in Fission, The Fission products massdistribution of fission products, Charge distribution of fission products, ionic charge of fissionproducts, Fission cross Section and threshold, Neutron emission in fission, The prompt neutronand delayed neutrons, Mechanism for the emission of delayed neutrons. Energy of fissionNeutrons, Theory of nuclear fission and Liquid Drop Model, Barrier Penetration-Theory ofSpontaneous fission, Nuclear Energy Sources, Nuclear Fission as a source of Energy, TheNuclear Chain Reaction, condition of controlled chain Reaction, Nuclear Reactors.

UNIT-III Elementary particles:

Classification of Elementary Particles, Fundamental Interactions, Unified approach (Basic ideas),The conservation Laws, Quarks (Basic ideas), Charmed and color Quarks. Nuclear Fusion: Thesources of stellar Energy.

UNIT-IV Detector and Accelerators:

Particle and Radiation Detectors: Ionization Chamber, Region of Multiplicative Operation,Proportional Counter, Geiger-Muller Counter, Cloud Chamber, BF3 and Scintillation detector.Ion sources, Cock-Craft-Walten High Voltage Generators, Van De-Graff Generators, Drift TubeLinear Accelerators, Wave Guide Accelerator, Magnetic Focussing In cyclotron,Synchrocyclotron, Betatron, The Electromagnetic Induction Accelerator, Electron Synchrotron,Proton Synchrotron.

Learning Outcomes: After complition the course student would able to:

- Discuss the Concept of Nuclear Properties like Quadrupole Moment, Nuclear Spin, Nuclear Energy, Mass spectroscopy and Theory of Nuclear Forces.
- Classify the Concept of Nuclear Fission.
- Identify the Concept of Elementary Particles.
- Applies the Concept of Detector and Accelerator.
- Differentiate drift tube linear accelerator and wave guide accelerator.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, नाभिकीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics Practical: VI

1. Determination of Planck's constant by photo cell (retarding potential method using optical filters, preferably five wave length)
2. Determination of Planck's constant using solar cell.
3. Determination of Stefan's constant (Black body method)
4. Study of the temperature dependence of resistance of a semiconductor (four probe method).
5. Study of lodine spectrum with the help of grating and spectrometer and ordinary bulb light.
6. Study of characteristics of a GM counter and verification of inverse square law for the same strength of a radioactive source.
7. Study of β-absorption in Al foil using GM counter.
8. To find the magnetic susceptibility of a paramagnetic solution using Qninck's method. Also find the ionic molecular susceptibility of the ion and magnetic moment of the ion in and magnetic moment of the ion in terms of both magnetons.
9. Determination of coefficient of rigidity as a function of tem perature using torsional oscillator (resonance method).
10. Study of polarization by reflection from a glass plate with the help of Nichol's prism and photo cell and verification of Brewster law and law of Malus.
11. e/m measurement of magnetic field using ballistic galvanometers and search coil study of variation of magnetic field of an electromagnet with current.
12. Measurement of electric change by Millikan's oil drop method.

Suggested Reading :

1. प्रो. प्रभा दशोरा, तृतीय वर्ष प्रायोगिकी भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015

Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 603	Mathematics-I	**CE***	**4**	**15**	**20**	**100**
	Mathematics-II				**20**	
	Mathematics-III				**20**	
	Mathematics Practical				**25** Practical	

Mathematics- Paper-I : Algebra - II

Objectives:

- To aware the Integral domain and Field.
- To Understand the Ideals and Quotient Ring.
- To develop knowledge the Linear Dependence and Linear Independence of Vectors.
- To know sum of subspaces.

Unit 1 ; Integral domain and field. Characteristics of a Ring and Field.

Unit 2 : Ideals and Quotient Ring. Maximal ideal and Prime ideal. Principal Ideal domain. Field of quotients of an integral domain. Prime fields. Definition, Examples and Simple properties of Vector spaces and Subspaces.

Unit 3 : Linear combination, Linear dependence and Linear independence of vectors. Basis and Dimension.

Unit 4 ; Generation of subspaces. Sum of subspaces. Direct sum and Complement of subspaces. Quotient space and its dimension.

Learning Outcomes: After complition the course student would able to:

- Discuss about integral domain and Field.
- Identify the Ideals and Quotient Ring.
- Classify the Linear Dependence and Linear Independence of Vectors.
- Applies the Sum of Subspace.
- Discuss about quotient space

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली,2015–16
2. जी.सी. गौखरू सैनी, बीजगणित जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics- Paper-II : Complex Analysis -II

Objectives:

- To understand the Power Series.
- To develop knowledge about the Branch Point.
- To develop concept about the Conformal Mapping.
- To give information about cauchy's residue theorem.

Unit 1 ; Power series — Absolute convergence, Able' s theorem, Cauchy-Hadamard theorem, Circle and Radius of convergence, Analyticity of the sum function of a power series.

Unit 2: Singularities of an analytic function, Branch point, Meromorphic and Entire functions, Rouche's theorem, Casorati - Weierstrass theorem.

Unit 3; Residue at a singularity, Cauchy's residue theorem. Argument principle. Rouche's eorem. Fundamental theorem of Algebra.

Unit 4: Conformal mapping. Bilinear transformation and its properties. Elementary mappings: w (z) $=\frac{1}{2}\left(z+\frac{1}{z}\right)$, z2 ,ez,sinz, cosz, and logz.
Evaluation of a real definite integral by contour integration. Analytic continuation. Power series method of analytic continuation.

Learning Outcomes: After complition the course student would able to:
- ❖ Discuss on the Power Series.
- ❖ Identify the Branch Point.
- ❖ Applies Fundamental Theorem of Algebra.
- ❖ Analyze the Conformal Mapping.
- ❖ Discuss on the circle and radius of convergence

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics- Paper-III: Statics

Objectives:
- ❖ To understand the Resultant and Equilibrium Coplanar Force Acting on a Rigid Body.
- ❖ To know the Friction.
- ❖ To aware the Virtual Work.
- ❖ To develop knowledge about the Common Catenary Force in the 3-D.

Unit 1 Resultant and equilibrium coplanar force acting on a rigid body.

Unit 2 Friction

Unit 3 Virtual work,

Unit 4 commom catenary force in the three dimensions.

Learning Outcomes: After complition the course student would able to:
- ❖ Discuss on the Resultant and Equilibrium Coplanar Force Acting on a Rigid Body.
- ❖ Classify about the Friction.
- ❖ Calculate the Virtual Work.
- ❖ Identify the Common Catenary Force in the 3-D.

- ❖ Differentiate friction and virtual work.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 604	Botany-I	**CE***	**4**	**15**	**20**	**100**
	Botany-II				**20**	
	Botany-III				**20**	
	Botany Practical				**25** Practical	

Botany- Paper-I : Reproductive Biology Of Angiosperms

Objectives:

- To know the detailed structure of flower and male gametophyte.
- To understand the mechanism of distribution of pollen grains.
- To learn about the structure of pistil and female gametophyte.
- To get knowledge about the process of pollination and fertilization
- To study the development of embryo and endosperm

UNIT I: Structure of Flower and Male Gametophyte

Ontogeny of Flower parts- development and variations, structure of anther, microsporogensis, microgametogenesis, Teptum Types and Functions, Development of Male Gametophyte, Structure of Pollen Grains.

UNIT II: Structure of Pistil and FemaleGametophyte

Structure and types of ovule, special structures- aril, oburator etc., megasporogenesis, megagametogensis (monosporic, bisporic and tetrasporic types), structure of typical embryo sac, (Polygonum, Allium and Adoxa type).

UNIT III: Pollination and Fertilization

Pollination types, significance adaptations; compatibility and incompatibility; basic concepts. Pollen tube entry, syngamy and triple fusion, double fertilization, development, type and function of endosperm.

UNIT IV: Development Of Embryo and Endosperm

Six types of Embryogeny; General pattern of development of dicot and monocot embryo suspensor structure and function, embryo-endosperm relationship; nutrition of embryo, apomixis, polyembryony, fruit-development and maturation.

Learning Outcomes: After complition the course student would able to:

- Explain the detailed structure of flower and male gametophyte.
- Discuss the mechanism of distribution of pollen grains.
- Interpret the structure of pistil and female gametophyte.
- Describe the process of pollination and fertilization
- Understand the development of embryo and endosperm

Suggested Readings:

1. Bhojwani, S.S. and Bhatnagar, S.P. 2004. The Embryology of Angiosperms**.** Vikas Publishing House, New Delhi.
2. Davis, C.L. 1965. Systematic Embryology of Angiosperms. John Wiley, New York.
3. Johri, B. D. 1984. Embryology of Angiosperms. Springer Verlag, Berlin.
4. Johri, B. M. 1984 .Embryology of Angiosperms. Springer-Verlag, Netherlands.

5. Maheswari, P. 1985. Introduction to Embryology of Angiosperms. Mac Graw Hill House(P) Ltd., New York.
6. Raghavan, V. 2000. Developmental Biology of Flowering plants. Springer, Netherlands.
7. Trivedi, P.C. Sharma, N. and Sharma, J. L. 2003. Structure, Development and reproduction in Flowering Plants. Ramesh Book Depot., Jaipur.

Botany- Paper-II : Economic Botany And Ethnobotany

Objectives:

- To know the origin of cultivated plants
- To acquire knowledge of food plants, vegetables and fruits.
- To analyze the spices, oil yielding plants and Beverages.
- To understand medicinal plants, fibers and woods.
- To get aware about ethical aspects of Ethnobotany

UNIT I: Food Plants, Vegetables and Fruits

Centre of origin of cultivated plants , **Food plants** : rice, wheate , maize, potato, **Vegetables** : General account with a note on radish, garlic, cabbage, spinach, cauliflower, cucumber and pea. **Fruits** : General account with a note on apple, banana, mango, watermelon and orange.

UNIT II: Spices ,Oil yeilding Plants, and Beverages

Spices : General account with an emphasis on those cultivated in Rajasthan(Cumin,Capsicum, Coriender). **Beverages :** Characteristics and uses Beverages(Tea and Coffee) , Oil yielding plants (*Brassica* and *Cocus*).

UNIT III: Medional Plants, Fibers and Woods

Medional Plants : General account with an emphasis on those cultivated in Rajasthan(Senna, Isabgol, SAfed musli)

Fibers : General account with a note on Cotten and Jute. **Woods** : General account of sources of fire wood : timbers and bamboos.

UNIT IV: Ethnobotany

Ethnobotany and its concepts and relevance. Ethanobotanical areas of Rajasthan, ethnic groups in India and ethanobotanical study of any tribal area of Rajasthan. Ethical aspect of ethnobotany.

Learning Outcomes: After complition the course student would able to:

- Get knowledge about the cultivated plants
- Interpret different food plants, vegetables and fruits.
- Eenhance knowledge about spices, oil yielding plants and Beverages.
- Comprehend about medicinal plants, fibers and woods.
- Acquire knowledge about ethical aspects of Ethnobotany

Suggested Readings:

1. Gupta, S.K. and Kaushik, M.P. 1973. An Introduction to Economic Botany. K. Nath and Co., Meerut.
2. Hill, A.W. 1952. Economic Botany. McGraw Hill Book Co., New York.
3. Jain, S.K. 1981. Glimpses of Indian Ethnobotany. Oxford and IBH, New Delhi.

4. Jain, S.K .1987. A Manual on Ethnobotany**.** Scientific Publisher, Jodhpur.
5. Prakash, G., Sharma, S. K. 1975. Introductory Economic Botany. Jai Prakash Nath and Cosec, Meerut.
6. Sambamurthy, A.V.V.S. and Subrahmanyan, N.S. 1989. A Text Book of Economic Botany. Wiley Eastern Ltd., New Delhi.
7. Sen, S. 1992. Economic botany. New Central Book Agency, Calcutta.
8. Singh, V., Pandey, P.C. and Jain, D.K. 1998-99. Economic Botany. Rastogi Publications, Meerut.
9. Verma, V. 1974. A Text Book of Economic Botany. Emkay Publications, New Delhi.

Botany- Paper-III : ECOLOGY

Objectives:

- To acquire knowledge of community, ecosystem and phytogeography
- To know about structure, components, food chains, hub, energy flows.
- To understand about vegetation and environmental pollution
- To get aware about environmental management
- To learn about different protocols.

UNIT I: Ecological factors and Population ecology

Environment and plant: Ecological factors; Atmosphere (four distinct zone), light (photosynthetically active radiation, zonation in water bodies, photoperiodism, heliophytes and sciophytes), temperature (Raunkier's classification of plant: megatherm, mesotherm, microtherm, heikistotherm, thermoperiodicity and vernalisation), soil (development, soil profile, properties). Ecological adaptations of hydrophytes, xerophytes, epiphytes and halophytes. Population ecology: growth curve, ecotypes, ecads. Population interaction among organisms (neutralism, amensalism, alleliopathy), competition, predation, parasitism and mutulism.

UNIT II: Community, Ecosystem and phytogeography

Community characteristics, frequency, density, cover, life forms, biological spectrum, ecological succession. Ecosystem: Structure, components, food chain, food web, energy flow, trophic levels and ecological pyramids, primary and secondary productivity, biogeochemical cycle of carbon and phosphorus.

UNIT III: vegetation and Environmental pollution

Biogeographic regions of India, vegetation types of India; forest grassland with special reference to Rajasthan. Environmental pollution- air, water and soil, WWF, chipko movement, green house effect, ozone depletion loss of biodiversity and extinction of species, red data book.

UNIT IV: Environmental management

Concept and principles of environmental management, principle of optimized use and sustainable development, threats to sustainable development, National Environmental Policy, management of forest and degraded lands, concepts and principles of environmental management, efforts to control these effects (Vienna Convention, Montreal Protocol, Earth summit, Kyoto Protocol, World Summit on sustainable development, 2002 Carbon trade); IPCC.

Learning Outcomes: After complition the course student would able to:

- Acquire complete knowledge of community, ecosystem and phytogeography
- Explain the structure, components, food chains and energy flows.
- Understand about vegetation and environmental pollution

- ❖ Interpret about environmental management
- ❖ Discuss and different protocols.

Suggested Readings:

1. Banerjee, P.K. 2006. Introduction to Biostatistics. S. Chand and Co., New Delhi.
2. Koromondy, E.J.1996. Concepts of Ecology. 4th Edition Prentice-Hall of India Pvt. Ltd., New Delhi.
3. Misra, K.C. 1988. Manuals of Plant Ecology. (3rd Edition) Oxford and IBH Publishing Co., New Delhi.
4. Odum, E.P. 1983. Basic Ecology. 5th Edition Thomson Business International Waldis Pvt. Ltd., Baricahd.
5. Odum, E.P. 2008. Ecology. Oxford and IBH Publisher.
6. Sharma, P.D. 2010. Ecology and Environment, (8th Edition) Rastogi Publications, Meerut.
7. Singh, J.S., Singh, S.P. and Gupta, S. 2006. Ecology Environment and Resource Conservation. Anamaya Publications, New Delhi.

BOTANY PRACTICAL VI

1. Study different types of placentation, ovules and special structures of ovule through permanent slides, specimens or photographs.
2. Study of female gametophyte through permanent slides/ photographs: types and ultra structure of mature embryo sac.
3. Study of pollen grains: fresh and acetolyzed showing ornamentation and aperture, pseudomonads, pollinia (slides/photographs/ fresh materials).
4. Study of the different stages of anther development.
5. Study of pollen morphology of available plants.
6. Study of monocotyledons and dicotyledons embryo of angiosperms through slides/photographs..
7. Submission of economically important plants and plant products (cereals, pulses, spices, fibers, condiments, fat and oils, tea, coffee, wood, dyes, tobacco).
8. Study following specimens with special reference to :
   - Botany of the economically important part.
   - Processing if any involved.
   - Specimens of cereals, pulses, fibres, spices, beverage (tea, coffee), sugar, oil yielding plants and medicinal plants (mentioned in theory).
9. Microchemical test for starch, sugar, oils, proteins, fat, carbohydrate, lignin using wheat, maize, soyabean. Chana, sweet potato, clove, ground nut, mustard and match sticks.
10. Study of starch grains in potato .
11. Field trip to economically important place.
12. Collection, description and submission of at least 5 plants of ethnobotanical importance.
13. Study of adaptive anatomical and morphological features of Hydrophytes, Epiphytes and Xerophytes using plant material.
14. To study different statistical methods: mean, median and mode, standard error, standard deviation.
15. Regression analysis and application of statistical tests in environmental problems.
16. Determine the dissolved oxygen content in polluted and unpolluted water samples.
17. Field trip to a National Park/Biosphere reserve/Wild life Sanctuary (Student should submit a detailed project report based on the field trip. Evaluation of the project will be based on the detailed report and presentation).
18. Project work on a particular ecosystem/Polluted Site/ Level of Pollution in the City or Town/Land use site.

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 605	Zoology-I	CE*	4	15	**20**	100
	Zoology-II				**20**	
	Zoology-III				**20**	
	Zoology Practical				**25** Practical	

Zoology-Paper-I: Evolution and Biostatistics

Objectives:

- To understand the process of evolution.
- To discuss concept the Lamarkism, Neo-Lamarkism and Darwinism.
- To classify and draws the Geological time scale.
- To understand aware the students for Palaentology Fossils and its significance
- To describe the Biostatistics and Biostatistical Tools.

Unit –I: Evolution

1.1 Basics and origin of life: Definition, pre-darwinian theories of evolution; Oparin-Haldaneconcept of origin of life; Miller- Urey experiment

1.2 Micro-evolution: Lamarckism; Darwinism; Neo-Darwinism

1.3 Evidences of evolution: Various evidences favouring evolution: Homology, analogy, vestigial organs; palaentological, embryological, biogeographical and biochemical evidences

UNIT II: Evolution II

2.1 Macro-evolution: Geological time scale,

2.2 Genetic basis of evolution: Hardy-Weinberg law, genetic drift, , Sewall -Wright effect;

2.3 Variation, Adaptations and Isolation, Mimicry

2.4 Formation of fossils and Important

UNIT III: Biostatistics Concept

3.1 Biostatistics: Definition and Scope

3.2 Census and sampling methods

3.3 Collection and Tabular Presentation of Data: Tabulation of data; Frequency

3.4 Distribution Table; Continuous and Discontinuous Series

3.5 Graphical Presentation of Data: Bar, Histogram, Line graph, Polygon, Pie Diagrams Ogives

UNIT IV: Biostatistical Tools

4.1 Measures of Central tendency: mean, median mode

4.2 Measures of Dispersion, Mean deviation & Standard deviation, and Standard error.

4.3 Probability

Learning Outcomes: After complition the course student would able to:

- Understand the process of evolution.
- Understand the Lamarkism, Darwinism and Neo-Darwinism.
- Interprete Geological time scale.
- Explain Palaentology Fossils and its significance

- ❖ Discuss the Biostatistics and Biostatistical Tools

Zoology-Paper-II : Economic Zoology

Objectives:

- ❖ To Understand the Various concepts in Sericulture, Lac culture and Apiculture.
- ❖ To interprets the various concepts in Chemical Control.
- ❖ To Understand aware the students and provides the economical importance of Vermiculture
- ❖ To Understand the Various concepts in Vector borne diseases, Animal husbandry.
- ❖ To classify the economics of aquaculture.

Unit I: Economic Entomology- Insects of economic importance

1.1 Sericulture: Types of Silkworm. Life cycle and rearing of Bombyx mori,Production of silk , chemical Composition of Silk,

1.2 Apiculture –Habits and Habitat, species of Hony Bees, Types of cates, method of Bee-keeping Honey Bee Product.

1.3 Lac culture – Lac insect, Laccifer lacca - Life cycle, Cultivation of Lac , Lac products and Economic Importance

Unit-II: Economic Entomology

2.1 Chemical control of Insecticides: Pyrethroids, Carbomate and HCN (mode of action, merits and demerits)

2.2 Biological control of Pests: Biological agents (predators and parasites; merits and demerits)

2.3 Animal pest: Life cycle, damage and control of

I. House fly – Musca nebulo

II. Stable fly – Stomoxys calcitrans

Unit III: Economics of aquaculture

3.1 Pisciculture – Steps of Fish culture, Fish Product,

3.2 Prawn culture -Culture techniques of fresh water Prawn,

3.3 Pearl culture: Habit, Habitat, General characters, mentle & Shell,Formation&culture.

Unit IV: Economic importance of other animals

4.1 Vector borne diseases. A brief account of insect vectors affecting the health of man and domestic animals

4.2 Animalhusbandry: Introduction to common dairy animals; Techniques of dairy management

4.3 Vermiculture: Vermitechnology, Bio-Fertilizers

Learning Outcomes: After complition the course student would able to:

- ❖ Discuss the various concepts in Sericulture, Lac culture and and Apiculture.
- ❖ Understand the various concepts in Chemical Control.
- ❖ Provide the economical importance of Apiculture
- ❖ Understand the various concepts in Vector borne diseases, and Animal husbandry
- ❖ Explain the Economical of aquaculture

Zoology-Paper-III:Ecology and Environmental Biology

Objectives:

- To differentiate current environmental issues based on Atmosphere.
- To understand Gain critical understanding on human influence on environment.
- To understand Positive attitude towards Biodiversity conservation.
- To describe the various concepts in Pollution.
- To know the sources, affect and control measures of water and noise pollution.

Unit I: Atmosphere

1.1 Atmosphere: Major zones and its importance, Composition of air
1.2 Hydrosphere: Global distribution of water, Physico-chemical characteristics of water
1.3 Lithosphere: Soil Layer; formation of soil
1.4 Light: As Abiotic factor; Physico- chemical characteristics of Light; Photoperiodism

Unit II: Ecosystem

2.1 Ecosystem: Definition, Structure and functions; Types of Ecosystem; Food chain, Food web and ecological pyramids
2.2 Ecosystem: Biogeochemical Cycle (O_2, CO_2, N, P, S); Energy flow in an ecosystem,
2.3 Population Introduction: Population characteristics, Population growth patterns: (exponential/Malthusian and sigmoid growth patterns)
2.4 Community Characteristics, Structure and method (Quadrt method Transeet method, plotless method:

Unit III: Biodiversity & Conservation

3.1 Various Aspects of Biodversity, Degree of Deversity,
3.2 Ex situ and In situ Conservation; Alpha, Beta and Gama Diversity, Causes of reduction of Biodiversity
3.3 Conservation measures of Animals.

Unit IV: Pollution

4.1 Sources, effect and control measures of air pollution, Acid rain, green house effect, Ozone depletion and global warming
4.2 Sources, effect and control measures of water pollution
4.3 Sources effect and control measures of noise pollution

Learning Outcomes: After complition the course student would able to:

- Describe the current environmental issues based on ecological principles.
- Gain critical understanding on human influence on environment.
- Aware about the positive attitude towards Biodiversity conservation.
- Understand the various concepts in Pollution.
- Explain the sources, affect and control measures of water and noise pollution.

Semester VI
Zoology Practical

Paper-I: Evolution and Biostatistics

1. Construction of frequency table, histograms, Polygons, Pie Charts
2. Exercise on Mean, Mode, Median, Std. Deviation, Std. error, Probability

Paper-II: Economic Zoology

1. Study of the following prepared slides/specimens: Honey Bee, Silk Worm, Termite, Earthworm types (any two) -(Drawida modesta, Pheretima posthuma ; Fish parasites, Larvivorous fishes (Guppy, Gambusia)
2. Economic importance of commonly occurring insect pests and preparation of life cycle of these pests.
3. Study of Beneficial insects and their life stages.

Paper-III: Ecology & Environmental Biology

1. Determination of population density in a terrestrial community or hypothetical community by quadrate method.
2. Study of life table and fecundity table, plotting of the three types of survivorship curves from the hypothetical data.
3. Estimation of pH, chlorides and water vapour quantity in soil
4. Estimation of Dissolved oxygen, Salinity, pH, free CO_2 in water samples
5. Plankton study in Fresh water
6. Study of natural ecosystem and field report; Visit to a National park and Sanctuary (candidates are required to submit the report of the visit)

Suggested readings:

Evolution

1. Gupta, P.K., A Text Book of Cytology, Genetics and Evolution, Rastogi Publication, Meerut
2. Ridley, M. (2004) Evolution. III Editio. Blackwell Publishing
3. Stricberger, M.W. Evolution. Jones& Bartlett, USA 1996
4. Hall and Hallgrimsson: Strickberger's Evolution (2008, Jones and Bartlett)
5. Moody: Introduction to Evolution (1978, Kalyani).
6. Rastogi: Organic Evolution (2007, Kedarnath & Ramnath
7. Kohli, Ranga, Lori, Bhatia, Animal Diversity and Evolution, RBD Publishing House, Jaipur.

Statistics:

1. Probability and Statistics for Engineers and Scientists by Walpole, Myers, Myers and Ye, 7th Edition, Pearson Education.
2. Mathematical Statistics by Freund, Prentice Hall, India
3. Introduction to Statistical Quality Control by Montgomerry, John Wiley and Sons.
4. Principles of Biostatistics by M. Pagano and K. Gauvrean: Thompson learning (2nd edition)
5. Biostatistics: A Foundation for Analysis in the Health Sciences by W. W. Daniel: John Wiley and Sons Inc (7th edition); Indian Reprint 2006.
6. Biostatistics by Satguru Prasad: Emkay Publication
7. G.S. Shukhla, Upadhyay, Reena Mathur, S.G. Prasad, 2011, Economic Animal Science, Biostatics and Animal Behaviour, Rastogi Publication, Meerut, Delhi

Economic Zoology:

1. Shukla and Upadhyaya : Economic Zoology (Rastogi Publishers, 1999-2000)
2. Shrivastava: Test book of Applied Entomology, Vol. I &II (Kalyani Publishers, 1991)
3. Mani: Insects, NBT, India, 2006.
4. Jabde: Text Book of Applied Zoology: Vermiculture, Apiculture, Sericulture, Lac culture, Agricultural Pests and their Control, 2005 Publisher Vedams eBooks (P) Ltd. New Delhi
5. G.S. Shukhla, Upadhyay, 2015, Economic Animal Science, Rastogi Publication, Meerut, Delhi

Ecology & Environmental Biology

1. Odum, E. P. (1996). Ecology: A bridge between science and society. *Sinauer AssociatesInc*.

2. Chapman, J. L. And Reiss, M. J. (1992). Ecology, principles and applications. *CambridgeUniversity Press*.
3. Verma, P. S. & Agarwal, V. K. (1983). Environmental biology (principles of ecology). *S.Chand & Co*.
4. Singh, J. H. e*t al* (2006). Ecology, environment and resource conservation. *Anamaya Publ.N. Delhi*
5. Kendeigh, S. C. Animal ecology. *Prentice Hall*
6. Kormondy, E. T. Concept of ecology. *Prentice Hal*
7. *Dhirendra, Devershi, Ecology and Environmental Biology, College Book House. Pvt. Ltd., Jaipur*

Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 701	Chemistry	Pedagogy of a School Subject **Any two** **CE**	**4**	**30**	**70**	**100**
BSE 702	Physics					
BSE 703	Mathematics					
BSE 704	General Science					
BSE 705	Biology	**CE**	**4**	**30**	**70**	**100**

BSE 701 : Chemistry

Objectives:

- To develop a broad understanding of the principles and procedures used in moden science specially in chemistry.
- To develop essential skill for practicising modern science education.
- To understand aims and objectives of chemistry.
- To gain ability for critically evaluate the existing syllabus of science.
- To prepare achievement test and diagnostic test.
- To enable him to organize co-curricular activities related to science.
- To appreciate the contribution of world scientist in connection with historical development of chemistry.

Course Contents:

UNIT-I Nature and Scope

a) Nature of Science and Chemistry, Importance of Chemistry in Daily Life, Correlation of Chemistry with Other Subjects
b) Values of Teaching Chemistry
c) Scientific Attitude, Scientific Literacy
d) Eminent World Scientist in the Area of Chemistry Like Dalton, Einstein, Neil Borh, Rutherford, Marry Quarry.
e) Globalisation and Chemistry

UNIT-II Curriculum planning and activities

a) Place of Chemistry in School Curriculum, Principles of Developing Chemistry Curriculum
b) Modern Trends in Chemistry Curriculum, Reading Material - Text Book, Journal, Handbook, Science Library
c) Critical Appraisal of Syllabus of Science with Reference to Chemistry Prescribed by State Board of Secondary Education

UNIT-III Methods and approaches of teaching

a) Lecture cum Demonstration Method (Inductive and deductive method), Project Method, Scientific Method, Heuristic Method
b) Panel Discussion. Seminars and Workshop Laboratory Method.
c) Teaching aid-Bulletin Board, Flannel Board, Filmstrips, Transparency, OHP, Direct Projector LCD Panel, Non-formal Approaches- field trips

d) Laboratory- Lay out Plans, Equipments, Furniture, Maintenance of Records, Repair, Care and Improvisation of Apparatus, Safetymeasures in Laboratory

UNIT-IV

a) Planning for Teaching and Role of Teachers. Annual Plan, Content analysis, Pedogogical Analysis
b) Inquiry Model of Teaching Lesson Plan and Level Plan Piagian and Brunerian Approach-Behaviourist Contribution
c) Evaluation - Criteria of good Evaluation Concept of Evaluation, Types of Test Items : Objective, Short Answer, Essay Type, their Merits and Demerits, Blue Print for a Unit Test
d) Achievement and Diagnostic Test

Assignment & Practical Works: (Any Two)

- Make a list of practicals related to secondary science curriculum
- Essay related to any topic of the paper
- Make a list of local resources useful in teaching chemistry to the students of vv Secondary class
- Make a visit any senior secondary science laboratory of a school and prepare a report.
- Make a presentation based on any above topic.

Learning Outcomes: After completion of this course students would able to:

- Understanding Importance of Chemistry and correlate it with other subjects
- Acquient with the Modern Trends in Chemistry.
- Gain ability for critically evaluate the existing syllabus of science.
- Prepare achievement test and diagnostic test.
- Oorganize co-curricular activities related to science.

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1. Dass- R.C. (1985), Science Teaching in Schools, Sterling Publications Pvt.Limited, New Delhi.
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BSE 702 : Physics

Objectives:

- To appreciate the contribution of eminent physicist in connection with the development of the subject.
- To familiar with the aims and objective of the subject in relation to the present need of the society and educational policies of India.
- To plan curriculum at the secondary level and analyze the syllabus of the subject in relation to its applicability to practical situation.
- To develop scientific attitude and provide training in scientific method to their student.
- To write objectives in behavioural term content analysis and content mapping .
- To develop yearly plan, unit plan and lesson plan.
- To plan, equip and organize physics practical in the laboratory.
- To use various methods with appropriateness of content, level and classroom situation.
- To prepare test paper for theory and practical work.

Course Contents:

Unit- I Nature Scope & Curriculum

a) Nature of science and physics, major milestones in the development of physics
b) Aims, objectives and values of teaching physics at secondary and senior secondary level
c) Concept of curriculum place of physics in secondary/sr. secondary level curriculum, selection and organization of content and experience
d) Correlation of physics with other school subjects and its role in daily life
e) Critical appraisal of the prescribed syllabus of physics (at senior secondary, secondary level of Rajasthan and CBSE board)

Unit- II Planning for Instruction and Role of Teachers

a) Writing of objectives in behavioural terms, content analysis.
b) Developing yearly, unit and daily lesson plan.
c) Teachers role in training students in scientific method and in development of scientific attitude.
d) Qualities, responsibilities and professional growth of physics teacher.
e) Creativity among students.

Unit- III Methods and Approaches of Teaching Physics

a) Demonstration method, heuristic method, inductive-deductive method.
b) Laboratory method, Project method, problem solving method, assignment method.
c) Multi sensory aids in teaching of physics like chart, model modern electronic resources like; LCD projector, OHP and ICT
d) Co-curricular activities like science club, science fairs and field trip.
e) Role of state and national level institutes and laboratories(DST, ISRO, solar observatories etc.) in promoting science education.

Unit- IV Evaluation

a) Types of test items.

b) Construction of various test items.
c) Preparation of blue print and achievement test.
d) Diagnosis and remedial teaching in physics, enrichment material.
e) Evaluation and practical work in physics.

Assignment & Practical Work (Any Two)

- Planning of an out of class activity to use local environment to teach physics.
- Life sketch of any two modern physicists.
- Essay related to a topic prescribed in the paper .
- Case study of any one senior secondary lab of physics.
- Conducting and reporting three experiments useful at secondary level.
- Description of design of any improvised apparatus.

Learning Outcomes: After completion of this course students would able to:

- ❖ Appreciate the contribution of eminent physicist in connection with the development of the subject.
- ❖ Understand with the aims and objective of the subject in relation to the present need of the society and educational policies of India.
- ❖ Plan curriculum at the secondary level and analyze the syllabus of the subject in relation to its applicability to practical situation.
- ❖ Develop scientific attitude and provide training in scientific method to their student.
- ❖ Write objectives in behavioural term content analysis and content mapping .
- ❖ Develop yearly plan, unit plan and lesson plan.
- ❖ Plan, equip and organize physics practical in the laboratory.
- ❖ Use various methods with appropriateness of content, level and classroom situation.
- ❖ Prepare test paper for theory and practical work

.

Suggested Reading:

1. Joshi S. R. (2005) Teaching of Science, APH Publishing Corporation, New Delhi.
2. Maitre, K. (1991), Teaching of Physics, Discovery Publishing House, New Delhi.
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5. Sood, J. K. (1989), New direction in Science teaching, Kohli Publication, Chandigarh.
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BSE 703 : Mathematics

Objectives:

- To understand and appreciate the uses and significance of Mathematics in daily life
- To learn various approaches of teaching mathamethics and use them judiciously.
- To know the methods of planning instruction for the classroom.
- To prepare curricular activities and organize the mathematics Laboratory.
- To appreciate and organize activities to develop aesthetics of mathematics.
- To give competence in teaching different mathematics topic effectively

Course Contents:

Unit- I Concept meaning and objectives of mathematics.

a) Concept, meaning and nature of mathematics
b) History of mathematics
c) Contribution of Indians and western mathematics.
d) Aims and objectives of teaching mathematics
e) Blooms taxonomy relating to the teaching objectives in mathematics (cognitive , Affective, psychomotor domain)

Unit- II Methods and approaches of teaching mathematics.

a) Inductive vs. Deductive
b) Analytical vs. synthesis
c) Heuristic, Project, drill, assignment and supervised study, Laboratory method.
d) Lesson planning, Unit plan and Yearly plan for mathematics teaching.
e) Audio visual teaching aids in mathematics (Chart, Model, OHP, LCD, ICT), Improvising Low cost teaching aids in mathematics.

Unit- III Planning for instruction and curriculum.

a) Curriculum development principle for the secondary and senior secondary level.
b) Teaching of Arithmetic, algebra and Geometry
c) Text book in mathematics, Quality of good book in mathematics.
d) Critically evaluation of existing mathematics syllabus prescribed by Rajasthan Board of Secondary Education and C.B.S.E. at different levels.
e) Using mathematics as a game for recreation, organizing Quiz programmes, magic square, answering puzzle and reasoning.

Unit- IV Evaluation in teaching mathematics:

a) Academic testing – objective vs. subjective type test.
b) Diagnostic evaluation in mathematics.
c) Preparation of blue print and achievement test.
d) Preparations of standardized vs. teacher made test in mathematics.
e) Process of obtaining feedback and evaluation in mathematics in term of teaching objectives.

Assignment & Practical Work (Any Two)

- Preparation of detailed plan about development of mathematics laboratory or mathematics club.
- Life sketch of any two Mathematicians.

- Essay related to a topic prescribed in above paper.
- Prepare a case study of slow learner in mathematics or gifted child in mathematics.
- Observation of mathematics classroom teaching in any secondary school and then prepare a diagnostic and remedial teaching plan.

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand and appreciate the uses and Significance of Mathematics in daily life
- ❖ Use various approaches of teaching mathamethics and use them judiciously.
- ❖ Understand the methods of planning instruction for the classroom.
- ❖ Prepare curricular activities and organize the mathematics Laboratory.
- ❖ Appreciate and organize activities to develop aesthetics of mathematics.
- ❖ Give competence in teaching different mathematics topic effectively

Suggested Reading:

1. Kumar S., Ratnalikar D. N. (2003), Teaching of mathematics, Anmol Publications Pvt. Ltd. New Delhi.
2. Mustafa M. (2004), Teaching of mathematics, New trends and innovations, Deep and Deep Publications Pvt. Ltd., New Delhi.
3. Wadhwa S., (2000), Modern methods of teaching mathematics, Sarup and sons, New Delhi.
4. Yadav S. (2007), Teaching of mathematics, Vinod Pustak Mandir, Agra.
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6. नेगी जे. एस. (2006), गणित शिक्षण, विनोद पुस्तक मंदिर, आगरा
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BSE 704 :General Science

Objectives:

- To develop the knowledge about science and its nature.
- To acquire the knowledge about contribution of eminent Indian scientists.
- To aware about the aims, objectives and construction of curriculum.
- To develop understanding aout co-curricular activities, methods of teaching and preparation of test paper.

Course Contents:

UNIT- IConcept and Nature of General Science

a) Science : concept, nature and scope
b) Correlation of science with other subjects
c) General Science and its importance in school curriculum.
d) Inquring influence of science on man and environment.
e) Scientist and their professional achivement.

UNIT- II Aims Objectives and Curriculum

a) Writing aims and objectives in behavioural term.
b) Developing yearly, unit and daily lesson plan.
c) Principle of curriculum construction in General Science.
d) Teachers role in training students in scientific method and scientific attitude.
e) Professional growth of General Science teacher.

UNIT-III Methods of Teaching General Science

a) Lecture method, Demonstration method
b) Inductive-deductive method
c) Project method, problem solving method
d) Laboratory method, Assignment method
e) Heuristic method

UNIT- IV Activities and Evaluation

a) Science laboratory
b) Teaching aids in General science- OHP, LCD Projector , Television.
c) Co curricular activities, Science club, Science fair
d) Evaluation : concept and importance
e) Preparation of blue print and test paper construction.

Assignment & Practical Work (Any Two)

- Make a list of practicals related to secondary science curriculum.
- Essay related to one topic prescribe in the paper.
- Preparation of a comprehensive field trip to plan for a group of twenty students.
- Make a list of local resources useful in teaching general science to the students.
- Make a visit at any senior secondary science laboratory of a school and prepare a report.
- Conducting and reporting three experiments useful at secondary level.
- Make a presentation based on any above topic.

Learning Outcomes: After completion of this course students would able to:

- ❖ Contribution of eminent Indian scientists in connection with the development of the subject.
- ❖ Familiar with the aims and objectives of the subject in relation to present needs of the society and education policies in India.
- ❖ Plan curriculum at secondary and senior secondary level and analyze the syllabus of the subject in relation to its applicability to practical situations.
- ❖ Identify proper methodology to deal with the content which is to be handled by him as teacher in secondary and higher level.
- ❖ Develop a broad understanding of the principles and procedures used in modern science education.
- ❖ Prepare test paper for evaluation.

Suggested Reading:

1. Dass- R.C. (1985), Science Teaching in Schools, Sterling Publications Pvt. Limited, New Delhi.
2. Dass- R.C. (1986), Teaching Science in India, Sterling Publications Pvt. Limited, New Delhi.
3. Gupta Nirmal (1967), Method of Teaching Science, Rastogi and Company Meerut.
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BSE 705 :Biology

Objectives:

- To acquire the knowledge of nature and scopes of Biology.
- To develop understanding the principles of curriculum, planning and E-resources in Biology.
- To develop awareness about various approches and innovative methods of Biological science for effective teaching learning process.
- To develop knowledge of multisensory teaching aids to enhance students engagement and activity based learning.
- To aware about construction of blue print, dignostic test and remedial self learning material and conduct CCE procedure.

Course Contents:

Unit- I Theoritacl Perspective of Biology

a) Meaning , Nature and Scope of Biological science and its branches
b) Historical Dvelopment of Biological science
c) Development of values through Biology teaching
d) Science as a domain of enquiry, dynamic body of knowledge and as a process of constructing knowledge
e) Developing and significance of Scientific Temper through activities
f) Aims and Objectives of Biological teaching
g) Writing Objectives in Behavioral terms and Content analysis

Unit- II Curriculum and Planning

a) Concept and principles of curriculum
b) Models and approaches related to curriculum organization
c) Recent curriculum innovations in context of National Curriculum Framework (NCF)
d) Planning : Concept, Types and Importance
e) Co- Curricular activities- Excursion, Science fair, Science club
f) E-resources in Biology : Biology blog, E-learning, Useful links and websites etc.

Unit- III Methods and Approaches

a) Herbertian & Constructivist approach (Five 'E' model)
b) Co- operative learning approach
c) Inquiry training model & its application
d) Problem solving approach
e) Inductive and Deductive methods
f) Multisensory Teaching aids- Low cost models, L.C.D. Projector, Poster making, Concept map etc.

Unit- IV Measurement and Evaluation

a) Concept of Measurement and Evaluation
b) Criteria of good Evaluation
c) Preparation of Blue Print
d) Dignostic test and Remedial lerning material
e) Continuous and Comprehensive Evaluation in biology

Assignment & Practical Works: (Any Two)

- Construct, administer and interpret an achievement/diagnostic test and resolving related problems through remedial measure too
- Prepare the Concept map related to school level teaching and demonstrate them to learndifferent contents in classroom
- Prepare the report on environmental problems in local area and resolving issues through scientific project.
- Poster Presentation/ Drama on various issues related to community awareness about biodiversity/ environmental problems/ waste management.
- Organization of exploratory activities to develop scientific attitude and temper

Learning Outcomes: After completion of this course students would able to:

- ❖ Acquire the knowledge of nature and scopes of Biology.
- ❖ Understand the principles of curriculum, planning and E-resources in Biology.
- ❖ Know and apply the various approches and innovative methods of Biological science for effective teaching learning process.
- ❖ Apply knowledge of multisensory teaching aids to enhance students engagement and activity based learning.
- ❖ Construct blue print, dignostic test and remedial self learning material and conduct CCE procedure.

Suggested Reading:

1 Choudhary, S. (2010), Teaching of Biology, APH Publishing Corporation, New Delhi.
2 Grear, T. L., The Teaching of Biology in Secondary Schools.
3 Joshi, S. R. (2005), Teaching of Science, A.P.H. Publishing Corporation, New Delhi.
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5 Mohan, Radha (2007), Innovative Science Teaching, Prentice Hall of India, (p) Ltd., New Delhi.
6 Singh, Yogesh Kumar & Nath, Ruchika (2005), Teaching of General Science, A.P.H. Publishing Publishing Corporation, New Delhi.
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13 शर्मा, एस.आर. (2008), विज्ञान शिक्षण, अर्जुन पब्लिशिंग हाउस, नई दिल्ली
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15 सूद, जे. के. (2007), विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा
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Semester VII

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BSE 706	Optional Course Environmental Education	**Any one CE**	**4**	**30**	**70**	**100**
BSE 707	Health and Physical					
BSE 708	Guidance and Counseling					
BSE 709	Distance Education					
BSE 710	Additional Course (Any one) 5.1 Chemistry					
	5.2 Physics					
	5.3 Mathematics					
	5.4 General Science					
	5.5 Biology					

BSE 706 : Environmental Education

Objectives:

- To understand the problems of concerning environment through multi disciplinary approach.
- To develop the skill of planning and organizing ecological activities in the schools.
- To create consciousness about environment among the adult learners.
- To give information on different techniques and materials for the affective dissemination of environmental information.

Course Contents:

UNIT- IConcept Of Environment

a) Meaning , Scope, Importance
b) Eco-System – Charecteristic Qualities
c) Inter- Dependence In Environment
d) Natural Resources
e) Bio-Diversity – Scope & Threats, Preservation

UNIT- IIEnvironmental Education

a) Meaning, Importance and Objective
b) Scope of Environmental Education
c) Need for Public Awareness as a subject
d) Muti-disciplenary Nature of Environmental Studies Curriculum Development

UNIT- III Environmental Hazards and Pollution

a) Air Pollution
b) Water Pollution
c) Soil Pollution
d) Noise Pollution

UNIT- IV Global Issues and Environmental Conservation

a) Global Issuse (Global Warming, Climate Change, Deplition of Ozone Leyer and Energy Crisis)
b) Different Aspects Related To Environmental Conservation.
c) Environmental Preservation &Improvement (At National & International Level)
d) National Environment Policy

Assignment & Practical Work (Any Two)

- Study on Any one environmental problems. The report on the study must include efforts of the pupil / teacher in developing awareness among people about the environmental problems.
- Prepare a plan to teach environment at education to the adults.
- One term paper solve.
- Prepare a scrap book of an environmental articles and news.
- Conduct environmental competition for local school student.

Learning Outcomes: After completion of this course students would able to:

- ❖ Students are able to understand the problems concerning environment through multi disciplinary approach.
- ❖ Students are able to develop the skill of planning and organizing Ecological activities in the schools so the children can equipped to play their part in protection and enrichment of environment.
- ❖ Students are able to create Environment Consciousness among the adult learners.
- ❖ Students are able to use different Techniques and materials for the affective Dissemination of Environmental information.
- ❖ Students are able to conduct local surveys, arrange field trips Environmental games and hobbies.

संदर्भ ग्रन्थ सूची :

1. उपाध्याय, राधावल्लभ, (2008), पर्यावरण शिक्षा, विनोद पुस्तक मंदिर, आगरा
2. गुप्ता, चाँदमल, शर्मा, रेनू (2008), पर्यावरण शिक्षा, आस्था प्रकाशन, जयपुर
3. गोयल, एम. के. (2008), पर्यावरण शिक्षा, विनोद पुस्तक मंदिर, आगरा
4. बरौलिया, ए., पर्यावरणीय शिक्षा के नये आयाम, राधा प्रकाशन मन्दिर, आगरा
5. बरौलिया, ए. पराशर, राधिका एवं दुबे, श्री कृष्ण, पर्यावरण शिक्षा के नये आयाम, राधा प्रकाशन मंदिर, आगरा
6. राजस्थान पाठ्यपुस्तक मण्डल की कक्षा 11 से 12 तक की पुस्तकें
7. रावत, कमलेश, पर्यावरण शिक्षा, अलका पब्लिकेशन्स, अजमेर
8. श्री वास्तव, पंकज (2007), पर्यावरण शिक्षा, मध्यप्रदेश हिन्दी ग्रन्थ अकादमी,

BSE 707: Health and Physical

Objectives:

- To develop the organic system of the body.
- Development of understanding and appreciation of the techniques and strategies of sports
- To develop correct health habits.
- Attainment of knowledge of proper health procedure as related with physical exercise.
- The physical education program will allow the students to participate in developmentally appropriate activities.

Course Contents:

Unit- I Concept of Health Education

a) Meaning of Health education.
b) Environmental factor which promote and affect In Health.
c) Importance and objective of Health education.
d) General Exercises in school.

Unit- II Environment and Science of Living and Yoga

a) Importance of water to life and our environment.
b) Science of Living and yoga.
c) Role of Individual in improvement of sports environment.
d) Physical and physiological benefits of exercise on children.

Unit- III Physical Education, Balanced Diet and First Aid

a) Meaning and Importance of physical Education
b) Balanced Diet and Nutrition : Macro and Micro Nutrients
c) First Aid

Unit- IV History of Volleyball & Kabbadi

a) Historical Development of Volleyball
b) Measurement and Rule of Volleyball
c) Historical Development of Kho-Kho
d) Measurement and Rule of Kabbadi

Assignment & Practical Work

- Write a Term paper on a topic given in the course
- Skill of any one Team Game of choice from the given List

Learning Outcomes: After completion of this course students would able to:

- Develop the organic system of the body.
- Understand and appreciation of the techniques and strategies of sports
- Aware about correct health habits.
- Attain knowledge of proper health procedure as related with physical exercise

Suggested Readings:

1. Thorburn, M. (2000), Physical Education-Intermediate Course Notes, Leckie & Lechie Publisher.
2. कमलेश एवं संगरल, शारीरिक शिक्षा में शिक्षण विधियां, विनोद पब्लिकेशन, लुधियाना।
3. पाराशर, गीता एवं कुमार सुनील (2014), स्वास्थ्य शिक्षा तथा मनोरंजन।
4. सफाया, आर. के. स्वास्थ्य एवं शारीरिक शिक्षा, विनोद पब्लिकेशन, लुधियाना।
5. सिंह, बलदेव, स्वास्थ्य एवं शारीरिक शिक्षा, विनोद पब्लिकेशन, लुधियाना।
6. सिंह, परमजीत, राठौड़, भूपेन्द्र सिंह, बार्थोनिया, माया, खान, एम. ए. (2007), शारीरिक एवं स्वास्थ्य शिक्षा, कक्षा–9 माध्यमिक शिक्षा बोर्ड, राजस्थान अजमेर।

BSE 708 : Guidance and Counseling

Objectives:

- To educateion about the basics concept, nature and scope of Educational and Vocational guidance.
- To understand the aims objective of educational and vocational guidance.
- To make enable about the importance of educational and vocational guidance.
- To give knowledge of role and responsibilities of guidance workers in school.
- To understand the nature and types of guidance service & with reference to school education.
- To understand the concept, nature and types of counseling.

Course Contents:

Unit- I Basics of Guidance

a) Meaning and Nature of Guidance.
b) Aims and Principles of Guidance.
c) Types of Guidance
d) Importance of Guidance in schools for individual and for society.
e) Process of Guidance.

Unit- II Basics of Counseling

a) Meaning, Nature and Principles of counseling
b) Types of Counseling.
c) Distinction between Guidance and Counseling.
d) Role and Responsibilities of Guidance workers in school.
e) Qualities of a good guidance programme.

Unit- III Area of Guidance

a) Educational guidance
b) Vocational guidance
c) Personal guidance
d) Guidance Implication in the current Indian scenario.
e) Problems of guidance in India.

Unit- IV Guidance Services

a) Introduction to Guidance Services.
b) Individual Inventory Service
c) Information Service
d) Cumulative Record
e) Placement Services
f) Follow up Service

Assignment & Practical Work (Any Two)

- Prepare a term paper on any topic of Educational, Vocational or Personal guidance
- Write an article on current educational problems, providing the solution.
- Observe an educational or co-curricular activity in a school or college and provide guidance for the improvement.
- Case study of two special children.

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand the basic concept, Nature and scope of Educational and Vocational guidance.
- ❖ Describe aims objective of educational and vocational guidance.
- ❖ Understand importance of educational and vocational guidance.
- ❖ Identify nature and types of guidance service & with reference to school education.
- ❖ Understand the concept, nature and types of counseling.

Suggested Readings:

1. Bansal, Aarati (2007), Educational and Vocational Guidance, Sublime Publication, Jaipur
2. Chaturvedi, Ramesh, (2007), Educational and Vocational Guidance and Counseling, Crescent Publishing Corporation, New Delhi.
3. Nayak A. K., Rao V. K. (2007), Guidance and Career Counseling, APH Publishing Corporation, New Delhi.
4. Sharma, Shashi Prabha (2005), Career Guidance and Counseling (Principles and Technique), Kanishka Publishers, New Delhi.
5. Sharma, Sita Ram (2005), Evolution of Educational and Vocational Guidance, ABD Publishers, Jaipur.
6. Sharma, Yogendra K. (2005), Principles of Educational and Vocational Guidance. Kanishka Publishers, New Delhi.
7. Vashist, S. R. (2001), Methods of Guidance, Anmol Publication, Pvt. Ltd., N. Delhi
8. जायसवाल, सीताराम (2006), शिक्षा में निर्देशन एवं परामर्श, विनोद पुस्तक मंदिर, आगरा
9. भाटिया, के. के., (2006), मार्गदर्शन एवं परामर्श के सिद्धान्त, कल्याणी पब्लिशर्स, नई दिल्ली
10. शर्मा, आर. ए.,चतुर्वेदी, शिखा (2009), शैक्षिक एवं व्यवसायिक निर्देशन एवं परामर्श, आर. लाल. बुक डिपो, मेरठ
11. सिंह, रामपाल, उपाध्याय, राधावल्लभ (2004), शैक्षिक एवं व्यवसायिक निर्देशन, विनोद पुस्तक मंदिर, आगरा

BSE 709 : Distance Education

Objectives:

- To provide an effective alternative path to wider opportunities in education and especially in higher education.
- To provide an efficient and less expensive education.
- To provide education facilities to all qualified and willing persons.
- To provide opportunities of academic pursuits to educate citizens willing to improve their standard of knowledge.
- To provide education facilities to those individuals who look upon education as a life-long activity.

Course Contents:

Unit-I Theoretical Prospective of Distance Education

a) Meaning and Definition of Distance Education.
b) Characteristics of Distance Education
c) Distance education as a discipline.
d) Need for establishing Distance Education as a discipline.

Unit-II Scenario of Distance Education Institutes

a) State wise situation of Distance Education Institutes in India.
b) Objectives of Indira Gandhi National Open University.
c) Main Theoretical Bases of Distance Education.
d) Theory of Independent study by CHARLES WEDEMEYER.

Unit-III Essential Elements of Developing in Distance Education

a) Essential Elements of Developing curriculum in Distance education.
b) Different services provided by Sanchar Kendra IGNOU.
c) Non- Print Instructional media in Distance Education: Educational RADIO.
d) Major educational Television projects in Distance education.

Unit-IV Counseling for Distance Learners

a) Organizing counseling Services for Distance Learners.
b) Various Types of Tele - Conferencing.
c) Format of the Text in Distance Education.
d) Distance Learners and Counseling

Assignment & Practical Work

- Write any one term paper on a topic with in the content.
- Make the list of Distance Education programme of various universities in India.

Learning Outcomes: After completion of this course students would able to:

- Provide an effective alternative path to wider opportunities in education and especially in higher education.
- Understand an efficient and less expensive education.
- Explain education facilities to all qualified and willing persons.
- Identify the opportunities of academic pursuits to educate citizens willing to improve their standard of knowledge.

Suggested Readings:

1. Datt, Ruddar (1985), Distance Education in India, Open School, New Delhi
2. Hillard, R. I., Writing for T.V. and Radio, N.Y. Hastings House
3. Parmaji, S. (1984), Distance Education, Sterling Publication, New Delhi
4. यादव, सियाराम (2008), दूरवर्ती शिक्षा, विनोद पुस्तक मंदिर, आगरा

BSE 710 : 5.1 Chemistry

Objectives:

- To gain the knowledge of Chemistry for secondary and senior secondary level.
- To improve the various skills of student teachers in practical work.
- To understand the practical and theoretical description of various content.
- To solve different problems related with the content of chemistry.
- To know importance and use of course content.
- To plan, equip and organize chemistry practical in the laboratory.
- To use various methods with appropriateness of content, level and class room situations.
- To develop scientific attitude and provide training in scientific method to their students.

Course Contents:

Unit- I Chemical Properties

a) Chemical Equation
b) Chemical Equilibrium
c) Types of Chemical Reactions
d) Acid and Base
e) Chemical Change

Unit- II Metal and Non Metals

a) Metal
b) Nonmetal
c) Chemical Properties of Metal
d) Hydrogen
e) Water

Unit- III Carbon

a) Bonding in Carbon
b) Saturated and Unsaturated Carbon Compound
c) Nomenclature of Carbonic Compound
d) Chemical Properties of Carbon Compound
e) Coal and Petroleum

Unit- IV Periodic Table

a) Periodic Table and Atoms
b) Atoms and Molecules
c) Atomic Mass and Mole Concept
d) Atomic Models
e) Isotopes and Isobars

Assignment & Practical Work (Any Two)

- Preparation of a term paper based on any above topic.
- Solve an examination question paper.
- Make a presentation based on any above topic.
- Conducting and reporting three experiments useful at secondary level.

Learning Outcomes: After completion of this course students would able to:

- ❖ Gain the knowledge of Chemistry for secondary and senior secondary level.
- ❖ Improve the various skills of student teachers in practical work.
- ❖ Understand the practical and theoretical description of various content.
- ❖ Solve different problems related with the content of chemistry.
- ❖ Know importance and use of course content.
- ❖ Plan, equip and organize chemistry practical in the laboratory.
- ❖ Use various methods with appropriateness of content, level and class room situations.
- ❖ Develop scientific attitude and provide training in scientific method to their students

Suggested Readings:

1. रसायन विज्ञान, (2014) भाग–1, कक्षा 11 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
2. रसायन विज्ञान, (2014) भाग–2, कक्षा 11 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
3. रसायन विज्ञान, (2014) भाग–1, कक्षा 12 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
4. रसायन विज्ञान, (2014) भाग–1, कक्षा 12 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
5. विज्ञान, (2014) कक्षा 8 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
6. विज्ञान, (2014) कक्षा 9 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
7. विज्ञान, (2014) कक्षा 10 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
8. अग्रवाल वी. पी., सिडाना के., पारीक के, (2007), विज्ञान शिक्षण, शिक्षा के प्रकाशन, जयपुर
9. कुलश्रेष्ठ पी. के. (2006), विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा
10. नेगी जे. एस., नेगी आर, (2000), रसायन विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा
11. रावत डी. एस. (2009), विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा
12. शर्मा एस. आर. (2008), विज्ञान शिक्षण, अर्जुन पब्लिशिंग हाउस, नई दिल्ली
13. सूद जे. के. (2007), विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा
14. श्रीमाली एन. के., भूषण ए., रिहानी आई, (2007), विज्ञान शिक्षण, राजस्थान ग्रन्थ अकादमी, जयपुर

BSE 710 : 5.2 Physics

Objectives:

- To gain the knowledge of concepts of physics.
- To improve the various skills of student teachers in practical work.
- To understand the practical and theoretical description of various content.
- To able for solving different problems related with the content of physics.
- To plan, equip and organize physics practical in the laboratory.

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Course Contents:

Unit- I Electric field

a) Electric charge
b) Conductor and non conductor
c) Charge through induction
d) Characteristics of electric charge
e) Coulomb's law

Unit- II Optics

a) Mirror reflection, refraction
b) Spherical mirror
c) Total internal reflection
d) Lens
e) Power of lens

Unit- III Characteristics of matter

a) Elasticity of solids
b) Stress
c) Pressure
d) Viscosity
e) Surface energy and surface tension

Unit- IV Gravitation and Energy

a) Gravitation
b) Work
c) Energy
d) Power
e) Sound

Assignment & Practical Work (Any Two)

- Preparation of a term paper based on any above topic.
- Solve an examination question paper.
- Make a presentation based on any above topic.
- Conducting and reporting three experiments based on above topics.

Learning Outcomes: After completion of this course students would able to:

- Gain the knowledge of physics for secondary and senior secondary level.
- Improve the various skills of student teachers in practical work.
- Understand the practical and theoretical description of various content.
- Solve different problems related with the content of physics.

Plan, equip and organize physics practical in the laboratory

Suggested Readings:

1. भौतिकी, (2014) भाग 1, कक्षा 11 के लिए पाठ्य पुस्तक राजस्थान राज्य पाठ्य पुस्तक मण्डल, जयपुर
2. भौतिकी, (2014) भाग 2, कक्षा 11 के लिए पाठ्य पुस्तक राजस्थान राज्य पाठ्य पुस्तक मण्डल, जयपुर
3. भौतिकी, (2014) भाग 1, कक्षा 12 के लिए पाठ्य पुस्तक राजस्थान राज्य पाठ्य पुस्तक मण्डल, जयपुर
4. भौतिकी, (2014) भाग 2, कक्षा 12 के लिए पाठ्य पुस्तक राजस्थान राज्य पाठ्य पुस्तक मण्डल, जयपुर
5. विज्ञान, (2014) कक्षा 8 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
6. विज्ञान, (2014) कक्षा 9 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
7. विज्ञान, (2014) कक्षा 10 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर

BSE 710 : 5.3. Mathematics

Objectives:

- To gain the knowledge of Mathematics.
- To know different methods for solve mathematical problems.
- To understand the mathematics formulas and use them appropriately.
- To solve various types of mathematical problems

Course Contents:

Unit- I Number System

a) Irrational numbers
b) Real numbers and their decimal expansions
c) Operation on real numbers
d) Laws of exponents for real number
e) Fundamental theorem of arithmetic

Unit- II Plane Geometry

a) Angles and lines at a point
b) Angles made by a transversal with two lines
c) Classification of triangles on the basis of sides and angles
d) Square, Rectangle and Circle
e) Congruence of triangles

Unit- III Algebra

a) Linear equations (in two variables)
b) Polynomials in one variable
c) Zeros of a polynomial
d) Factorization of polynomial
e) Quadratic equation

Unit- IV Trigonometry

a) Introduction
b) Trigonometric ratio
c) Trigonometric ratio of various angles
d) Surface area
e) Statistics –mean, mode , median

Assignment & Practical Work (Any Two)

- Preparation of a term paper based on any above topic
- Solve an examination question paper
- Make a presentation based on any above topic.

Learning Outcomes: After completion of this course students would able to:

- Gain the knowledge of Mathematics.
- Know the different methods for solve mathematical problems.
- Understand the mathematics formulas and use them appropriately.

- ❖ Solve various types of mathematical problems

Suggested Readings:

1. गणित, (2014), कक्षा 7 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
2. गणित, (2014), कक्षा 8 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
3. गणित, (2014), कक्षा 9 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
4. गणित, (2014), कक्षा 10 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
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10. सिंह एस. (2005), गणित शिक्षण, विनोद पुस्तक मंदिर, आगरा

BSE 710 : 5.4. General Science

Objectives:

- To develop knowledge of General Science for secondary and Senior Secondary level
- To improve various skills of student teachers in practical work
- To understand the practical and theoretical description of various content
- To solve different problems related with the content of science
- To make student teachers to know importance and use of course content
- To plan, equip and organize physics practical in the laboratory.
- To use various methods with appropriateness of content, level and class room situation.
- To develop scientific attitude and provide training in scientific method to their students.

Course Contents:

Unit- I Matter in Our Surroundings

a) Matter
b) States of matter
c) Change in state of matter
d) Mixture and solution
e) Physical and chemical changes

Unit- II Atoms and Molecules

a) Laws of chemical combination
b) Molecule
c) Atom
d) Chemical formula
e) Mole concept

Unit- III Motion

a) Displacement
b) Velocity
c) Acceleration
d) Force
e) Laws of motion

Unit- IV Atomic Structure

a) Atomic structure
b) Chemical bonding (Ionic bond and covalent bond)
c) IUPAC nomenclature
d) Periodic table
e) Acid - base concept

Assignment & Practical Work (Any Two)

- Preparations of term paper based on any above topic
- Solve an examination question paper
- Make a presentation based on any above topic
- Conducting and reporting three experiments based on above topics.

Learning Outcomes: After completion of this course students would able to:

- ❖ Gain the knowledge of General Science for secondary and Senior Secondary level
- ❖ Improve various skills of student teachers in practical work
- ❖ Understand the practical and theoretical description of various content
- ❖ Different problems related with the content of science
- ❖ Make student teachers to know importance and use of course content
- ❖ Plan, equip and organize physics practical in the laboratory.
- ❖ Use various methods with appropriateness of content, level and class room situation.
- ❖ Develop scientific attitude and provide training in scientific method to their students.

Suggested Readings:

1. भौतिकी, (2014) भाग 1, कक्षा 11 के लिए पाठ्य पुस्तक राजस्थान राज्य पाठ्य पुस्तक मण्डल, जयपुर
2. भौतिकी, (2014) भाग 2, कक्षा 11 के लिए पाठ्य पुस्तक राजस्थान राज्य पाठ्य पुस्तक मण्डल, जयपुर
3. रसायन विज्ञान, (2014) भाग–1, कक्षा 11 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
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5. विज्ञान, (2014) कक्षा 8 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
6. विज्ञान, (2014) कक्षा 9 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
7. विज्ञान, (2014) कक्षा 10 के लिए, पाठ्यपुस्तक, राजस्थान राज्य पाठ्य पुस्तक मंडल, जयपुर
8. अग्रवाल वी. पी., सिडाना के., पारीक के, (2007), विज्ञान शिक्षण, शिक्षा के प्रकाशन, जयपुर
9. कुलश्रेष्ठ पी. के. (2006), विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा
10. रावत डी. एस. (2009), विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा
11. शर्मा एस. आर. (2008), विज्ञान शिक्षण, अर्जुन पब्लिशिंग हाउस, नई दिल्ली
12. सूद जे. के. (2007), विज्ञान शिक्षण, विनोद पुस्तक मंदिर, आगरा

BSE 710 : 5.5. Biology

Objectives:

- To understand the various concepts related to Biology.
- To facilitate the development of Scientific Temper in learner.
- To provide critical and analytical knowledge to student teacher.
- To enhance creativity, skillfulness and teaching abilities among trainees to teach the school level students.
- To develop the skills related to problem solving, critical analysis and awareness to solve various health problems of community.
- To stimulate curiosity, application of knowledge and constructive thinking among the student teacher for whole biosphere.

Course Contents:

Unit- I Growth and Development

a) Cell structure and cell cycle (Mitosis, Meiosis).
b) Tissues : Types and functions, Internal structure of Monocot and Dicot root, Secondary Growth process, Tissue culture
c) Taxonomy of plants, Structure of flower, Floral formula & Floral diagram.
d) Photosynthesis: Pigment, Light & Dark reaction, C3 and C4 cycle, Calvin cycle & affecting factors, Crassulacean acid Metabolism

Unit- II Reproduction and Genetics

a) Reproduction : Types, System, Procedure and Reproductive health issues in animals
b) Genetics and Evolution: Molecular basis, Mendelism, Gene cloning, Gene transfer
c) Embryology - Stages and Growth, Organogenesis and Test tube baby
d) Biotechnology : Recombinant DNA technology, Gene mapping

Unit- III Physiology and Regulation

a) Respiration : Types, System and process in animals, Glycolysis, Kerb cycle, Oxidative phosphorylation and Fermentation
b) Human physiology : Various system, Related process (Digestion, Circulation, Excretion)
c) Regulation in Animals : Nervous system, Endocrine system

Unit- IV Biodiversity and New Trends

a) Neo Darwinism, Palentogical & Morphological evidences, Hardy-winberg law.
b) Biodiversity and Ecology : Types of pollution, Global Warming, Alnino effect, Ecological Pyramids, Bio-geo-chemical cycles
c) Community and Diseases : Malaria, AIDS, Polio, Cancer, malnutrition etc
d) New Trends and contribution of Eminent Indian Scientist in Biology

Assignment & Practical Work (Any Two)

- Preparation of planning with concept mapping and teaching learning process belongs to five topics in any above unit
- Solve an examination question paper
- Make a power point presentation based on any above topic in units
- Prepare a report related to diseases in local area and organize a awareness campaign in school

Learning Outcomes: After completion of this course students would able to:

- ❖ Understand the various concepts related to Biology.
- ❖ Facilitate the development of Scientific Temper in learner.
- ❖ Provide critical and analytical knowledge to student teacher.
- ❖ Enhance creativity, skillfulness and teaching abilities among trainees to teach the school level students.
- ❖ Develop the skills related to problem solving, critical analysis and awareness to solve various health problems of community.
- ❖ Stimulate curiosity, application of knowledge and constructive thinking among the student teacher for whole biosphere.

Suggested Readings:

1. Gregaire, L., Gallagher, P. (1992), Life Science, SMD Educational, Publishers, Leiden, The Netherlands.
2. Nair, P. K. G., Hegde, M. J., Prabhu, S. G. (1998), A Text book of Biology (Vol.2), Himalaya Publishing House, Mumbai
3. Naumov, D. (1987) , Zoology, Mir Publishers, Moscow
4. Rajendra, K., D' Silva Precilla., Dernandes, Anita (2004), Biology, Boscos Publications, Mangalore
5. Scott, Peter Physiology and Behaviour of Plants, John Wiley & Son's Ltd. West Sussex, England.
6. ''जीव विज्ञान'' पाठ्य पुस्तकें कक्षा 11 एवं 12 : राष्ट्रीय शैक्षिक एवं अनुसंधान परिषद्, नई दिल्ली
7. शुक्ल, बी. आर. के. व रस्तोगी, सुधा (1994), मानव उद्विकास, सुलभ प्रकाशन, लखनऊ

Semester – II Core Foundation Paper

Course Code – JVB 204 The Use of English

Marks 100 **[CIA- 20, UT- 15x4=60, TP- 20]** **Credit-4**

Paper V

Course Description: The Use of English is a course designed to familiarize the students with basic tenants of English language comprising both grammar and composition.

Unit I: Basic Sentence Patterns and Transformation.

Unit II: Time, Tense and Concord.

Unit III: Voice, Narration and Modal Auxiliaries.

Unit IV: Writing Skills. (Letter, Application, Précis, Report and Essay Writing.)

SUGGESTED READING

- Green, David. ***Contemporary English Grammar Structure and Composition***.Laxmi Publications; Second edition (2015)
- Hornby, A.S.***A guide to Patterns and Uses*.** Oxford University Press, New Delhi.
- Swan, Michael***. Practical English Grammar*.** Oxford University Press, New Delhi.
- Harit, S.K.***Communication Skills and English Grammar*.** Associated Book Company, Jodhpur.
- Krishnaswamy, N.***Modern English: A Book of Grammar, Usage and Composition*.** Laxmi Publications.

CORE COMPULSORY PAPER

SEMESTER-IV

Paper-I

NVP-403: Disaster Management

1. Natural Disasters: Meaning and nature of natural disasters, types and effects. Floods, drought, cyclone, earthquakes, landslides, avalanches, Volcanic eruptions, Heat and cold waves, Climatic change: global warmng, Sea level rise, ozone depletion.
2. Man Made Disasters- Neuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire, oil fire, air pollution, water pollution, deforestation, industrial waste water pollution, road accidents, rail accidents, air accidents, sea accidents.
3. Disaster Management- Effect to migraste natureal disaster at national and global levels. International strategy for disaster reduction. Concept of disaster management, national disaster management framework, Financial arrangements
4. Role of of Government and NGO's: Central, state, district and local administration; Armed forces in disaster response; Disaster response; Police and other organizations. Community based organizations and media.

Reference:

1. R.B. Skingh (Ed.), Environmental Geography, Heritage Publishers, New Delhi, 1990
2. Savinder Singh, Environmental Geography, Prayag Pustak Bhawan, 1997
3, Kates B.I. & White G.F., The Environment as Hazards, Oxford, New York, 1978
4. R.B. Singh (Ed.), Disaster Management, Rawat Publication, New Delhi, 2000
5. H.K. Gupta (Ed.), Disaster Management, University Press, India, 2003
6. R.B. Singh, Space Technology for Disaster Mitigation in India (INCED), University of Tokyo, 1994
7. Dr. Satender, Disaster Management in Hills, Concept Publishing Co., New Delhi, 2003
8. A.S. Arya, Action Plan For Earthquake, Disaster, Mitigation in V.K. Sharma (Ed.), Disaster Management IIPA Publication, New Delhi, 1994
9. R.K. Bhandani, An Overview on Natural & Manmade Disaster & their Reduction, CSIR, New Delhi
10. M.C. Gupta, Manuals on Natural Disaster Management in India, National Centre for Disaster Management, IIPA, New Delhi, 2001.

CORE COMPULSORY

Semester-III

PAPER-III(NVP)

NVP-303: Training in Nonviolence

1. Raison d'eter and consequential results of non-violence, human emotions like greed, fear, enmity, vanity, anger, cruelty etc.
2. Change of heart - The training of the mind-
   (a) Aphorism (sutras) of the change of the mind: Training in the development of the attitude of detachment, fearlessness, friendliness, forgiveness, compassion, modesty.
   (b) Devices of training in N.V. - Relaxation (Kayotsarga) Preksha Meditation, Anupreksha (Therapeutic Thinking)
3. Training in open-mindedness or non-absolutistic outlook-
   (a) Truth seeking attitude
   (b) Non-absolutism, relativism in thought and action.
   (c) Harmonization
   (d) Co-existence
4. Training in life-style modification; Training for change in system;-
   Training to inculcate the values of renunciation (visarjana) non-acquisitiveness,

Books Recommended:

1. Acharya Tulsi; The Anuvrat Movement for moral Awakening, JVB, Ladnun, 1993
2. Acharya Mahaprajna; Democracy, Social Revolutions through Individual Transformation, JVB, Ladnun
3. Acharya Mahaprajna, Ahima aur Anuvrat, Jain Vishva Bharati Institute, Ladnun
4. Erikshon, Gandhi's Truth on the Origins of Militant Non-violence, Faber & Faber, London, 1970
5. Muni Sukhlal, Training in Non-violence (Part-I-V), Rashtriya Anuvrat Shikshak Sansad, Rajsamand, 2006
6. B.R. Dugar, Ahimsa Prakshishan evam Vishvashanti, Acharya Shanti Sagar Chhani Granthmala, Budhana, 2002
7. Tom Hastings, Power: Non-violent Transformation from the Transpersonal to the Transnational, Halmiton Books, 2005
8. Johan Galtung, Peace by Peaceful Means: Peace andConflict, Development and Civilization, Sage, 1996

Core Compulsory

Semester-II

PAPER-II

NVP-202: Conflict Resolution

1. Meaning and Nature, Bases, Sources and Forms of Conflict.
2. Conflict Resolution - Meaning and Nature. Belief and Attitude - The functional Significance, strength and importance, Means of transformation.
3. Method of Pacific Settlement Conflict under UN: Good offices, Negotiations, Conciliation, Mediation, Fact Finding, Arbitration, Unilateral Settlement Procedures, Coercive Procedures.
4. Agencies of Conflict Resolution:U.N. Peace keeping,Shanti Shena and Satyagrah, Gandhian & Jain Techniques of Conflict Resolution: Anekant.

Books Recommended :

1. Thomas Weber, Conflict Resolution and Gandhian Ethics, The Gandhi Peace Foundation, New Delhi, 1991
2. H.J.N. Harsburgh, Non-Violence and Aggression: A Study of Gandhi's Moral Equivalent of War, Oxford University Press, London, 1968
3. Julius Stone, Conflict through Consensus: United Nations Approach to Aggression, 1977
4. Boutros Ghali, An Agenda for Peace: Preventive Diplomacy, Peace Making andPeace Keeping, Sage, 1992
5. Joan V. Bondurant (ed.), Conflict, Violence and Non-violence, Chicago University Press, 1979
6. T.F. Lentz, Towards a Science of Peace, New York, Bookman Associates Inc.,1988
7. J.N. Sharma, Satyagrah : Gandhian Technique of Conflict Resolution.
8. Bachhraj Dugar, Ahimsa Prakshishan evam Vishva Shanti, Acharya Shanti Sagar Kshani Granthmata, Budhana, 2002
9. Tom H. Hastings, Ecology of War and Peace, University Press of America, 2000
10. Johan Galtung, Transcend and Transformed : An Introduction to Conflict Work, Pluto Press, 2004
11. Johan Galtung, Peace by Peaceful Means : Peace and Conflict, Development and Civilization, Sage, 1996

Semester – IV Core Elective Paper-II
Course Code – MJP 405 Manuscriptology
Credit-4

Objectives-

- To describe the distinctive features of Manuscripts.
- To identify the central points and uniqueness of manuscripts.
- To discuss the importance of studying Manuscripts.

Unit- I: Ancient Document of a Country:

- Manuscripts, Inscriptions, coins, Plates, Plaques, Tablets and other varieties.
- Definition of a Manuscript audits comparison with other documents.
- Importance of Manuscripts**.**

Unit- II: Description of Manuscripts:

- Physical description of MSS, such as birch-bank (Bhinja plats), palm leaves (Tadapatra), country - made paper (Kagaj), cotton cloths (Pata, patika, karpaskapata), Bricks, Wooden bond (Phalaka), Skin (Pusta), Metals (Gold, Silver, Copper), Stones.
- Identification of scripts and languages.
- Writing material: Lekhana (Styles), ink, pen and tools.
- Writer or scribe-qualifications or qualities of the writer scribal errors or mistakes.
- Beginning end, colophon, post-colophon, date, size extent, c plate/incomplete, marginal notes (scholia)

Unit- III: History of the Study of the Manuscripts.

- Beginning of the MSS collection with particular reference to India.
- Institutions which started collection MSS.
- Institutions which started publishing ancients text based on MSS : the Asiatic Society, Agamodaya Samiti, Nirnaya Sagar Press, Handbook of Oriental Series and many others.

Unit- IV: Ancient Document of a Country :

- Collection of MSS, selection of reading noting of variants emendations,
- Different edited text as examples : (A) three reconsisons of the Ramayans-Northern, Southern and western. (B) Critical edition of the Mahabharat. (C) Critical edition of the Puranas (D) Three reconsions of the Sakuntala - Northern, Southern and Bengal € Stenkonow - Karpuramanjari (F) Pancatantra problem: F Edgeton - Pancatantra reconstructer, Hertel Pancatantra.

Objectives:

1- To enable the students to know about Middle English Period and Elizabethan period.
2- To make them aware about Bacon's essay.
3- To make them familiar with pre Romantic era.
4- To acquaint them with Shakespearean dramas.

MAE103 Selections From Chaucer to Blake **Credits 4**

Unit-1 (A) Chaucer: Two Portraits from Canterbury Tales
(Prioress + Parson)
(B) Bacon: of Studies, of Adversity
Unit-2 Shakespeare: The Merchant of Venice
Unit-3 (A) Milton Lycidas, On his 24th Birth Day
(B) Selections From Milton & Blake
Unit-4 Selections From Swift & Pope
(A) The Bee and Spider Episode from Battle of the Books
(B) Pope : Rape of the Lock- (canto one)

Outcomes:

1- **The students will be able to understand the basic features of British poetry.**
2- **They will learn the difference form of poetry.**
3- **They will be acquainted with Neo Classical poetry.**

Objectives:

1- To enable the students to know about Romantic Period and Victorian period.
2- To make them aware about Bacon's essay.
3- To make them familiar with pre Romantic era.
4- To acquaint them with Shakespearean dramas.

MAE104 Wordsworth to Eliot **Credits 4**

Unit-1 Selections From Romantic Poetry
(A) Wordsworth: Solitary Reaper
(B) Keats: Ode to Autumn
(C) Shelley: Ode to Skylark
Unit-2 Victorian Poetry
(A) Tennyson: The Lotus Eaters
(B) Browning Porphyria's Lovers
Unit-3 Selections From Prose & Fiction
(A) Lamb: Dream Children: A Reverie
(B) Dickens Oliver Twist
Unit-4 Modern Poetry
(A) Yeats: A Broms Head
(B) Eliot: Love Song of J: Alfred Prufrock

Outcomes:

1- **The students will be able to understand the basic features of Modern poetry.**
2- **They will learn the difference between Victorian and Modern poetry.**

3- **They will be acquainted with Victorian novels.**

Books Recommended:

1. English for Competitive Examination- Prof. R.P. Bhatnagar
2. Modern English- Prof. N. Krishnaswamy
3. A Practical English Grammar- A.J. Thomson & A.V. Martinet
4. The History of English Literature- Edward Albert- OUP
5. Study Writing- Hamp-Lyons/Heasley-CUP
6. A guide To Patterns and Usage in English- A.S. Hornby (CUP)

Books for Reference:

1. Literary Criticism- Wimsatt & Brooks
2. New Insights in R.K. Narayan- M.K. Bhatnagar
3. New Variations in Ramayana- Sahitya Academy I & II
4. The Concepts of Ramayana- Motilal Banarasi Das
5. Indian Philosophy- Das Gupta
6. University Grammar of English- R. Quirk and Sidney Greenbaum
7. A Communicative Grammar of English- Leech and Svrtvik
8. ABC of Comon Errors in English- Nigel Turton, Macmillan
9. English Phrasal Verbs in Use-Mccarthy and O'Dell (CUP)
10. English Idioms in Use-Mccarthy and O'Dell (CUP)
11. The History of English Literature-Hudson
12. History of English Literature- Pramod Nayar
13. Pelican Guide to English Literature- Boris Ford (V. 1-7)

Semester-II

Objectives:

1- To enable the students to know about the history of English language.
2- To make them aware about the notion of non-violence.
3- To make them familiar with Gibran's concept of Prophet.
4- To acquaint them with Tagore's philosophical way of life.

MAE201 Introduction to Modern Linguistics **Credits 4**

Unit-1 Key Concepts of Linguistics
(Langue, Parole, Syntagmatic, Paradigmatic, Diachronic, Synchronic, Prescriptive, Descriptive)

Unit-2 Varieties of Language
(Dialect, Register, Pidgin, Creole, Standard and non-standard, Code-switching and Code-mixing)

Unit-3 (A) Phonology and Phonetics
(details description of Consonants and Vowels)
(B) Morphology and Word-formation
(free and bound and derivational and inflectional morphemes)

Unit-4 Syntactic Structures (Phrase and Clause Structures)

Outcomes:

1- **The students will be able to understand various aspects of language.**
2- **They will learn about second language acquisition.**
3- **They will come to know the various dialectic forms.**

Objectives:

1- To enable the students to know about the method of reading.
2- To make them aware about email, web page and social networking.
3- To make them familiar with listening and speaking.
4- To acquaint them with note making and editing.

MAE202 Communication and References Skills **Credits 4**

Unit-1 Listening, and Speaking Skills

Unit-2 Reading Skills and Vocabulary

Unit-3 Study Skills
(Note taking and Note making & Editing Skills)

Unit-4 Use of Multimedia
(e-mail, web page, blog writing and Social networking)

Outcomes:

1- **The students will be able to understand various aspects of language.**
2- **They will learn new words.**

3- **They will come to know the use of multimedia.**

Objectives:

1- To enable the students to know about contemporary problems.
2- To make them aware about the notion of non-violence.
3- To make them familiar with Gibran's concept of Prophet.
4- To acquaint them with Tagore's philosophical way of life.

MAE203 Literature for Indian Values **Credits 4**

Unit-1 Khuswant Singh- India, An Introduction
Unit-2 Acharya Tulsi- World Peace & Non-violence
Unit-3 Acharya Mahapragya- Non-violence & Its Many Facets
Unit-4 Essays: (i) What India can teach us: Max Muller
(ii) Buddha and Jesus: Swami Vivekanand

Outcomes:

1- **The students will be able to understand the values of human life.**
2- **They will learn the difference between Tagore and Acharya Tulsi's philosophy of life.**
3- **They will get to know the contemporary problems.**

Objectives:

1- To enable the students to know about New Literature in English.
2- To make them aware about the Caribbean poetry.
3- To make them familiar with Afro-American culture.
4- To acquaint them with the problem of third world nations.

MAE204 New Literatures in English **Credits 4**

Unit-1 Australian: Patric White: A Day of Writing
Unit-2 Canadian Literature: Margret Atwood: Surfacing
Unit-3 African Literature: Achebe: Things Fall Apart
Unit-4 Black Literature: Toni Morrison: The Bluest Eye

Outcomes:

1- **The students will be able to know the importance of new literature in English.**
2- **They will learn about the culture and literature about different countries.**
3- **They will be acquainted with the problems of modern men.**

Books Recommended:

1. Word Power Made Essay- Norman Lewis (Goyal Saab)Study Listening- Lynch (CUP)
2. Study Speaking- Anderson, MacLean & Lynch (CUP)
3. An Outline of Literature- John Drinkwater
4. Modern Linguistics- N. Krishnaswamy
5. Linguistics- Jean Aitchison
6. Linguistics- Robinson (Longman, London)
7. Study Skills- Wallace- CUP

Book for Reference:

1. Telephoning in English- Jean Naterop & Rod Revell (CUP)
2. Literary Cristicism- Wimsatt & Brooks
3. The Hostory of English Literature-Hudson
4. Rhetoric-Warren and Brooks
5. The History of English Literature, Penguin India VIII Volume
6. Current English for Colleges- Prof. N. Krishnaswamy & Sriraman
7. Creative English for Communication- Prof. N. Krishnaswamy & Sriraman
8. Public Speaking for Success- Dale Carnidge P.
9. Exploring Spoken English- Mccarthy (CUP)
10. Language and Linguistic- John Lyons
11. English and Soft Skills-Dhanavel- Orient Blackswan

Semester-III

Core Comp. 3

Objectives:

1- To enable the students to know about the benefit of group discussion.
2- To make them aware about their personality development.
3- To make them familiar with their skills.
4- To acquaint them with note making and editing.

MAE301 Career Communication Skills Credits 4

Unit-1 Resume Writing
Unit-2 Interview Skills
Unit-3 Presentation Skills (including Power Point presentation)
Unit-4 Group Discussion

Outcomes:

1- **The students will be able to know the importance of communication skills.**
2- **They will learn how to present themselves in an interview.**
3- **They will be acquainted with group discussion.**

Objectives:

1- To enable the students to know about contemporary problems.
2- To make them aware about the notion of non-violence.
3- To make them familiar with Gandhi's vision of life.
4- To acquaint them with Nehru's India.

MAE302 Modern Indian Classics Credits 4

Unit-1 Mahatma Gandhi- My Experiments with Truth
Unit-2 Jawaharlal Nehru- The Discovery of India
Unit-3 Acharya Tulsi- On Contemporary Problems
Unit-4 Acharya Mahapragya- Jeevan Vigyan

Outcomes:

1- **The students will be able to understand the values of human life.**
2- **They will learn the difference between Tagore and Acharya Tulsi's philosophy of life.**
3- **They will get to know the contemporary problems.**

Objectives:

1- To enable the students to know about history of translation.
2- To make them aware about the theories of translation.

3- To make them familiar with the impact of translation in society.
4- To acquaint them with Nida Pike and Catford.

MAE303 Translation- Theory and Practice **Credits 4**

Unit-1 Theories of Translation
Unit-2 History of Translation (Nida, Pike, Catford)
Unit-3 Translation Practice-I
Unit-4 Translation Practice-II

Outcomes:

1- **The students will be able to understand the values of translation.**
2- **They will learn the difference between theory and practice.**
3- **They will get to know the ancient literatures.**

Core Elec. 2

Objectives:

1- To enable the students to know about ancient Greek history.
2- To make them aware about ancient Italian literature.
3- To make them familiar with Greek dramas.
4- To acquaint them with ancient Indian literature.

MAE304 (A) World Classics in Translation **Credits 4**

Unit-1 Homer: Torjam Horse (Iliad)
Unit-2 Sophocles: Oedipus Rex
Unit-3 Ovid: Metamorphosis
Unit-4 Dante: Inferno Book-1

OR

(B) Indian Classics in Translation

Unit-1 Bharta: Natya Shastra Chapter-1
Unit-2 Shudrak: Mrichhkatikam
Unit-3 Premchand: Godan
Unit-4 U.R. Ananthmoorthy: Sanskar

Outcomes:

1- **The students will be able to understand the values of translation.**
2- **They will learn the difference between theory and practice.**
3- **They will get to know the ancient literatures.**

Objectives:

1- To enable the students to know about the beginning of Indian English Literature.
2- To make them aware about Indian English Poetry.
3- To make them familiar with Prose writing in India.
4- To acquaint them with Indian contemporary fiction.

MAE 305 (A) Indian Writing in English Novels & Short Stories Credits 4

Unit-1 Mulk Raj Anand: Untouchable
Unit-2 Amitav Ghosh: The Shadow Lines
Unit-3 J. Lahiri: The Name Sake
Unit-4 Shashi Desh Pande: The Dark Holds No Terror

OR

(B) Indian Writing in English: Poetry

Unit-1 Tagore: Gitanjali
Unit-2 Imtiaz Dharkar: Purdah-1
Unit-3 Kamla Das: Two Poems
(Summer in Calcutta, My Grandmother's House)
Unit-4 Arun Kolatkar: Two Poems (The Bus, Chaitnya)

Outcomes:

1- **The students will be able to understand the background of Indian English Literature.**
2- **They will become familiar with the poems written in English by Indian writers.**
3- **They will be acquainted with Indian fictions and proses.**

Books Recommended:

1. English for Competitive Exams- R.P. Bhatnagar
2. How to win friends and influence people- Dale Carnidge
3. Translation Studies- Sussan Bassnet (Routledge)
4. Theory of Translation- Catford
5. How to Prepare for Group Discussion and Interview- Hari Prasad[Tata Mcgraw Hill

Books for Reference:

1. Modern Applied Linguistics- N. Krishnaswami etal
2. Translation and Translating- Roger Bell
3. Post Colonial Translation- Theory and Practice- Harish Trivedi and Sussan Bassnet (Routledge)
4. Literary Criticism- Wimsatt & Brooks
5. IELTS-IV Cambridge University Press
6. TOEFL- Barrons
7. English and Soft Skills- Dhanavel-Orient Blackswan
8. Group Discussion and Interview-Competition Success Review

Semester-IV

Core Comp. 3

Objectives:

1- To enable the students to know about the beginning of Indian English Literature.
2- To make them aware about Vivekananda's speech in the parliaments of religion.
3- To make them familiar with Prose writing in India.
4- To acquaint them with the song of India.

MAE401English in India **Credits 4**

Unit-1 The Exploration and Transpiration Phase
- Macauley's Minutes Summary

Unit-2 The Consolidation Phase: The Grand Design
Vivekananda- Speech in the Parliaments of Religion

Unit-3 The Identity Phase (The Song of India- V.K. Gokal)

Unit-4 The Globalization Phase
(Bhagat: What Young India Wants)

Outcomes:

1- **The students will be able to understand the background of Indian English Literature.**
2- **They will become familiar with ancient Indian concepts.**
3- **They will be acquainted with Indian songs and proses.**

MAE402 English Language Teaching **Credits 4**

Objectives:

1- To enable the students to know about the Principles of language teaching.
2- To make them aware about teaching and techniques.
3- To make them familiar with grammar and vocabulary.
4- To acquaint them with prose and poetry.

Unit-1 Basic Principles of Language Teaching- Selection, Gradation, Presentation and Testing

Unit-2 Approaches, Methods and Techniques

Unit-3 Teaching Spoken English, Grammar and Vocabulary

Unit-4 Teaching Prose and Poetry

Outcomes:

1- **The students will be able to understand teaching and techniques.**
2- **They will become familiar with various approaches, methods and techniques.**
3- **They will be acquainted to teach prose and poetry.**

Objectives:

1- To enable the students to know about structuralism and post-structuralism.
2- To make them aware about Sign and its role in literary text.
3- To make them familiar with Derrida's Deconstruction.
4- To acquaint them with cultural theory.

MAE403Literary Theories **Credits 4**

Unit-1 Structuralists and Post-structuralists Theories
Unit-2 Psycho-analysis: Freud and Lacan
Unit-3 Reader Response Theory
Unit-4 Socio Cultural Theories

Outcomes:

1- **The students will be able to understand the background of theory.**
2- **They will learn about sign and its function.**
3- **They will be acquainted with the role of reader.**

Core Elec. 2

Objectives:

1- To enable the students to know about the beginning of Indian English Fiction.
2- To make them aware about the Dalit condition in India.
3- To make them familiar with the literature of protest.
4- To acquaint them with the problems of post-independence India.

MAE404 (A) Literature of Protest in India **Credits 4**

Unit-1 Mulk Raj Anand: Coolie
Unit-2 Bhimrao Ambedkar: The Annihiliation of Cast
Unit-3 Om Prakash Vlmiki: Joothan
Unit-4 Faustina Soosairaj Bama: Sangati

Outcomes:

1- **The students will be able to understand the background of freedom movement in India.**
2- **They will learn the wretchedness condition of dalit people.**
3- **They will come to know the pictures of pre and post independent India.**

Objectives:

1- To enable the students to know about the beginning of Indian folk literature.
2- To make them aware about Sahitya Academy award.

3- To make them familiar with Anantmoorthy.
4- To acquaint them with the problems of post-independence India.

MAE404 (B) Folk Literature of India

Unit-1 Sahitya Academy: Four Texts
Unit-2 Folk Tales From Raj Laxmi: Four Texts
Unit-3 Anantmoorthy: Folk Tales from India
Unit-4 Folk Tales of Rajasthan (Pabuji, Vijaydan Detha)

Outcomes:

1- **The students will be able to understand the background of freedom movement in India.**
2- **They will learn the wretchedness condition of dalit people.**
3- **They will come to know the pictures of pre and post independent India.**

MAE405 Dissertation 50+50 (Viva) Credits 4

The student has to choose a topic from the syllabus. He has the freedom to pursue the topic of his interest within the framework of the syllabus.

Seminar/Library Work

Books Recommended:

1. Teaching English- N. Krishnaswamy etal. I, Macmillan
2. Teaching English- Mohammad Aslam Foundation
3. Contemporary Literary Theory- N. Krishnaswamy et al, Macmillan
4. Indian Aesthetics- Seturaman, Macmilla
5. The Story of English in India- N. Krishnaswamy, Lalitha Krishnaswamy, Cambridge
6. Beginning Theory- Peter Berry
7. Chetan Bhagat- What Young India Wants
8. V.K. Gokak- The Golden Treasury of India-Anglian Poetry
9. Vivekananda Speech in the Parliament of Religions
10. Sarojini Naidu- Poems

Books for Reference:

1. Modern Applied Linguistics- N. Krishnaswamy et al, Macmillan
2. Teaching English under Difficult Circumstances-Oorester (Longman)
3. Literary Criticism- Seturaman, Macmillan
4. Introducing Applied Linguistics- Pit Corder
5. Teaching of Structure Words- Hornby-CUP
6. Teaching English- Methods and Approaches- Richards & Rogers-CUP
7. The Politics of Indians English- N. Krishnaswamy-CUP.

❑❑❑

Outcomes:

- Students can identify scripts.
- Students can selects reading noting of variant emendations.
- Students can work in studying Manuscripts.

नोटः विभाग द्वारा प्रत्येक वर्षों में पृथक–पृथक पाण्डुलिपि का चयन पाठ्यक्रम के रूप में किया जायेगा। जिसमें से कुल 35 गााथओं के अंश को पाठ्यक्रम में सम्मिलित किया जायेगा।

Semester – III Core Elective Paper-II
Course Code – MJP 305 Indian Logic
Credit-4

Objectives -

- To familarize learners with various aspects of the Indian logic.
- To acquaint learners with the contribution of direct and indirect knowledge in Indian philosophy.

Unit- I: Indian Logic

- Introduction to Indian Logic
- Types of *Pramana* in Indian Philosophy
- Concept of *Pramanyavada* in Indian Philosophy
- Concept of *Pramiti* in Indian Philosophy

Unit- II: Direct and Indirect Knowledge in Indian Philosophy

- Direct Knowledge in Indian Philosophy
- Direct Knowledge in Jain Philosophy
- Indirect Knowledge in Jainism-*Smriti, Pratyabhigya, Tarka, Anuman & Agam*

Unit- III: Anumana in Indian Philosophy

- Definition and Constituents of Anumana in Nyaya, Buddhism and Jainism
- Process and Types of Anumana in Nyaya, Buddhism and Jain perspectives
- Types of Hetvabhasa in Nyaya Philosophy
- Theory of Cause and Effect

Unit- IV: Other Pramanas in Indian Philosophy

- Upmaan Pramana
- Sabda Pramana
- Arthapatti

Outcomes:

- Students can have a better understanding of Indian Logic
- It will engage them in philosophical thinking.
- Students can comparatively study Logic.

ESSENCIAL READING

- Gautama, ***Nyaya Sutra***, Chawkhamba Sanskrit Series Office, Varanasi, 1970.
- Acharya Laghu Anantveer, Tr. By Pt. Hiralal Jain, ***Prameyaratnamala,*** Chawkhamba Vidya Bhawan, Varanasi, 1964.

SUGGESTED READING

- Divakara, Siddhasena, With Commentary of Siddharshigani, ***Nyayavatara,*** Agasa: Shri Paramashrutaprabhavaka Mandal, Shrimad Rajchandra Ashram, 1976.
- Dharmabhusana Yati, Abhinava, ***Nyayadipika*** (Part I), Pratibha Prakashan, Delhi 2001.
- Kothiya, Darabarilal, ***Jaina Nyāya ki Bhumik,*** Mahaviraji: Jain Vidya Sansthan, Shri Digamber Jain Atishaya Ksetra Sri Mahaveerji, 1995.
- Shastri, Kailashachandra, ***Jaina Nyāya,*** Bharatiya Jnanapeeth, Delhi, 1989.
- Acharya Mahaprajna, ***New Dimensions in Jain Logic,*** Jain Vishva Bharati, Ladnun, 1984.
- Acharya Mahaprajna, ***Jain Darshan Manan Aur Mimansa,*** Adarsh sahitya sangh, churu, 2014.
- Jain Yogesh Kumar, ***Jain Nyaya ko Acharya Prabhachnadra ka yogdaan***, Jain Vishva Bharati Institute, Ladnun,2015.
- Tiwari, Kedarnath, ***Pratikatmak Tarkshastra,*** Bihar Hindi Granth Academy, Patna, 1974.
- Barlinge, Surendra, ***Bhartiya Tarkshastra Ki Ruprekha,*** Rajasthan Hindi Granth Academy.
- Sharma, Brajranarayan, ***Bhartiya Darshan Mei Anuman,*** Madhyapradesh Hindi Granth Academy, Bhopal, 1973.
- Piotr Balcerowicz (Ed.), ***Logic and Belief in Indian Philosophy,*** Motilal Banarsidass Publishers Pvt. Ltd., Delhi, 2010.

Semester – III Core Elective Paper-I
Course Code – MJP 304 Jain Philosophy of Language
Credit-4

Objectives -

- To recognise the contribution of Jain, India and Western to the development of Philosophy of language.
- To trace the development of language.
- To point out the importance of philosophy of word and sentence.

Unit-I: (J. Hospers)

- Word meaning, definitions
- Vagueness
- Sentence meaning

Unit-II:

- Origin of Language
- Types of Language
- Philosophy of Language in *Avashyak Niryukti* [Verse 5-11 with commentary]

Unit-III:

- Philosophy of Language: Jain, Indian and Western perspective
- *Sfotavada* and its Criticism
- *Apohavada*and its Criticism
- *Abhihitanvayavada* and its Criticism

Unit- IV:

- Philosophy of Word: Jain Perspective
- Philosophy of Sentence: Jain Perspective
- Word Meaning on the basis of *Naya* and *Nikshepa*

Outcomes:

- It will help students to trace the development of language.
- Students will acquire proficiency in grammar and linguistics.
- Students can use this knowledge in higher education

ESSENCIAL READING

- Sagarmal Jain, ***Jaina Bhasa Darshan,*** Bhogilal Leherchand Institute of Indology, Delhi,1986.
- J.Hospers, ***Readings in Philosophical Analysis***, Routledge, California, 1997.
- Acharya Vadidev Suri, ***PramaNayattvaloka (Chap-4),*** Jain Sahitya Vikash Mandal, Bombay, 1967.

SUGGESTED READING

- Acharya Haribhadra, Acharya Shri Sohanlal, ***Avashyak Niryukti,*** Jain Granth Prakashan, Haryana, 2010.
- Jinabhadragani, Hindi tr. Acharya Shri Subhadra Muni, Edt. By Prof. Damodar Shastri, ***Visesavasyaka Bhasya,*** Muni Mayaram Sambodhi Prakashan, Pritampura, Delhi, 2009.
- Mishra Kailashpati, ***Bhartiya Bhasha Darshan,*** Kala Prakashan, Varanasi, 1996.
- Shyamachara, Ed. and Trans. by Bhagwandas Harshchandra, ***Pragyapana,*** Sharda Bhavana Jain Society, Ahmedabad, 1991.
- Ratnaprabha Suri, ***Ratnakal Avatarika,*** Pravachan Prakasahan, Pune, 1960.
- Vadideva Suri, ***Syadvad Ratnakar,*** Bhartiya Book Corporation, Delhi, 1988.
- ***Tattbodhvidhayini-Abaydev Tika***
- John Vattonky, s.j., ***Nyaya Philosophy of Language,*** Sri Satguru Publication, A divison Indian Books Center, Delhi, 1995.
- James Bogen, ***Wittgenstein's Philosophy of Language: Some aspects of itsdevelopment,*** Routledge Kegon Paul Ltd., New York, 2007.
- Ed. by J.R. Searle, ***The Philosophy of Language,*** Oxford University Press, London, 1971.
- Lourdes Ortega, ***Understanding Second Language Acquisition,*** Hodder Education part of Hachette Livreuk, 2009.
- N Krishna Swamy, Sunita Mishra, R.V Ram, ***India's Language Philosophy: With a focus on comparative study,*** Dorling Kindersley (India) Pvt. Ltd., 2013.

Semester – III Core Compulsory Paper-III
Course Code – MJP 303 Western Philosophy
Credit-4

Objectives

- To trace the growth of western philosophers
- To recognize contribution of greek philosophers.
- To identify the main characteristics and various modern philosophers at different time period.

Unit- I: Introduction to Western Philosophy

- Definition of Philosophy and Divisions of Western Philosophy
- Greek Philosophy (Pre-Socratic) (Brief introduction) Thales, Anaximander, Anoximenes Pythagoras, Heraclitus, Empedocles, Anaxagoras
- **Socrates :**The Method of Socrates & his Epistemology
- **Aristotle :** The Theory of Casualty & its four kinds, the Concept of Substance & Form
- **Plato :** Epistemology, Theory of Ideas, Theory of Modes

Unit- II: Modern Philosophy

Rene Descartes:

- The Method of Descartes, Cogito Ergo Sum
- Criterion of Truth, Clearness and Distinctness
- Dualism, Mind-body relation, Interaction of Thought and Extension

Gottfried Wilhelm Leibnitz

- The Doctrine of Substance & Nature of Monads
- Pre-established Harmony of Mind & Matter

Unit- III: Modern Philosophy

John Locke

- Refutation of Innate Ideas and The Epistemology of Locke
- Kinds & Limits of Knowledge

George Berkley

- Refutation of Abstract Ideas Theory of knowledge
- The Idealism of Berkeley (Subjective Idealism)

Unit- IV: Modern Philosophy

David Hume

- Basis of Hume's Philosophy,
- Hume's Substance - an Idle Fiction of Imagination
- Hume's Scepticism

Immanuel Kant

- Copernican Revolution
- Relation of Criticism with Empiricism and Rationalism
- Discovery of Pure Concepts or Categories

Outcomes:

- It will help students to have a better understanding of western philosophy.
- Students can compare it with oriental philosophy.
- Students can apply these philosophies in Morden times.

ESSENCIAL READING

- Y. Masih, ***A Critical History of Western Philosophy,*** MLBD, Delhi, 2010.
- Y. Masih, ***Paschatya Darshan ka Samikshatmak Itihaas,*** MLBD, Delhi, 1994.

SUGGESTED READING

- Bertrand Russell, ***A History of Western Philosophy,*** Simon and Schuster, New York, 1972.
- Badrinath Singh, ***Pascatiya Darshan,***Students Friends & Co., Varanasi, 1992.
- Chandradhar Sharma, ***Pascatiya Darshan,*** Motilal Banarsidas, Delhi, 1978-79.
- W.T.Jones, ***A History of Western Philosophy (Hobes to Hume),*** HBJ, California, 1980.
- Ramnath Sharma, ***Paschatya Darshan Ke Itihaas ki Vivechna,*** Kedarnath Ramnath, Delhi, 1983-84.
- Shobha Bharat, ***Paschatya Darshan,*** University Book House, Jaipur, 2005.
- Dayakrishna, ***Paschatya Darshan ka Itihasik***(Part 1-2), Ragesthan Hindi Granth Academy, Delhi, 1984.
- Anand Prakash Tripathi, ***Jain Darshan Evam Paschatya Darshan,*** Sarvotham Sahitya Sansthan, New Delhi, 2001.

Semester – II Core Elective Paper-III
Course Code – MJP 206 Dimension of Religion
Credit-4

Objectives -

- To assess the practical aspect of religion.
- To elaborate the concept of myth tradition.

Unit- I: Elements of Religion

- Meaning of Religion
- Difficulty in the study of comparative Religion
- Religion As '*Mana*'

Unit- II: Practical Aspect of Religion- I

- Primitive Man and his Religion
- Life, Death and Destiny in Early Faith and Culture

Unit- III: Practical Aspect of Religion- II

- Nonviolent Culture
- Vegetation culture and fertility

Unit- IV: Myth Tradition

- Myths and its role in life
- Myths of Death and rebirth
- Myths of magic

Outcomes:

- The students will be familiar with the practical aspects of religion.
- The students will promote Non-violent culture.
- They will promote harmony among religions.

ESSENCIAL READING

- Eliade, Mircea, Tr. by Rosemary Sheed, ***Patterns in Comparative Religion,*** Lincoln and London: University of Nebraska Press, 1996.

SUGGESTED READING

- Tiwari, Kaidar Nath, ***Comparative Religion,*** Motilal Banarasidass Publishers,Delhi 1983.
- Eric. J. Sharpe, ***Comparative Religion: A History,*** London: Gernald Duckworth and Company, 2nd edn. 1986.
- Bronislaw Malinowski, ***Magic, Science and Religion,*** Alcester, 2012.

Semester – I Core Elective Paper- I
Course Code – MJP 104 Religious Classics of Jainism
Credit-4

Objectives -

- To assess the role of Jain canons.
- To describe the concept of soul and re-birth.
- To elaborate the main characteristics of acharanga, sutrakritanga and samayasar.

Unit- I: Introduction to Jain Literature

- Introduction to Jain Canons
- Introduction to Jain Canonical Commentaries
- Jain Canonical Counselling

Unit- II: Jain Canon : Achranga (Chapter 1)

- Introduction to Acharanga
- Soul & Rebirth
- Influx and stoppages (Samvara)
- Sadjiva Nikaya
- Non-violence

Unit- III: Jain Canon: Sutrakritanga (Chapter 1)

- Introduction of Sutrakritanga
- Causes of bondage and liberation
- Panchbhutavada & Ekatmavada
- Niyativada & Ajnanvada
- Lokvada, Kriyavada & Avtarvada

Unit- IV: Jain Canon: Samaysar (Verse 69-144)

- Introduction of Samaysar
- Nature of Karta & Karma
- Nature of False Cognition (Agyanbhaav)
- Concept of Naya

Outcomes:

- They will have a better outlook about Jain canons.
- Understanding Sadjiva Nikaya would make them better non-violent towards this.
- Studying Sutrakritanga would make them familiar with other philosophies.

ESSENCIAL READING

- Acharya Mahaprajna (Ed), ***Acharanga (Chap. 1),*** Jain Vishva Bharati Institute, Ladnun,2015.
- Acharya Mahaprajna (Ed.), ***Sutrakritanga Sutra (Chap. 1),*** Jain Vishva Bharati Institute, Ladnun, 2006.
- Acharya Kundkund, ***Samaysar (Verse 69-144*)**, Pandit Todarmal Smarak Trust, Jaipur, 2016

SUGGESTED READING

- Acharya Kundkund, English tr. by Jethala Zaveri and Muni Mahendra Kumar, ***Samaysar,*** Jain Vishva Bharati University, 2009.
- Bharilla Hukumchand, ***Samayasar Anushilan,*** Pandit Todarmal Smarak Trust, Jaipur, 2016.
- Pandit Bechar Dosi, ***Jain Sahitya ka Brahad Itihas,*** Parshwanath Vidhyasram Sodh Sansthan, Varanasi, 1989.
- Jain Jagdish Prasad, ***Prakrit Sahitya ka Brahad Itihas,*** Bhartiya Gyanpeeth, New Delhi, 2005.
- Samani Mangal Prajna, ***Jain Aagam me Darshan,*** Jain Vishva Bharati Institute, Ladnun, 2005.
- M. R.Gelra, ***Jain Aagam ka Samanya Jnana,*** Jain Vishva Bharati Institute, Ladnun, 2008.
- Shri Tilokchand Jain, ***Jain Agama Parichay***, Shri Jainagam Navneet Prakashan Samiti, Rajkot, 2014.
- Mehta, Vandana, ***Jain Agama Mei Panchmatvad***, Jain Vishva Bharati Institute, Ladnun, 2012.
- Samani Mangal Prajna, Tr. By Sadhvi Rajul Prabha, ***Philosophy in Jain Agamas***, Jain Vishva Bharati Institute, 2017.

Semester – I Core Compulsory Paper- I
Course Code – MJP 101 Jain History and Culture
Credit-4

Objectives-

- To appreciate the importance and relevance of studying Jain history.
- To trace the evolution of Jain art and architecture over the years.
- To describe about Jain festivals and rituals.

Unit- I: Jain History

- Antiquity of Jainism
- Jainism in Pre-historical Age (from *Lord Rishabh* to *Lord Arishtanemi)*
- Jainism in Historical Age (from Lord *Parshva* to *Lord Mahaveer*)

Unit- II: Jain History

- Jainism after *Lord Mahaveer* (*Ganadharas, Acharyas*)
- Jain Religious School (*Shwetamber and Digamber*)
- Jain Religion in Different Regions of India & Abroad

Unit- III: Jain Culture

- Characteristics of Jain Culture
- Jain Rituals
- Jain Festivals and Places of Pilgrimage

Unit- IV: Jain Culture

- Jain Art and Architecture
- Jain Stupa, Caves and Temples
- Jain Paintings and Sculptures

Outcomes:

- The students will have a better understanding of Jain history and culture.
- The students would develop on non- absolute approach.
- Knowing about Jain art and architecture would help them to join architecture or finding a job in tourism.

ESSENCIAL READING

- Acharya Mahaprajna, ***Jain Darshan Manan Aur Mimansa (p. 1-84),*** Adarsh Sahitya Sangh, Churu, 1977.
- Shastri, Kailaschandra, ***Jain Dharm (Chap-1, 4, 5, 6 and the part of Chap. 7 – p. 337 – 365)***, Bharatvarshiya Digamber Jain Sangh, Mathura, UP, 1985.

SUGGESTED READING

- Jain, Vrishabh Prasad (Ed), ***Jain Dharma Parichay***, Bharatiya Gyanpeeth, Delhi, 2012.
- Jain, Jyoti Prasad, ***Religion and Culture of the Jains***, Bharatiya Gyanpeeth, 1999.
- Bhaskar, Bhagchand Jain, ***Jain Dharma ka Maulik Itihas,*** Samyakgyan Pracharak Mandal, Jaipur, Vol 1 & 2.,1974.
- Jain, Hiralal, ***Bharatiya Sanskriti mein Jain Dharma Ka Yogadan,*** Madhypradesh Shasan Sahitya Parishad, Bhopal, 1962.
- Barvalia Gunavant (ed.), ***Development and Impact of Jainism in India and Abroad***, Arham Spiritual Centre, Mumbai, 2013.
- Rameshchandra Jain, ***Jain Parva***, Jain Vidya Sanstha Mahavirji, 1996.
- Banerjee, ***Jainism in Different States of India***, S.R. Jain Bhavan, Calcutta, 2001.
- Jain, Jyoti Prasad, ***The Jaina Sources of the History of Ancient India***. Cultural Contribution of the Jaina, Munshiram, Manoharlal Publisher Delhi, 1964.
- Dr. Vilas A. Sangave, ***Aspects of Jaina Religion,*** Bhartiya Jnanpith, New Delhi, 2006.
- Samani Riju Pragya, ***Jain Ithihas aur Sanskriti,*** Jain Vishva Bharati Institute, Ladnun, 2006.
- Mohanlal Mehta, ***Jain Culture,*** P.V. Research Institute, Varanasi, 2006.

Semester – IV Core Open Elective Paper-III
Course Code - MJP 408 Jain Biology
Credit-4

Objectives -

- To acknowledge the biological concept in Jainism
- To know the scientific aspects of Jain Canons.

Unit- I: Life and its Classification in Jainism

- Introduction to Jaina Biology
- Characteristics of life, concsiousness and other characteristics.
- Biology and karma
- Life span, paryapti and prana

Unit-II: Jain Basis of classification of living beings

- Developmental basis
- Birth types
- Morphology

Unit-III: Jain Plant biology and microbiology

- Micro-organism in Jainism
- Plants - classification
- Plant - physiology
- Plant - nutrition
- Plant - behavior

Unit-IV:

- Jain Physiology
- Respiration in Jain
- Birthprocess in Jainism
- Food and nutrition in Jainism
- Jain medicinal practices

Outcomes:

- Students can understand Jain Basis of classification of living beings.
- Students can practice Jain medicinal approaches.
- Students can scientifically study Jain biology.

SUGGESTED READING

- Samani Chaitya Prajna, ***Jainism and Biology : A Critical Study,*** Jain Vishva Bharati Institute, Ladnun, 2010.
- Acharya Mahaprajna (Ed.), ***Acharanga Bhasyam,*** Jain Vishva Bharati, Ladnun, 2015.
- Acharya Mahaprajna (Ed.), ***Acharanga Bhasyam,*** Jain Vishva Bharati, Ladnun, 2015.
- Sikdar J.C. (Ed.) R.S.Betaji, R.S. Shastri, ***Jain Biology,*** L.D. Institute of Indology, Ahmedabad, 1974.
- N.L. Jain, ***Scientific Contents of Prakrit Canons,*** Parsvanatha vadyapitha, Varanasi, 1996.
- Jethalal S. Zaveri, Prof. Muni Mahendra Kumar, ***Jain Biology,*** Jaina Vishva Bharati Institute, Ladnun, 2008.
- Sinha, ***Philosophy of Jainism,*** K.P. Punthi Pustaka, Calcutta, 1990.
- Jain.N.L, ***Biology in Jain Treatise on Reals,*** Parsvanath Vidyapitha Varanasi, 1999.

Semester – III Core Elective Paper- IV
Course Code – MJP 310 Jain Geography
Credit-4

Objectives -

- To understand the concept of Jain geography.
- To know the division of major sections of cosmos.

Unit- I: Concept of universe

- Concept of Jain loka
- Loka: Size and shape (Digamber & Shwetamber)
- Universe (Science)

Unit- II: Madhyaloka

- Jambudweep
- 2 1/2 Continents
- Comparison of middle loka with universe

Unit- III: Upper & Lower Loka

- Upper loka & celestial beings
- Lower loka & hellish beings

Unit- IV:Universe from time point of view

- Beginningless & endless of universe
- Kalchakra (time cycle)

Outcomes:

- Students will know the concept of Jain Geography.
- Students can compare this knowledge with scientific study.

ESSENCIAL READING

- Sadhvi Sanghamitrashri, ***Tattva Darshan,*** Raj Process Printers. Kolkatta, 1974.
- Acharya Umaswati, ***Tattvartha Sutra (chap-3-4)***, Acharya Umaswami, Jain Sanskriti Sodh Sansthan, Indore, 2017.

SUGGESTED READING

- N.L. Kacchara, ***Shatdravya ke Vaigyanik Mimansa***, Prakrit Bharati Academy, Jaipur, 2007.
- N.L. Kacchara, ***Living System of Jainism: A Scientific Study,*** Payorite Print Media Pvt. Ltd.,Udaipur,2018.
- Prof. Mahaveer Raj Gelra, ***Jain Studies & Science,*** Jain Vishva Bharati Institute, Ladnun, 2007.
- Dr. M.R. Gelra, ***Science in Jainism,*** Jain Vishva Bharati Institute, Ladnun, 2002.
- Sadhvi Sadhna Shri Ji Ma Sa, ***Aao Loka ki Sher karein,***Shri Akhil Bharatvarsiya Sadhumargi Shant Kranti Jain Shravak Sangh,2012.
- Ed. Samani Chaitanya Prajna, N.L. Kacchara, Narendra Bhandari, Kaushal Prasad Mishra***, Jain Philosophy : A Scientific Approach to Reality,*** Bhagawan Mahavira International Rsearch Center Jain Vishva Bharati Institute(Deemed University), Ladnun,2018.
- N.L. Kacchara, ***Scientific Exploration of Jain Doctrine Part-I,*** Motilal Banarsidass Publishers, Delhi, 2014.
- Prof. Muni Mahendra kumar, ***The Engima of the Universe,*** Jain Vishva Bharati Institute, Ladnun, 2010.

Semester – III Core Open Elective Paper-II
[From Dept. of NVP]
Course Code – MJP 308 Environmental Ethics and Sustainable Development
Credit-4

Objectives-

- To study the concept of human ecology.
- To explain the factors of Environmental Degradation.
- To discuss the contribution of the various religion towards environmental ethics.

Unit- I: Human Ecology

- Man : Environment relationship.
- Hunting and food gathering period.
- Domestication of animals and pastrolism.
- Domestication of Plants and agriculture period.
- Science.
- Technology.
- Industrial period.
- Changing human nature and future of men.

Unit- II: Factors of Environmental Degradation

- Industrialisation.
- Deforestation.
- Urbanisation.
- Over population.
- Energy crisis.
- Techological Hazards.
- Exploitation of Resources.

Unit- III: Environmental Ethics

- Religious Perspective : Vedic.
- Religious Perspective : Buddhist.
- Religious Perspective : Jain.
- Religious Perspective : Gandhian

Unit- IV: Environmental Movements

- ChipkoMovements.

- Appiko Movements.
- Save NarmadaMovements.
- Tihri DamMovements.

Outcomes:

- It will make students aware of various environmental problems.
- It can inspire students to use environmental ethics to protect them.
- It will generate in students an urge to keep sustainable development.

SUGGESTED READING

- R.P. Mishra (ed.), ***Environment Ethics***, Gandhi Bhavan, New Delhi, 1993.
- O.P. Dwivedi (ed.), ***World Religion and The Environmental,*** Gitanjali Publishing House, New Delhi, 1989.
- Laeeq Futchally, ***Our Environment,*** NBT, New Delhi, 1994.
- Brain Knapp (et. al.), ***Challenge of the Human Environment,*** Lovqman, London, 1989.
- Edward Goldsmith, ***The Great U-Turns : De-industrializing Society***, Essays on Ecology, Ashish Publishing House, New Delhi, 1992.
- M. Bannucci, ***Ecological Readings in the Veda***, O.K. Print World, New Delhi, 1994.
- Vandana Shiva (ed.), ***Ecology and The Poltics of Survival***, Conflicts over Natural Resources in Indian; United Nation University Press & Sage Publications, New Delhi, 1991.

Semester – III Core Open Elective Paper-I
Course Code – MJP 307 Contemporary Indian Philosophy
Credit-4

Objetives -

- To trace the rise of philosophy.
- To appreciate the efforts of the contemporary philosophers to make their society enlightened.

Unit- I: Aspects of Philosophy

- Origin and Development of Philosophy
- Concept of Contemporary Philosophy
- Relevance of contemporary Philosophy

Unit- II: Contemporary Philosophers and his views

- Swami Vivekanand
- Ravindranath Tagore
- Mohammad Iqbal

Unit- III:

- Mahatma Gandhi
- Sri Aurobindo
- S. Radhakrishnan

Unit- IV:

- Srimad Raichand
- Acharya Tulsi
- Acharya Mahaprajna

Outcomes:

- Students can enhance their knowledge.
- Students can appreciate modern thinkers' contributions to society.
- Students can inculcate moral values through studying the lives of such philosophy.

ESSENCIAL READING

- Basant Kumar Lal, ***Contemporary Indin Philosophy***, Motilal Banarasidas Publication, Varanasi, 1973
- Acharya Mahaprajna, ***Jain Darshan Manan aur Mimansa***, Adarsh Sahitya Sangh, Churu, 2014.

SUGGESTED READING

- Prof. Muhammad Munawwar, ***Iqbal & Quranie Wisdom,*** Noor Publishing House, Delhi, 1986.
- Dr D.K. Dutta, ***Social, Moral and Religious philosophy of Mahatma Gandhi,*** Intellectual Book Corner, New Delhi, 1st ed. 1980.
- Harendra Prasad Sinha, ***Religious Philosophy of Tagore & Radhakrishnan,*** Motilal Banarsidass Publishers Pvt. Ld., Delhi, 1993.
- Ed. by Pradip Kumar Sengupta, ***The Philosophy of Swami Vivekananda,*** Progressive Publishers, Calcutta, 1st ed. 1995.
- Shri Govardhandasji, ***Shrimad Rajchandra Jeevankala,*** Shrimad Rajchandra Jeevankala Ashram, Agas, 1989.
- Tr. By R.P Bhatnagar, ***Acharya Tulsi on Contemporary Problems,*** Jain Vishva Bharati Institute, Ladnun, 1993.

Semester – III Core Elective Paper-III
Course Code – MJP 306 Western Logic
Credit-4

Objectives-

- To study the concept of Logic in West
- To know how western Logic can be helpful in solving Philosophical Problems

Unit- I: Basics of Symbolic Logic

- Truth Functional Statements:
- Conjunction
- Disjunction
- Negation
- Conditional Statement and Material Implication
- Statement and Statement Forms
- Argument and Argument Form
- Three Laws of Thought
- Paradoxes of Material Implication
- Definition of Material Implication
- Material Equivalence &. Logical Equivalence

Unit- II: Tests of Validity

- Formal Proof (19 Rules)
- Truth Table
- Indirect Proof
- Conditional Proof

Unit- III: Quantification Theory

- Need of Quantification Theory
- Singular Proposition
- Universal and Existential Quantifier
- Quantification Argument
- A syllogistic Argument

Unit- IV: Set Theory

- Different Kinds of Sets
- Duality

- Set Operations
- Venn diagram and arguments

Outcomes:

- Students can solve philosophical problems by using Western Logic.
- Students can use Tests of Validity in day to day life.
- Students can use Venn diagrams in various projects.

ESSENTIAL READING

- Copi, ***Introduction to Logic,*** I.M New Delhi : Dorling Kindersely India Pvt. Ltd.,12th Edn. 2006.

SUGGESTED READING

- Copi, ***Symbolic Logic,*** I.M New Delhi : Prentice Hall of India Pvt. Ltd., 5th Edn., 2005
- Lipschutz, ***Seymours chaum's Outlines Set Theory and Related Topics,*** Tata Mc Graw Hill Publishing Co. Ltd., New Delhi, 2005.
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- Dr Anand Prakash Tripathi 'Ratnesh', ***Tarkshastra Ki Ruprekha,*** University Book House Pvt. Ltd., Jaipur, 1st ed. 2011.

Semester – III Core Compulsory Paper-II
Course Code – MJP 302 Anekantvada, Syadvad and Saptabhangi
Credit-4

Objectives -

- To point out the importance of anekanta and its wider applications.
- To trace the evolution of naya and nikshep.
- To describe the utility of saptabhangi.

Unit- I: Introduction to *Anekant*

- Origin and Development of *Anekant*
- Contribution of *Acharya Siddhasena* to Jaina Philosophy
- Introduction of *Sanmatitark* text and author
- Wider Applications and Philosophical concept of Anekanta.

Unit- II: Historicity Naya

- Concept of *Anekanta* in Different Schools
- Concept of *Naya* and its types
- General and particular nature of an object
- Identity-cum-difference of Soul and Matter

Unit- III: *Saptabhangi* (Seven fold predication)

- Doctrine of Sevenfold Predication and it's types.
- Eightfold Criteria of *Naya* and *Pramana Saptabhangi*
- Why only Sevenfold Predication?
- *Svarupa* and *Pararupa* of an Object

Unit- IV: Aspects of *Nikshep*

- Historical Development of concept of *Nikshape*
- Concept of *Nikshape* and its types
- Four -dimensional Approach of knowing Reality: Substance, Space, Time and Mode
- Introduction of *Saptabhangitaringini* text and writer

Outcomes:

- Students can apply Anekanta in day to day life.
- Students can appreciate the contribution of Acharya Siddhsena.
- Students can compare the concepts of Anekanta in different schools.

ESSENCIAL READING

- Siddhasena , Hindi tr. by Shantilal M. Jain, ***Sanmati Tarka (1 Kanda),*** Gyanodaya Trust, Ahmedabad, 1963.
- Vimaldas, Hindi tr. By Thakur Prasad, ***Saptabhangitarangini (1-2 Bhanga),*** Shri Paramshrut Prabhavak Mandal, Shrimad Rajchandra Ashram, Agas, 1977.

SUGGESTED READING

- Motilal, B.K., ***The Central Philosophy of Jainism (Anekantavad),*** L.D. Institute of Indology, Ahmedabad, 1981.
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- Acharya Mahaprajna, ***Jain Darshan Manan Aur Mimansa***, Adarsh Sahitya Sangh, Churu, 2014.
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- Yadav Bhirvariram, ***Syadvadaur Saptabhangi Naya,*** Parshnath Vidhyashram, Shodh Sansthan, Varanasi, 1989.

Semester – III Core Compulsory Paper-I
Course Code – MJP 301 Jain Logic
Credit-4

Objectives -

- To trace the evolution of jain logic.
- To recognize the contribution of Acharaya Hemachandra for the development of Jaina logic
- To point out the important components of jaina logic.

Unit- I: Introduction to Logic

- Origin and Development of *Nyaya*
- Contribution of Jaina nyaya to Indian logic
- Source of *Nyaya*
- Introduction of Pramana Mimansa and its author
- Origin and Development of Pramana

Unit- II: Introduction to Cognition

- Pseudo-organ of knowledge (Fallacious)
- Pramanya Nishchaya
- Immediate Intution : Transcendental and Empirical Intuition
- Sense-organ and mind
- Proving existence of Omniscient

Unit- III: Non-Perceptual Knowledge

- Retention (Smriti) and Recognition (pratyabhigya)
- Inductive Reasoning (tarka) and Verbal Testimony (aagam)
- Inference - Probans
- Reason and Fallacious reasoning
- Example and false example
- Meditate: Recollection, recognition, inductive reasoning, verbal testimony and inference, probans and fallacious reasoning.

Unit- IV: Components of Jain Logic [text based]

- Prameya (Object of knowledge)
- Pramiti (Knowledge of object)
- Pramata (Knower)

Outcomes:

- It will help students to appreciate the contribution of Hemchandra on Jain Logic.
- Students will have a better understanding of non-perceptual knowledge.
- Students will acquire a comparative outlook on various branches of logic.

ESSENCIAL READING

- Acharya Hemachandra***, Pramanamimansa (Chapter I, aanika 1-2),*** Sarasvati Pustak Bhandar, Ahmedabad, 1989.

SUGGESTED READING:

- Kothiya, Darabarilal, Mahavirji, ***Jaina Nyaya ki Bhumika,*** Jain Vidya Sansthan, Shri Digamber Jain Atishaya Ksetra, 1995.
- Shastri, Kailashachandra, ***Jaina Nyaya,*** Bharatiya Gyanpeeth, Delhi, 1989.
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- Abhinava Dharmabhusana, Yati, ***Nyaya-Dipika,*** Pratibha Prakashan, Delhi, 2001.
- Acharya Manikyanandi, ***Pariksha Mukh,*** Nirnaysag Press, Bombay, 1941.
- Dharam Chand Jain, ***Baudh Praman Mimamsa ki Jain Dristi Se Samiksha,*** Parshvanath Vidyapeeth, Varanasi, 1995.
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- Acharya Mahaprajna, ***Jaina Nyaya ka Vikas,*** Jainanushilan Kendra, Rajashthan Vidhyalaya, Jaipur, 1977.
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- Acharya Tulsi, ***Bhikshu Nyaya Karnika,*** Jaina Vishva Bharati, Ladnun, 1977.
- Acharya Haribhadra, ***Shastravarta Samucchaya,*** Lalabhai Dalpat bhai Malvaniya Sansthan, Ahmedabad, 2002.
- Yogesh Kumar Jaina, ***Jain Nyaya ko Acharya Prabha Chandra ka Yogdaan,*** Jain Vishva Bharati Sansthan, Ladnun, 2015.

Semester – II Core Elective Paper-I
Course Code – MJP 204 Jain Meditation and Yoga
Credit-4

Objectives -

- To develop awareness of the types of meditation and its impact.
- To illustrate the concept of yoga in different philosophies.

Unit- I: Jain System of Yoga and Meditation

- Historical development of Yoga
- Jain Yoga in canonical period
- Source of Yoga - Introduction of Literature on Yoga

Unit- II: Types of Meditation

- Characteristics, time, doer of meditation
- Aartha - Types, doer, result, leshyas
- Raudra - Types, doer, result, leshyas
- Dharma - Types, doer, result, leshyas
- Shukla Dhyan - Types, doer, result, leshyas

Unit- III: Jain System of Yoga and Meditation

- Haribhadra Eight Drshtis
- Salamban and Niralamban Dhyan
- Preksha dhyan

Unit- IV: Different Schools of Yoga

- Patanjal Yoga [Astanga Yoga]
- *Buddhist* Yoga *[Astangika marga]*

Outcomes:

- Students will acquaint with different types of yoga.
- They will know the benefit of it in modern life.
- They can use this knowledge by joining the yoga centre.

ESSENCIAL READING

- Haribhadrasuri, Ed by Balchandra Siddhant Shastri, ***Dhyan Shatak,*** Veer Seva Mandir, Delhi, 1976.
- Shastri Jagadish, ***Patanjalyogadarshanam,*** Eastern Book Liquors, Delhi, 2008.

SUGGESTED READING

- Trans. by Muni Dulharaj, ***Dhyan Shatak,*** Adarsh Sahitya Sangh Publication, Churu, 1972.
- Chatushtay of Acharya Haribhadrasuri, ed.by Shastri, Chhaganlal, ***Jain Yoga Granth,*** Muni Shree Hazarimal Smriti Prakashan, Beawar, 1981.
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- Yuvacharya Mahaprajna, ***Jaina Yoga,*** Adarsh Sahitya Sangh, Churu, 1997.
- Acharya Mahaprajna, ***Introduction to Preksha Meditation,*** Jain Vishva Bharati, Ladnun, 1st edn. 1990, 2nd edn. 1992.
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- Dr. Vedvrat Alok, ***Yogashastra,*** Kendriya Yoga Ewam Prakritik Anusandhan Parishad, New Delhi, 2007.
- Acharya Haribhadrasuri, ***Yoga Drishti Samucchya,*** Lalbhai Dalpatbhai Bhartiya Sanskriti Vidhyamandir, 1970.
- Acharya Udayveer Shastri, ***Baudhadarshanam,*** Govindaram Hasanand, Delhi, 1991.
- Samani Riju Prajna, ***Preksha Dyan aur Yoga,*** Jain Vishwa Bharti Institute, 2011.

Semester – II Core Compulsory Paper-III
Course Code – MJP 203 Indian Philosophy
Credit-4

Objectives -

- To study the general principles and basic features of Indian philosophy.
- To understand the brief sketch of each system which will give the students a bird's eye-view of the entire field.

Unit- I:

- Introduction to Indian Philosophy
- Division of philosophical schools - Aastika & Nastika
- Buddhist Philosophy - Four noble truths, Theory of dependent origination, Doctrine of momentariness, Epistemology (Verse 4-11)

Unit- II:

- Nyaya Philosophy - Metaphysics, Epistemology, Concept of God (Verse 12-41)
- Sankhya Philosophy - Ishvar Sankhya, Nirishwar Sankhya, Metaphysics, Epistemology, Relation between Prakriti & Purush (Verse 42-44)

Unit- III:

- Jain Philosophy - Nine Fundamentals, Three jewels, Concept of Sat, Dravya, Guna, Paryaya, Anekantvada, Shyadvada, Epistemology (Verse 45-58)
- Vaisheshika Philosophy - Metaphysics, Epistemology (Verse 59-67)

Unit- IV:

- Mimansa Philosophy - Epistemology, Refutation of omniscient, vedic rites for liberation (Verse 68-79)
- Charvak Philosophy - Epistemology, Nature of consciousness/soul, ethics (Verse 80-87)

Outcomes:

- It will create an interest in Indian Philosophy.
- It will strengthen their outlook on different philosophies.
- They will engage in philosophical thinking.

ESSENCIAL READING

- Haribhadra Suri, ***Saddarshan Samucchaya (Verse 4-87),*** with commentary of Gunaratnasuri, Bhartiya Gyan Peeth Prakashan, Delhi, 1997.

SUGGESTED READING

- Madhvacharya, ***Sarvadarshan Sangrah,*** Bhandakar Prachyavidya Sodh Sansthan, Pune, 1978.
- Tripathi Anandprakash, ***Bhartiya Darshan,*** University Book House, Jaipur, 2006.
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- Satishchandra Chatterjee, Dhirendra Mohan Datta, ***An Introduction to Indian Philosophy,*** Calcutta University Press, Calcutta, 1984.
- S. Radhakrishnan, ***Indian Philosophy,*** The Masmillion co., New york, 1951.
- M.Hiriyanna, ***Outlines of Indian Philosophy,*** Motilal Banarsidass Publisher, Delhi, 1994.
- D.M.Dutta & S.C. Chatterjee, ***An Introduction to Indian Philosophy,*** University of Calcutta, Kolkata, 1984.

Semester – II Core Compulsory Paper-II
Course Code – MJP 202 Jain Theory of Karma
Credit-4

Objectives -

- To develop an awareness of the concept of karma.
- To recognize the importance of karma on the basis of spirituality.

Unit- I: Introduction to Karma

- Origin and Development of theory of Karma
- Concept of Karma in Jain Philosophy
- Relation between soul and matter
- Source (lierature) of Karma

Unit- II: Destructive and Non-Destructive karma

Four Destructive Karma

- Gyanavarniya Karma
- Darshanavariya Karma
- Moahniya Karma
- Antraya Karma

Four Non Destructive Karma

- Vedaniya Karma
- Aayushya Karma
- Nama Karma
- Gotra Karma

Unit- III: Theory of Karma

- Ten states of Karma
- Concept of Karma on the basis of psychology
- Five Samavaya
- Concept of Karma on the basis of Spirituality

Unit- IV: Theory of Gunasthana

- Inter relationship of karma and Gunasthan
- The concept of bondage in different Gunasthana
- The concept of Udirana and Uday in different Gunasthana

Outcomes:

- Students will develop a scientific approach to karma.
- They can do a workshop on Karmic Philosophy.
- They will deal with any problem knowing its Karmic association.

ESSENCIAL READING

- Devendra Suri, Tr. by Munishree Mishrimalji, ***Karmagranth,*** Marudhar Kesari Sahitya Prakashan Samiti, Jodhpur, 1974.
- Acharya Umasvati, ***Tattvarthsutra (Chapter 8),*** Paramashruta Prabhavaka Mandala, Agas, Gujarat, 1992.

SUGGESTED READING

- Acharya Nemichandra, ***Gommatsar Karmakanda,*** Paramshruta Prabhavaka mandala, Agas, Gujarat, 1985.
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- Acharya Pujyapada, ***Sarvarthsiddhi,*** Bhartiya Gyanpeeth, New Delhi, 2013.
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- Gokulchandra, ***Karma Prakriti***, Jain Bhartiya Gyanpeeth, Varanasi, 1968.
- Zaveri S. Jethalal and Muni Mahendra Kumar, ***Neuroscience & Karma,*** Jain Vishva Bharati Institute, Ladnu,1994.
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- Acharya Mahaprajna, ***Karamvad,*** Adarsh Sahitya Sangh, Churu, 2000.
- Ratanlal Jain, ***Jain Karma Siddhant Aur Manovigyan,*** B. Jain Publishers, New Delhi, 2004.
- Sohan Raj Tater, ***The Jain Doctrine of Karma and the Science of Genetics***, Readworthy, New Delhi, 2009.
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- Mohan Lal Mehta, ***Jain Philosophy,*** P.V Research Institue, Varanasi, 1971.

Semester – II Core Compulsory Paper-I
Course Code – MJP 201Jain Epistemology
Credit-4

Objectives -

- To trace the origin and development of Jain Epistemology.
- To describe the various types of knowledge as per in the Agamas.
- To understand the concept of knowledge in Indian philosophy.

Unit- I: Jain Epistemology (Introduction)

- Origin and Development of Jain Epistemology
- Relation between Knowledge and Object
- Sources of Knowledge (Senses, Mind, Soul)
- Sources of Jain Epistemology

Unit- II: Indirect Knowledge

- Concept, Types and Sub-Types of *Mati Gyan* (Perceptual Knowledge)
- Concept, Types and Sub-Types of *Avadhi Gyan* (Verbal Knowledge)
- Concept, Types and Sub-Types of Perverted Knowledge and Intuitive Knowledge

Unit- III: Direct Knowledge

- Concept, Types and Sub-Types of Avadhi Gyan (Clairvoyance)
- Concept, Types and Sub-Types of *Manah paryava Gyan* (Mind Reading Knowledge)
- Similarities and dissimilarities of *Avadhi Gyan* and *Manah paryaya Gyan*

Unit- IV: Direct knowledge

- Concept, Types and Sub-Types of *Keval Gyan* (Omniscience)
- 15 types of *Siddha*
- Concept of *Sarvagyata* in Indian Philosophy
- Concept of *Atiindriya Gyan* in Indian Philosophy

Outcomes:

- The students will acquire deep knowledge in Jain Epistemology.
- They will gain a comparative outlook of Jain philosophy with other Indian philosophies.
- They will themselves familiarise with different types of knowledge.

ESSENCIAL READING

- Acharya Mahaprajna, ***Nandi Sutra,*** Jain Vishva Bharati, Ladnun, 1987.

SUGGESTED READING

- Yuvacharya Madhukar Muni, ***Nandisutra,*** Agam Prakashan Samiti, Beawar, 2000.
- Acharya Kundakunda, ***Pravachansar,*** Pandit Todarmal Smarak Trust, Jaipur, 2008.
- Acharya Umaswami, ***Tatvarthsutra,*** Jain Sanskriti Sodh Sansthan, Indore, 2017.
- Acharya Pujyapada, ***Sarvarthsiddhi,*** Bhartiya Gyanpeeth, New Delhi, 2013.
- Acharya Mahaprajna, ***Jaindarshan me Gyan Mimansa***, Seth Manalalji Surana, Memorial Trust, Kolkata, 2017.
- Acharya Mahaprajna, ***Jaindarshan manan aur Mimansa,*** Adarsh Sahitya sangh, Churu, 1977.
- Sadhvi Shrutyasha, ***Gyanmimansa,*** Jain Vishva Bharati, Ladnun, 1999.
- I. C., Shastri, Parsvanath Vidyashram Research Institute, ***Jain Epistemology,*** Varanasi, 1990.
- Upadhyaya Yasovijayji ed. by Sukhlal Sanghavi, ***Jnaan bindu Prakarana,*** Rajendra Singhiji Singhi Kolkatta, 1987.
- Piotr Balcerowicz, ***Jain Epistemology,*** Motilal Banarsidas, Delhi, 2008.
- Rajveersingh Sekhawat, ***Jain Darshnik Avdharnay: Anuchintan***, Worldbooks, Rajasthan, 2010.

Semester – I Core Elective Paper- II
Course Code – MJP 105
Method of Translation and Interpretation
Credit-4

Objectives -

- To describe the method of translation interpretation and analysis.
- To examine the method of textual introduction.

Unit- I: Introduction to *Anuyogadwar*

- The Author of the Text
- The Commentaries of the Text
- The Subject matter of the Text

Unit- II: Introduction to *Anuyogad*war

- *Aprthaktvanuyoga* : Method of Interdisciplinary Studies
- *Prathaktvanuyoga* : Method of Specialization
- *Anuyoga*: Method of Introduction, Translation and Analysis

  [Ch. 02 of the Book Method of Teaching, Translation, interpretation and Analysis]

Unit- III: *Upakrama*: Method of Textual Introduction

- External Textual Introduction

  [*Nama, Sthapana, Drvya, Kala, Kshetraa and Bhava*]
- Internal Textual Introduction

  [*Anupurvi, Nama, Pramana, Vaktavyata, Arthadhikara, Samavatara*]

  [Ch. 03 of the Book Method of Teaching, Translation, interpretation and Analysis]

Unit- IV: Method of Translation Interpretation and Analysis

- *Nikshepa:* Method of Translation and Theory of Word Meaning

  [Ch. 13-618, 619, 696,709 of *Anuyogadwar Sutra*]

  [Ch. 04 of the Book Method of Teaching, Translation, interpretation and Analysis]
- *Naya:* Method of Interpretation and Theory of Perspectiul Truth

  [Ch. 11-554-557, 13-715 of *Anuyogadwar Sutra*]

  [Ch. 05 of the Book Method of Teaching, Translation, interpretation and Analysis]
- *Anugama:* Method of Analysis

  [Ch. 4-121, 5-165, 6-206, 13-710-14 of *Anuyogadwar Sutra*]

  [Ch. 06 of the Book Method of Teaching, Translation, interpretation and Analysis]

Outcomes:

- The students will be efficient in translation and interpretation.
- An Interdisciplinary approach will develop.
- They can easily work in the linguistic field.

ESSENCIAL READING

- Acharya Mahaprajna (Ed.), ***Anuyogadwar Sutra,*** Jain Vishva Bharati, Ladnun, 1996.

SUGGESTED READING

- Jindasgani Mahattar, ***Anuyogadwar Churni,*** Shri Rishabhdevji Kesharimaliji Shwetamber Sanstha, Malva, 1928.
- Shrimad Bhojak, ***Dravyanuyogatarkana,*** Shri Paramsrut Prabhavak Mandal, Shrimad Raichandrashram, Gujarat, 1977.
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- Bansidhar Bhatt, ***The Canonical Niksepa,*** Leiden. E.J. Brill. Leiden, Netherlands, 1978.
- Trans. S.K. Mookherjee, ***Illumination of Jaina Tenets,*** Jain Vishva Bharati, Ladnun, 1995.
- Muni Amrit Kumar, ***Method of Teaching, Translation, interpretation and Analysis (Thesis).***

Semester – I Core Compulsory Paper-III
Course Code – MJP 103 Jain Ethics
Credit-4

Objectives -

- To describe the concept of shramanachar.
- To list the different types of jain ethical principles.
- To examine the rich literary heritage of jain ethics.

Unit- I: Basics of Jain Ethics

- Introduction to Jain Ethics
- Three Jewels (Triratna)
- Nine Categories of Truth (Tattvas)
- Source of Jain Ethics (Digamber and Shwetamber Literature of Ethics)

Unit- II: Shramanachar

- Categories of Ascetics (*Shraman*)
- Five Great Vows, Comportment and Control (Five *Mahavratas, Samiti and Gupti*)
- 22 Types of Hardships (*Parishaha*)

Unit- III: Shravakachar

- Twelve Vows of Lay Follower
- Eleven Kinds of Intensive Discipline (*Pratima*)
- Art of Dying in Jain Tradition (*Samlekhana, Santhara*)
- Six Essentials (*Shadavashyaka*)

Unit- IV: Jain Ethical Principles

- Ten types of Righteousness
- Compassion and Charity (*Karuna and Dana*)
- Environmental Ethics in Jainism
- Anuvrat Movement: It's Philosophy & Practice

Outcomes:

- To appreciate the relevance of Jain Ethics in today's world.
- The students will apply the knowledge in the future life to build a healthier society.
- They can create Anuvratee.

ESSENCIAL READING

- Acharya Amritchandra, ***Purusharthsiddhyupaya***, Pandit Todarmal Smarak Trust, Jaipur, 2010.
- Acharya Mahapragya (Ed.), ***Upasakadashnga (1ST chapter),*** Jain Vishav Bharati, Ladnun, 2010.

SUGGESTED READING

- Acharya Samantabhadra, ***Ratnakaranda Shravakachar,*** Pt. Sadasukh Granthmala, Ajmer, 2018.
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- Samani Riju Prajna, ***Jain Tatvamimansa aur Achar Mimansa,*** Jain Vishva Bharati Institute, Ladnun, 2015.
- Acharya Ratna Kanaknandiji, ***Purusharthsiddhyupaya,*** Acharya Ratna Kanaknandiji, Hariyana, 1998.
- Acharya Umaswami, ***Tattvartasutra ad its commentaries (chap-9),*** Jain Sanskriti Sodh Sansthan, Indore, 2017.
- Sadhvi Piyush Prabha, ***Jain Achar Mimansa,*** Jain Vishav Bharati, Ladnun, 2005.
- Pravin K Shah, ***Jain Philsophy and Practice-2,*** Jain education committee, NC (USA), 2005.
- Sadhvi Kanchan Kumari, ***Shadavasyaka,*** Jain Vishav Bharati, Ladnun, 2011.
- Dr. Kamalchand Sogani, ***Jain Dharma Me Acarshastriya (vol-1&2)***, Jain Vidhya Sansthan, Rajasthan, 2010.
- R.Williams, ***Jaina Yoga***, Oxford University Press, London, 1963.
- Dayanand Bhargav, ***Jain Ethics,*** Motilal Banarsidass, Delhi,1968.
- Muni Sukhlal, ***Anuvrata: ek paricaya***, Adarsh Sahitya Sangh Publication, Churu, 1984, 2nd ed.1995.
- Yuvacharya Mahaprajna, ***Anuvrata: ek paricaya,*** Akhil Bharatiya Anuvrat Samiti, Ahemdabad, 1982.
- Acharya Umaswami commentary & hindi translation by Bhadrabahu Vijaya, with meaning & explanation***, Prasamarati Prakarana(vol-1),*** Vishva Kalyan Prakashan Trust, Mehsana,1984.

Semester-I Core Compulsory Paper-II
Course Code – MJP 102 Jain Metaphysics
Credit-4

Objectives -

- To understand the concept of reality, quality and mode.
- To establish the link between six substances and cosmos.
- To discuss the role and impact of atom and soul.

Unit- I: Reality, Quality and Mode

- Nature of Sat (Reality)
- Concept of Guna and Paryaya (Quality and Mode)
- Relation in Dravya, Guna and Paryaya (Substance-Quality and Mode)

Unit- II: Medium of Motion, Rest and Space

- Nature of Dharmastikaya (Medium of Motion)
- Nature of Adharmastikaya (Medium of Rest)
- Nature of Akashastikaya (Space)

Unit- III: Jain Cosmos, Time and Matter

- Jain *Loka* (Cosmos)
- Nature of *Kala* (Time)
- Nature of *Pudgalastikaya* (Matter)

Unit- IV: Atom and Soul

- Nature of *Paramanu* (Atom)
- Laws of Bondage of *Paramanu*
- Nature of *Jivastikaya* (Soul) and its Types

Outcomes:

- To develop holistic approaches about six substances.
- To understanding the Jain view about cosmos.
- Can apply the knowledge of six substances into scientific research.

ESSENCIAL READING

- Acharya Kundkund, ***Panchastikaya (verse 1-104),*** Shree Paramshrut Prabhavak Mandal, Agas, 2012.
- Acharya Pujyapada, ***Sarvarth Siddhi (chap.-5),*** Bhartiya Gyanpeeth, New Delhi, 2013.

SUGGESTED READING

- Acharya Mahaprajna (Ed.), ***Bhagvatisutra***, Jain Vishva Bharati, Ladnun, 2015.
- Acharya Nemichandra, ***Brahad Dravya Sangrah***, Paramshrut Prabhavak Mandal, Agas, 1988.
- Mahendrakumar, Nyayacharya, ***Jain Darshan***, Bhartiya Gyanpeeth, New Delhi, 1974.
- Samani Riju Prajna, ***Jain Tatva Mimansa aur Achar Mimansa,*** Jain Vishva Bharati Institute, Ladnun, 2015.
- Acharya Kundkund, ***Panchastikaya Parisheelam,*** Pandit Todarmal Smarak Trust, Jaipur, 2010.
- Nik Goel, ***Panchastikaya Prabhrita,*** Sanskriti Samrakshak Sangha, Solapur, 2006.
- Jain, Laxmichand, ***Astronomy and Cosmology***, Prakrit Bharati Sansthan, Jaipur, 1983.
- Brahmanda Akasa- ***Kala and Jiva-Ananta Dharma***, Darshan Vigyan Sodh Sansthan, Badart, Meerat, 2007.
- Sikdar, J.C, ***Concept of Matter in Jain Philosophy***, Parshwanath Vidyapeeth, Varanasi, 1987.
- Sikdar, J.C, ***Theory of Reality in Jain Philosophy***, Parshwanath Vidyapeeth, Varanasi, 1991.
- Sadhvi Yogakshem Prabha, ***Dravya Ki Avadharna,*** Jain Vishva Bharati, Ladnun, 2005.
- Kumar, Ravi, ***Jain Cosmology,*** Ravi Kumar Publishers Basel Paris, New Delhi, 1981.
- Phoolchand Shastri, ***Jain Tattva Mimansa,*** Ashok Prakashan Mandir, Varanasi, 1926.
- The Theory of Time in Jainism (extracted from the journal of the Mysore University), Y.J. Padmara Jiah, Banglore, 1947.
- Shrimad Bhojak, ***Dravyanuyoga Tarkana,*** Shri Prabhavak Mandal, Shri Madhrajchandra Ashram, Gujrat, 1977.

जैन विश्वभारती संस्थान,लाडनूँ

(मान्य विश्वविद्यालय)

आचार्य कालू कन्या महाविद्यालय

पाठ्यक्रम

बी.एससी. स्नातक विज्ञान वर्ग

सी.बी.सी. सिस्टम

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Distribution of Papers, Marks and Credit

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 101	For Science Students Any Three of the following Course to offer Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		
BSC 102	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		
BSC 103	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		
BSC 104	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		
BSC 105	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		
JVB 101	General English	**Core Foundation(CF)**	**4**	**30**	**70**	**-**	**100**
JVB 102	**अहिंसा एवं शांति (अहिंसा एवं अणुव्रत)**	**Core Elective (CE)**	**4**	**30**	**70**		**100**
		Total	**20**	**105**	**300**	**95**	**500**

*** Either BSC 102 & 103 Or BSC 104 & 105**

Semester-II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 201	For Science Students Any Three of the following Course to offer Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		
BSC 202	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		
BSC 203	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		
BSC 204	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		
BSC 205	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		
JVB201	**जैन संस्कृति एवं जीवन मूल्य (अनिवार्य पत्र)**	**Core Foundation(CF)**	**4**	**30**	**70**		**100**
JVB202	**अहिंसा एवं शांति (मानवाधिकार एवं कर्त्तव्य)**	**Core Elective (CE)**	**4**	**30**	**70**		**100**
		Total	**20**	**105**	**280**	**115**	**500**

*** Either BSC 202 & 203 Or BSC 204 &205**

Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 301	For Science Students Any Three of the following Course to offer Chemistry-I	**Any Three** **CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		
BSC 302	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		
BSC 303	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		
BSC 304	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		
BSC 305	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		
JVB301	**हिन्दी (अनिवार्य पत्र)**	**Core Foundation(CF)**	**4**	**30**	**70**	**-**	**100**
JVB 302	Indian Culture	**Core Elective**	**4**	**30**	**70**		**100**
		Total	**20**	**105**	**320**	**75**	**500**

*** Either BSC 302 &303 Or BSC 304 &305**

Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 401	For Science Students Any Three of the following Course to offer Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		
BSC 402	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		
BSC 403	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		
BSC 404	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		
BSC 405	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		
JVB 401	**पर्यावरण (अनिवार्य पत्र)**	**Core Foundation(CF)**	**4**	**30**	**50**	**20**	**100**
JVB 402	Modern Indian Thinkers and Social Reforms		**Core Elective**	**4**	**30**	**70**	**100**
		Total	**20**	**105**	**300**	**95**	**500**

*** Either BSC 402 &403 Or BSC 404 & 405**

Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 501	For Science Students Any Three of the following Course to offer Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		
BSC 502	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		
BSC 503	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		
BSC 504	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		
BSC 505	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		
JVB 501	**Basics of Computer (Compulsory Paper)**	**Core Foundation(CF)**	**4**	**30**	**50**	**20**	**100**
JVB 502	**Psychology (General Psychology-I)**	**Core Elective(CE)**	**4**	**30**	**50**	**20**	**100**
		Total	**20**	**105**	**280**	**115**	**500**

*** Either BSC 502 & 503 Or BSC 504 & 505**

Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 601	For Science Students Any Three of the following Course to offer Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		
BSC 602	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		
BSC 603	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		
BSC 604	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		
BSC 605	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		
JVB 601	Vyaktitava Vikas & Yoga	**Core Foundation**	**4**	**30**	**70**		**100**
JVB 602	**Psychology (General Psychology-II)**	**Core Elective(CE)**	**4**	**30**	**50**	**20**	**100**
		Total	**20**	**105**	**280**	**115**	**500**

*** Either BSC 602 &603 Or BSC 604 & 605**

Distribution of Papers, Marks and Credit
Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 101	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		

Chemistry-Paper-I : Inorganic chemistry

Objectives:

- To understand about shape of s,p,d,f orbitals and atomic structure.
- To develop critical understanding about comparative study of differet elements on the basis of periodicity .
- To promote awareness about principles related to atomic structure and chemical bonding.
- To know about molecular orbital theory of homo and heteronuclear compounds.

Unit 1 :Atomic structure

Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, Schrodinger wave equation, quantum number, radial and angular wave functions and probability distribution curves, shapes of s, p, d orbitals, Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configuration of the elements, effective nuclear charge.

Unit2 :Periodicityofp-blockelements & Chemistry ofnoblegases

Comparativestudyofp-blockelements:grouptrends,electronicconfiguration,atomicand ionicradii,ionizationenergy,electronaffinity,electronegativity,oxidationstates, inertpaireffect.

Introductionofnoblegases,Chemical propertiesofthenoble gases,compoundsofnoblegases,chemistryof xenon,structureand bonding of xenoncompounds.

Unit 3 :ChemicalBondingPartI

Introductionofchemicalbonding,propertiesofcovalentbond,valence bond theory and its limitations,directionalcharacteristics ofcovalentbond,hybridization, energeticsofhybridisation andshapesofdifferent moleculesandions,Valenceshellelectronpairrepulsion(VSEPR)theorytoSnCl2,H_3O^+,NH_3, H_2O,$TeCl_4$,ClF_3, ICl_2^-

Unit 4 : ChemicalBondingPartII

Linearcombinationofatomicorbitals,typesofmolecular orbitals,MOtheory for homonuclear molecules andions(H_2+toNe_2),molecular orbitaltheoryfor heteronuclear molecules (CO,NO)multicentre bonding inelectron deficientmolecules, bondstrength andbondenergy,dipolemoment,percentage ioniccharacterfrom dipolemomentandelectronegativitydifference.

Learning Outcomes: After complition the course student would able to:

- Explain the principles related to atomic structure, periodicity & chemical bonding.
- Plot and interpret probability distribution curves, electronic configuration, shapes of molecules and bonding structures.

- Identifies the relationship among periodicity of various elements and properties of chemical bonding.
- Classify the elements on the basis of atomic structure, periodicity and their basic properties.

Chemistry-Paper-II : Organic chemistry

Objectives:

- To understand about reaction mechanism of organic compounds.
- To aware about different types ofchemical reactions.
- To provide information about nomenclature of alkane and cycloalkane .
- To know about synthesis of alkenes and cycloalkenes .
- To acquaint about nomenclature and classification of Dienes and alkyns.

Unit-I :Mechanismoforganicreaction

Homolytic andheterolytic bondbreaking,Typesofreagents,electrofilesandnucleofiles.Typesoforganic reactions,energyconsiderations,reactiveintermediates-Carbocations,carbanions,free radicals,carbenes,arynesandnitrenes withexamples.Assigningformalchargesonintermediatesandotherionicspecies.Methodofdetermination ofreaction mechanism(productanalysis,intermediates,isotopeeffect,kineticandstereochemicalstudies)

Unit-II : Alkanes& Cycloalkanes

IUPACnomenclatureofbranchedandunbranchedalkanes.Thealkylgroup. Isomerisminalkanessources, methodsofformation(withspecialreferenceofWurtzreaction,Kolbereaction,CoreyHousereactionanddecarboxy lation ofcarboxylicacids.)Physicalpropertiesandchemicalreactionsofalkanes,Mechanism offreeradicalhalogenationsof alkanes,orientation,reactivityandselectivity.

Nomenclature,methodofformation,chemicalreactions,Baeyerstraintheoryanditslimitations.Ringstrain insmallrings(cyclopropaneandcyclobutane),theoryof strainlessrings.

Unit-III :Alkenes & Cycloalkenes

Nomenclatureofalkenes,methodsofformation,mechanismsofdehydrationofalcoholsanddehydrohalogenation ofalkylhalides,regioselectivity inalcoholdehydrations.TheSaytzeffrule,Hofmannelimination.Physicalpropertiesand relativestabilitiesofalkenes.Chemicalreactionsofalkenes— mechanisminvolvedinhydrogenations,Markownikoffsrule, hydroboration–oxidation,oxymercuration-reduction.Epoxidation,ozonolysis,hydration,hydroxylationandoxidationwith $KMnO_4$,polymerization ofalkenes.Subsititutionattheallylicandvinylicpositionofalkenes.Industrialapplicationsof ethyleneandpropene. Methodofformation,conformationandchemicalreactionsofcycloalkenes.

Unit-IV Dienes &Alkynes

Nomenclature andclassification ofdienes,isolated,conjugatedandcumulateddienes,Structureofallenesand butadiene,methodsofformation,polymerization,chemicalreactions,1,2and1,4-additions,Diels-Alderreaction. Nomenclature, structure andbonding inalkynes,methodsofformation.Chemicalreactionsofalkynes,acidityof alkynes.Mechanismofelectrofilicandnucleofilicadditionreactions,Hydroboration-oxidation,metal–ammoniareduction, oxidationandpolymerisation.

Learning Outcomes: After complition the course student would able to:

- Explain about reaction mechanism of organic compound.
- Know about synthesis of alkane and cycloalkanes .
- Classify various derivatives on the basis of isomerism, rules of reacitivity and theories.
- Apply the mechanism of chemical reaction for explaning chemical bonding, nomenclature of various compounds.

Chemistry-Paper-III :Physical chemistry

Objectives:

- To develop curiosity about mathematical concept and use of computer .
- To provide information about various laws and their implications .
- To aware about different states, Vander Waals equation and their derivations.
- To understand about liquid stage and classification of liquid crystals.

Unit I :Mathematical Concepts and Computer

Logarithmic relations, curve sketching, linear graphs and slopes **,**Differentiations of functions like k^x, e^x, x^n, sin x, log x: maxima and minima**,** Integration of some useful relevant functions: Permutations and combinations**,** Factorials and Probability **,**Application of computers in physical chemistry

Unit II :GaseousStates1

Gaseous lawsandtheirderivations,postulate ofkinetictheoryofgasesanditsderivation,deviationfrom idealbehavior,(withrespecttopressureandvolume),VanderWaalsequationofstate

Unit-III : GaseousStates2

Criticalphenomenon:PVisothermofrealgases,continuity ofstate,theisothermsofVanderWaals equation,relationshipbetweencriticalconstantandVander-Waalsconstant, thelawofcorrespondingstates,reduced equationofstate.

Rootmeansquare,averageandmostprobablevelocity.QualitativediscussionoftheMaxwell`sdistribution ofmolecular velocities,collisionnumber,meanfreepathandcollisiondiameter.Liquificationofgases.

Unit-IV :Liquidstate

Intermolecularforces,structureofliquids(aqualitativedescription).Structuraldifferencesbetweensolid, liquidandgases. Liquidcrystals:differencebetweenliquidcrystal,solidandliquid. Classification,structureandapplication ofliquidcrystal

Learning Outcomes: After complition the course student would able to:

- Plot and interpret various graphs, probability curves and structures of gaseous and liquid states.
- Explain logarithmic relations, root mean square and laws of corresponding liquid and gaseous states.
- Measure and calculate the differentiations of functions, collision number and probability to define various behavior of different states.

PRACTICALS

Inorganic chemistry

QualitativeAnalysis:Semimicroanalysis;separationandidentificationofthreecationsandthreeanions inthegiven inorganic mixture, specific testsforsome typical combination of acid radicals.

Physical chemistry

Viscosity, SurfaceTension

1. Todeterminethepercentagecompositionofagivenmixture(non-interactingsystems)by viscositymethod.
2. To determinethe relativeviscosityofgiven unknown organic liquid byviscometer.
3. To determinethe relativesurfacetension ofgivenunknown organic liquid bystalagmometer.
4. To determinethepercentagecomposition ofagivenbinarymixturebysurfacetension method.

Viva-VoceandRecord

Suggested Reading:

1. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, पींकी बी. पंजाबी एवं भूपेन्द्र शर्मा हिमांशु पब्लिकेशन्स, उदयपुर
2. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, एवं वी.के. स्वामी, रमेश बुक डिपो, जयपुर
3. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
4. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
5. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
6. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
7. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
8. अकार्बनिक रसायन, जी.के. रस्तोगी, यशपाल सिंह, कॉलेज बुक हाऊस, जयपुर
9. भौतिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाऊस, जयपुर
10. प्रायोगिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाऊस, जयपुर
11. अकार्बनिक रसायन, लवानिया, गुप्ता, ओझा, बंसल, रमेश बुक डिपो, जयपुर

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 102	Physics-I	CE*	4	15	20	25	100
	Physics-II				20		
	Physics-III				20		

Physics-Paper-I:MECHANICS – I

Objectives:

- To understand the physical laws and frames of reference.
- To aware the concept of special theory of relativity.
- To develop knowledge about conservation law.
- To give information about rigid body dynamics.

UNIT-I Physical Laws and Frames of Reference:

Inertial and non-inertial frames, examples. Transformation of displacement, velocity and acceleration betweendifferent frames of reference involving translation. Galilean transformation and invariance of Newton's law. Noninertialframes, fictitous or pseudo forces, Transformation of displacement, velocity and acceleration betweenrotating co-ordinate systems, centrifugal acceleration, Coriolis force and its applications, Motion relative to earth.Foucault's pendulum

UNIT-II Special Theory of Relativity:

Postulates of special theory of relativity. Lorentz transformations, Addition of velocities and acceleration, Timedilation and length contraction. Variation of mass with velocity, Relativistic energy and mass energy relation.

UNIT-III Conservation Laws:

Conservative forces. Potential energy. Potential energy in gravitational and electrostatic field. Rectilinear motionunder conservation forces. Discussion of potential energy curves and motion of a particle. Conservation of angularmomentum about an arbitrary point, Precessional motion of spinning top, Spin precession in constant magneticfield.

UNIT-IV Rigid Body Dynamics:

Equation of motion of a rotating body, inertial coefficients, case of J not parallel to w, kinetic energy of rotation andidea of principle axis. Calculation of moment of inertia of a disc, spherical shell, hollow and solid spheres andcylindrical objects (cylindrical shell, solid cylinder) about their symmetric axis through centre of mass.

Learning Outcomes: On completion of the course students would able to:

- Applies relative motion Property.
- Discuss on the Parameters defining the motion of mechanical systems.
- Classify the interaction of forces between solids in mechanical systems.
- Describe the rigid body dynamics.
- Calculate the moment of inertia about symmetric axis & CM.

Suggested Readings :

1. Berkeley Physics Course Vol. 1, Mechanics (Mc Graw-Hill)
2. The Feynman Lecures on Physics, Vol. 1, R.P. Feynman R.B. Ligton and M.Sands (Narosa Publishing House)
3. P.Khandelwal - Oscillation and Waves, (Himalaya Publishing House, Mumbai)
4. R.S. Gambhir - Mechanics (CBS Publishers and Distributors, New Delhi)
5. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, 2015–16, यांत्रिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली

Physics-Paper-II :MECHANICS – II

Objectives:

- To understand the centre of mass frame.
- To aware the concept of motion under central forces.
- To develop knowledge about elasticity-I .
- To give information about elasticity-II and its examples.

UNIT-I Centre of mass frame:

Centre of mass, Two particle System, motion of centre of mass and concept of reduced mass, Conservation ofenergy and linear momentum, Collision of two particles in one and two dimensions (elastic and inelastic), Analysisof collision in centre of mass frame. Slowing down of neutrons in moderator. System with varying mass. Angularmomentum and charged particle scattering by a nucleus as an example.

UNIT-II Motion under central forces:

Motion under central force, Gravitational interaction, Inertial and gravitational mass. General solution undern gravitational interaction. Rutherford scattering. Discussion of trajectories. Cases of elliptical and circular orbits.Kepler's laws,

UNIT-III Elasticity-I:

Elasticity, Small deformations, Young's modulus, Bulk modulus and Modulus of rigidity for an isotropic solid,Poisson's ratio, relation between elastic constants. Elastic theorems.

UNIT-IV Elasticity-II:

Theory of bending of beams and Cantilever, Torsion of a cylinder, Bending moments and Shearing forces.Experimental determination of elastic constants by bending of beam.

Learning Outcomes: After complition the course student would able to:

- Describe center of mass.
- Applies the vector theorems of mechanics.
- Classify the analytical mechanics.
- Use of theory of bending of beam & cantilever to determine the deformation.
  Differentiating various elastic coefficients.

Suggested Readings :

1. Berkeley Physics Course Vol. 1, Mechanics (Mc Graw-Hill)
2. The Feynman Lecures on Physics, Vol. 1, R.P. Feynman R.B. Ligton and M.Sands (Narosa Publishing House)
3. P.Khandelwal - Oscillation and Waves, (Himalaya Publishing House, Mumbai)
4. R.S. Gambhir - Mechanics (CBS Publishers and Distributors, New Delhi)
5. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, 2015–16, यांत्रिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली

Physics-Paper-III:ELECTROMAGNETISM – I

Objectives:

- To understand the vector field and vector theory.
- To aware the concept of curl and the field of stationary charge.
- To develop knowledge about the field of moving charge.
- To give information about the magnetic field.

UNIT -I Vector Fields:

Partial derivative. Gradient of a scalar function. Line integral of a vector field. Divergence of a vector field.Divergence in the Cartesian coordinates, Concept of solid angle. Gauss divergence theorem, Gauss law indifferential form, Gauss law from inverse square law, physical meaning of divergence of a vector, The Laplacianoperator. Possion's and Laplace equations.

UNIT -II Curl and the Field of Stationary Charge:

Curl of a vector field, curl in Cartesian coordinates, Stoke's theorem, physical meaning of curl. Potential differenceand potential function. Potential energy of a system. Application: energy required to build a uniformly chargedsphere. Classical radius of the electron, potential and field due to a short dipole, torque and force on a dipole in a Zexternal field.

UNIT -III The Field of Moving Charge:

Magnetic force, Measurement of charge in motion, Invariance of charge. Electric field measured in different framesof reference, Field of a point charge moving with constant velocity, Force on a moving charge, Interaction between amoving charge and other moving charges.

UNIT – IV The Magnetic Field:

The definition of magnetic field, properties of the magnetic field. Ampere's circuital law with applications.Ampere's Law in the differential form. Vector potential. Poissions equation for vector potential. Field of any currentcarrying wire and deduction of Bio-Savart law.

Learning Outcomes: After complition the course student would able to:

- Describe the basic mathematical concepts related to electromagnetic vector fields.
- Discuss about the principles of electrostatics.
- Applies the principles of magneto statics.
- Differentiation between electric field and electric potential.
- Calculate boundary conditions.

Suggested Readings :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, 2015–16, विद्युत चुम्बकत्व, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली

Physics Practical: I

1. To study the variation of power transfer to different loads by a D.C. source and to verify maximum powertransfer theorem.
2. To study the variation of charge and current in a RC Circuits with different time constant (using a DCsource).
3. To study the behaviour of an RC Circuits with varying resistance and capacitance using AC mains as aPower source and also to determine the impedance and phase relations.
4. To study the rise the decay of current in an LR circuit with a source of constant emf.
5. To study the voltage and current behavior of an LR circuit with an AC power source. Also, determine power factor, impedance and phase relations.
6. To study the characteristics of a semiconductor junction diode and determine forward and reverseresistances.
7. To study the magnetic field along the axis of a current carrying circular coil. Plot the necessary graph andhence find the radius of the circular coil.
8. To determine the specific resistance of a materials and determine difference between two small resistanceusing Carey Foster's bridge.
9. To convert galvanometer into an ammeter of a given range.
10. To convert galvanometer into a voltmeter of a given range.
11. Any experiment according to theory paper.

Suggested Readings :

1. प्रभा दशोरा, 2015, प्रथम वर्ष प्रायोगिक भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 103	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		

Mathematics -Paper-I : Discrete Mathematics-I

Objectives:

- Discuss about the set, Relation and function-Binary Relation.
- To aware about the Boolean Algebra- Lattices and Algebraic Structure.
- Understand the Logic and Propositional Calculation.
- To discuss about duality.

Unit 1 : Sets, Cardinality, Principal of inclusion and exclusion, Mathematical induction. Relations and Functions- Binary relations, Equivalence relations and Partitions, Partial ordered relations and Lattices, Chains and Antichains, Pigeon Hole principle.

Unit 2: Boolean Algebras- Lattices and Algebraic structure, Duality, Distributive and Complemented Lattices. Boolean Lattices, Boolean functions and expressions.

Unit 3 ; Fundamental theorem of arithmetic, divisibility in Z, Congruences, Chinese Remainder Theorem, Euler's function, primitive roots.

Unit 4: Logic and Propositional Calculus, Propositions, Simple and compound, Basic Logial _,--eperations, Truth tables, Tautolo ies and contradictions Propositional Functions. quantifiers.

Learning Outcomes: After complition the course student would able to:

- Classify the terms set, Relation and function-Binary Relation.
- Interpret the Boolean Algebra- Lattices and Algebraic Structure.
- Solve the Fundamental Theorem of Arithmetic, Euler’s Function.
- Calculate the Logic Problem.
- Describe the duality property.

Suggested Reading :

1. V.K.Balakrishnan, Introductory Discrete Mathematics, Prentice-Hall, 1996.
2. J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with Applications to Computer Science, McGraw-Hill Book Co., 1995.
3. C.L. Liu, Elements of Discrete Mathematics, (Second Edition), McGraw Hill, International Edition, 1986.

4. Kenneth H. Roson, Discrete Mathematics and Its Applications, Tata Mc-Graw Hiils, New Delhi, 2003.
5. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड़, जितेन्द्र सैनी,विविक्त गणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
6. जी.सी. गौखरू सैनी, विविक्त गणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics -Paper-II : Differential Calculus

Objectives:

- To understand the series and type of series.
- To aware the concept of curvature.
- To develop knowledge about the partial differentiation.
- To give information about the conic section.

Unit I: Series — Infinite series and Convergent series. Tests for convergence of a series —Comparison test, D'Alembert's ratio test, Cauchy's n-th root test, Raabe's test, De-Morgan-Bertrand's test, Cauchy's condensation test, Gauss's test, (Derivation of tests is not required). Alternating series. Absolute convergence. Taylor's theorem. Maclaurin's theorem.

Unit 2: Derivative of the length of an arc. Pedal equations. Curvature — Various formulae, Centre of curvature and Chord of curvature.

Unit 3 : Partial differentiation. Euler's theorem for homogeneous functions. Chain rule of partial differentiation. Total differentiation, Differentiation of implicit functions.

Unit 4: Envelopes and evolutes, Maxima and Minima of functions of two variables. Lagrange's method of undetermined 'multipliers. Asymptotes. Multiple poants. Curve tracing of standard curves (Cartesian and Polar curves).

Learning Outcomes: After complition the course student would able to:

- Identify the Test of convergence of a series.
- Calculate the Derivative of the Length of an Arc, Pedal Equation.
- Classify the Partial Differentiation.
- Use of theory of Envelopes and Evaluate Maxima & Minima of Functions of Two Variables.
- Calculate the Euler Theorem for Homogeneous Functions.

Suggested Reading:

1. Chandrika Prasad and Gorakh Prasad, A Text Book on Differential Calculus, Pothishala Pvt. Ltd., Allahabad, 1992.
2. Slituiti Narayan and P.K. Mittal, Differential Calculus, S. Chand & Co., N. D., 2013.
3. H.S.Dhami, Differential Calculus, Age Int. Ltd., New Delhi, 2012.
4. M. J. Strauss, G. L. Bradley and K. J. Smith, Calculus (3rd Edition), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education), Delhi, 2007.
5. H. Anton, 1. Bivens and S. Davis, Calculus (7th Edition), John Wiley and sons (Asia), Pt Ltd., Singapore, 2002.
6. G.B. Thomas, R. L. Finney, M. D. Weir, Calculus and Analytic Geometry, Pearson Education Ltd, 2003.
7. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड़, जितेन्द्र सैनी, अवकलन गणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
8. जी. सी. गौखरू सैनी, अवकलन गणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics -Paper-III : Analytic Geometry I

Objectives:

- To understand the polar equation of conics.
- To aware the concept of circle of conics.
- To develop knowledge about the sphere and cone.
- To give information about the cylinder.

Unit I : Polar equation of conics, Polar equation of tangent, normal and asymptotes,

Unit 2 chord of contact, auxiliary circle, director circle of conics

Unit 3: Sphere, Cone,

Unit 4 ; Cylinder

Learning Outcomes: After complition the course student would able to:

- Discuss on the Concept of Polar Equation of Conics.
- To understand the 2-D & 3-D Geometry of Sphere and Cone.
- To identify the Polar Equation of Tangent.
- To understand the 2-D & 3-D Geometry of cylinder

Suggested Reading :

1. N.Saran and R.S.Gupta, Analytical geometry of Three Dimenssions, Pothishala Pvt. Ltd., Allahabad, 1992.
2. P.K. Jain and Khalil Ahmed, A Text Book of Analytical geometry of Three Dimenssions, Wiley-Eastern Ltd., 2000.
3. बी.एल. चौरसिया, संजीव त्यागी, अनिल शर्मा, बी. एल. जांगीड़, जितेन्द्र सैनी,एनालिटिक ज्यामिती, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
4. जी.सी. गौखरू सैनी,, एनालिटिक ज्यामिती, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 104	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		

Botany -Paper-I :MICROBIOLOGY

Objectives:

- To learn about the history, discovery, concept and applications of microbiology.
- To understand the ultra structures and classification of bacteria
- To know the structural component, cycle of life, reproduction of viruses with their diseases.
- To comprehend the basic concept of food spoilage and food preservation
- To aware the economic importance of bacteria and viruses

UNIT I: History and development of Microbiology

History and development of Microbiology; contribution of eminent scientists (Antony Van Leeuwenhoek, Louis Pasteur, Robert Koch, Elie Metchnikoff, Paul Ehrlich, Alexander Flemming, Selman A. Waksman, Edward Janner), spontaneous generation, biogenesis, germ theory of disease, vaccination and discovery of antibiotics, concept of quorum sensing and biofilms, microbial nutrition and scope of microbiology

UNIT II: Bacteria .

General characteristics, occurrence, classification, ultra structure of Bacterial cell: morphology (structure and shapes), flagella, capsule, nutritional types, chromatin material. Reproduction-vegetative, asexual and sexual (transformation, conjugation and transduction), Comparison of Archaebacteria and Eubacteria, Gram positive and Gram negative Bacteria, Cyanobacteria: Cell structure, reproduction and life history of *Nostoc*.

UNIT III: Viruse and Mycoplasma

Discovery, classification and structural component of Viruses, replication, lytic and lysogenic cycle, Bacteriophages, Structure and reproductive cycle of TMV and Pox virus, Transmission of viruses, Mycoplasma: Occurrence, morphology, reproduction and importance.

UNIT IV: Economic importance of bacteria and Viruses

Economic importance of bacteria with special reference to their role in agriculture, industry, waste management and biocontrol. Economic importance of viruses with special reference to vaccine production, role in research and medicine. Probiotics. Basic concept of food spoilage and food preservation.

Learning Outcomes: After complition the course student would able to

- Understand the ultra structures and classification of bacteria
- Describe the structural component, cycle of life, reproduction of viruses with their diseases.
- Discuss the history, discovery, concept and applications of microbiology.
- Comprehend the basic concept of food spoilage and food preservation
- Explain the economic importance of bacteria and viruses

Suggested Readings:

- Agrawal, K. and Sharma, J. 2014. A Text book of Mycology, Microbiology and Plant Pathology. CBH publisher, Jaipur.
- Aneja, K. R. 2003. Experiment in Microbiology, Plant Pathology and Biotechnology. New age international (P) Ltd. Publishers, New Delhi.
- Biswas, S. B. and Biswas, A. 2000. An introduction of Viruses. Vikas publications, New Delhi.
- Dubey, R. C. and Maheshwari, D. K., 2002. A Text Book of Microbiology. S. Chand and Co., New Delhi.
- Kumar, H. D. and Kumar, S. 1998. Modern Concepts of Microbiology. Vikas publishing house Pvt. Ltd., New Delhi.
- Madahar, C. L. 2001. Introduction of Bacteria. Mc Graw Hill Edu. Pvt. Ltd., London.
- Mckane, L. and Judy, K. 1996. Microbiology: Essentials and Applications**.** McGraw Hill, New York.
- Pandey, S. N. and Trivedi, P. C. 2005. A text book of Fungi, Bacteria and Virus. Vikas Publishing House, New Delhi.
- Pelczar, M.J. Microbiology. *5th edition***,** Tata Mc Graw-Hill Co., New Delhi.
- Presscott, L., Harley, J. and Klein, D. 2005. Microbiology**.** 6th edition**,** Tata Mc Graw-Hill Co., New Delhi.
- Purohit, S. S. 2002. Microbiology. Agro. Bot. Publication, Jodhpur.
- Sharma, P. D. 2003. Microbiology and Pathology. Rastogi Publication, Meerut.
- Singh, V. and Srivastava, V. 1998. Introduction of Bacteria. Vikas Publication, New Delhi.
- Singh, R. P. 2010. Microbiology. Kalyani Publishers, New Delhi.

Botany -Paper-II :ALGAE AND LICHENS

Objectives:

- To know the characteristics, structure, habitat, types and evolution of algae
- To understand various aspects of photosynthetic pigments with special reference to chlorophyll and xanthophylls.
- To learn about the characteristics with reference of examples of phaeophyceae and Rhodophyceae
- To get aware the economic importance of algae
- To get knowledge about the life cycle and economic importance of lichens.

UNIT I: **Basics of algae**

General characters, classification of algae (Fritsch, Smith), diversity in habitat, range of vegetative thallus organization, cell structure photosynthetic pigments and reserve food material, Reproduction: vegetative, asexual and sexual, evolution of sex in algae**,** types of life cycles.

UNIT II: Chlorophyceae and Xanthophyceae

Chlorophyceae: General characteristics, thallus organization, cell structure, reproduction and life cycle of *Chlamydomonas, Volvox, Chara.*

Xanthophyceae: General characteristics, *Vaucheria*: Thallus organization, cell structure, reproduction and life cycle.

UNIT III: Phaeophycae and Rhodophyceae:

Phaeophycee: General characteristics, *Ectocarpus*: Thallus organisation, cell structure, reproduction and life cycle.

Rhodophyceae: General characteristics*, Polysiphonia*: Thallus organisation, cell structure, reproduction and life cycle.

UNIT IV: Lichens

Economic importance of algae, isolation and culture of algae. Lichens: General characters, types, structure, multiplication, reproduction and economic importance, its importance as colonizers and indicators of environment.

Learning Outcomes: After complition the course student would able to:

- Describe various aspects of photosynthetic pigments with special reference to chlorophyll and xanthophylls.
- Differentiate the characteristics of phaeophyceae and Rhodophyceae
- Explain characteristics, structure, habitat, types and evolution of algae
- Interpret the economic importance of algae
- Comprehend the life cycle and importance of lichens

Suggested Readings:

1. Bold, H. C. and Wayne, M. J. 1996. Introduction to Algae. 2nd Edition. Prentice Hall, Inc. Englewood Cliffs, New Jersey.
2. Ghemawat, M. S., Kapoor, J. N. and Narayan, H. S. 1976. A Text book of Algae. Ramesh Book Depot., Jaipur.
3. Gilbart, M. S. 1985. Cryptpogamic Botany. Vol. I and II second edition. Tata McGra Hill Publishing Co. Ltd., New Delhi.
4. Kumar, H. D. 1998. Introductory Phycology. Affiliated East-West Press Ltd., New York.
5. Lee, R.E. 2008. Phycology. Fourth Edition, Cambridge University Press, USA.
6. Sambamurthy, A.V.S.S. 2006. A Textbook of Algae**.** I. K. International Pvt. Ltd., New Delhi.

7. Singh.V., Pandey, P. C. and Jain, D. K. 2001. A Text book of Botany. Rastogi Publication, Meerut.
8. Thakur, A. and Bassi, S., 2007. Diversity of microbes and Cryptogams. S. Chand and Co., New Delhi.
9. Van den Hoek, C., Mann, D.J. and Jahns, H.M. 1995. Algae: An introduction to Phycology. Cambridge Univ. Press., England.
10. Vashitha, B. R. 2002. Botany for degree students (Algae and Bryophytes). S. Chand and Co. Ltd., New Delhi.

Botany -Paper-III: Mycology and Plant Pathology

Objectives:

- To understand general characteristics, classification, structure, reproduction of fungi.
- To learn about general diseases caused by fungi, bacteria, viruses in plants
- To know general characteristics of oomycetes, zygomycetes
- To gain knowledge about other classes i.e. ascomycetes, basidiomycetes and deuteromycetes with examples.
- To understand the general characteristics of deuteromycetes

UNIT I:

Fungi : General characteristics, classification (Alexopoulus and Mims's), thallus, cell structure, nutrition, asexual, sexual reproduction, homothallism, heterothallism and heterokaryosis.

Plant disease:Biotic and abiotic diseases,important symptoms caused by fungi, bacteria,virus andMLOs(Blight,mildew,Downy mildew and green ear, rust, smut, canker ,mosaic, little leaf, gall) etc.

UNIT II:

General account of class chytridiomycetes, general characteristics, structure and life cycles/disease cycles of members of oomycetes and zygomycetes with special reference to the
genera: *Albugo* (white rust disease) *, Sclerospora* (Downey mildew/Green ear disease) .

UNIT III:

General characteristics, structure and life history/disease cycle of class Ascomycetes Basidiomycetes and Deuteromycetes with special reference to the genera: *Aspergillus,Claviceps(ergot disease), Peziza, Puccinia (rust disease) and Agaricus.*

UNIT IV:

General characteristics and structure and life cycle of class Deuteromycetes with special references to *Alterneria (early blight of potato disease),* sex degeneration in fungi and economic importance of fungi.

Learning Outcomes: After complition the course student would able to:

- Understand general characteristics, classification, structure, reproduction of fungi.
- Discuss general characteristics of oomycetes, zygomycetes
- Get knowledge about other classes i.e. ascomycetes, basidiomycetes and deuteromycetes .
- Larn about general diseases caused by fungi, bacteria, viruses in plants
- Classify the division Fungi.

Suggested Readings:

- Alexopoulos, C.J. and Mims, C.V. 1988. Introductory Mycology. John Wiley and Sons, New York.
- Dubey, H.C. 1989. Fungi. Rastogi publication, Meerut.
- Pandey, S. N. and Trivedi, P. S. 1994. A text book of Fungi, Bacteria and Virus. Vikas Publishing House, New Delhi.
- Sarabhai, R.C. and Saxena, R.C. 1990. A textbook of Botany. Rastogi publication, Meerut.
- Vashishta, B. R. 2001. Botany for degree student's Fungi. S. Chand and company, New Delhi.

- Webster, J. and Weber, R. 2007. Introduction to Fungi. 3rd edition, Cambridge University Press, Cambridge.

PRACTICAL I

1. Introduction of handling and maintenance of laboratory equipments.
2. The components, use and care of compound microscope.
3. Study of the types of bacteria from temporary/permanent slides.
4. Introduction of techniques of slide preparation, stain preparation and staining.
5. Gram's staining of bacteria from curd.
6. Preparation of microbiological culture media (potato dextrose agar, nutrient agar).
7. Isolation of bacteria from soil..
8. Study of vegetative and reproductive structures of: *Nostoc, Chlamydomonas Volvox,Chara, Voucheria, Ectocapus, Polysiphonia.*
9. Study of different types of lichens.
10. Nuclear staining of filamentous fungi.
11. Preparation of slides and study of following genera through temporary mounts and permanent slides:
12. *Albugo, Aspergillus, Claviceps, Peziza, Puccinia, Agaricus Alternaria* .
13. Study of plant diseased specimens caused by fungi, viruses, bacteria and mycoplasma.
14. Measurement of fungal extracellular enzymes..
15. Collection, identification and submission of minimum 3 diseased specimens.

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 105	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		

Zoology- Paper-I: Life and Diversity of animals - Nonchordata-I

Objectives:

- To discuss the animal kingdom.
- To understand the general characteristics and Classification of Phylum protozoa.
- To develop the general characteristics and Classification of Phylum porifera.
- To understand the general characteristics and Classification of Phylum platy helminthes
- To understand the external features and life cycle of fasciola.

Unit I: Principles of Taxonomy:

1.1 Nomenclature system, Binomial nomenclature, Trinomial nomenclature, Rules of nomenclature

1.2 Concept of five kingdoms, Levels of Organisation, Basis of classification (Number of Cells, Symmetry, Coelom, Embryogeny, Segmentation)

Unit II:

2.1 Phylum Protozoa

Salient features and classification of Protozoa up to Class

Type study – Paramecium (Salient Features, Locomotion, Nutrition and Reproduction)

2.2 Phylum Porifera

Salient features and classification of Porifera up to Class

Type study- Sycon Canal system of Sponges Skeletal System

Unit III

3.1 Phylum Coelenterata

Salient features and classification of Coelenterata up to Class

Type study – Obelia(External Features, Nutrition, Excretion, Reproduction)

Polymorphism inCoelenterates

UNIT IV

4.1 Phylum Platyhelminthes

Salient features and classification of Platyhelminthes up to Class Type study- Taenia(External features and life cycle)

Type study- Fasciola (External Features and Life Cycle)

Learning Outcomes: After complition the course student would able to:

- Understand general taxonomic rules on animal classification, the principles and methods of taxonomy, the Levels of structural organization and the Basis of Classification -Coelom, symmetry, segmentation and its types.
- Classify the phylum Protozoa, Porifera & Coelenterata using examples, Understand the Locomotion in Protozoa, canal system of sponges, Coral and coral reefs & economical importance of Protozoa, Porifera.
- Clarify the external features and life cycle of fasciala.
- Discuss the sycom canal sysem of sponges skeletal system.
- Describe salient features & classification of coelenterate up to class

Zoology- Paper-II: Life& Diversity of Animals Nonchordata- II

Objectives:

- To discuss the general characteristics and Classification of Phylum Annelida .
- To understand the general characteristics and Classification of Phylum Arthropod.
- To understand the general characteristics and Classification of Phylum Echinodermata.
- To understand the general characteristics and Classification of Phylum Hemichordate.
- To classify the general characteristics and classification of Phylum Mollusa.

Unit I:

1.1 Annelida:

General characters and outline classification up to classes with examples.

Type-study: Morphology, Digestive, Excretory, & Reproductive systems of leech

1.2 Arthropoda:

General characters and outline classification up to classes with examples.

Type Study: Palemon: -Morphology, Digestive, Excretory, & Reproductive systems.

Unit II:

2.2Mollusca:

General characters and outline classification up to classes with examples.

Type Study:Pila: External characters, Skeletal, Digestive, Respiration,& Reproductivesystems.

Unit III:

3.1Echinodermata:

General characters and outline classification up to classes with examples.

Type Study: Asterias (External characters, Skeletal, Digestive, Respiration, & Reproductive systems)

Unit IV:

a. **Hemichordata:**

General characters and outline classification up to classes with examples.

4.2 Salient features of Balanoglossus

Learning Outcomes: After complition the course student would able to:

- Classify Phylum Annelida with taxonomic keys, and a basic idea of parasitic adaptations.
- Write down the classification and characteristics of Phylum Arthropoda,
- Write down the classification and characteristics of Phylum Mollusca Echinodermata & Hemichordata and Understand the process of pearl formation and water vascular system of star fish.
- Describe in the productive system of Leech.
- Classifiy in salient features of banlanoglessus

Zoology- Paper-III: Cell Biology

Objectives

- To understand the structures and purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and organelles
- To understand how these cellular components are used to generate and utilize energy in cells
- To understand the cellular components underlying mitotic cell division.

- ❖ To develop the structure an function of mitochondria
- ❖ To identify the lysosome structure polymorphism and function

Unit – I

1.1 Introduction to cell: Size, shape, ultra structure and characteristics of prokaryotic and eukaryotic cell

1.2 Endoplasmic reticulum: Types, Ultra structure and functions

1.3 Golgi complex: Ultra structure and functions

Unit – II

2.1 Structure and Function of mitochondria;

2.2 Lysosome: Structure, polymorphism and functions

Unit – III

3.1 Cytoskeleton: Organization and functions of Centrosome, Cilia and Flagella

3.2 Cell- communication: types of Cell Junctions

3.3. Cell proliferation: Events in different phases of cell cycle

Unit – IV

4.1 Ribosome: Structure, Types, Lake's model and functions

4.2 Mitosis (Different Phases and Significance)

4.3 Meiosis (different phases and significance)

Learning Outcomes: After complition the course student would able to:

- ❖ Develop an understanding of the cytoskeleton and cell membrane
- ❖ The cell cycle, structure of mitochondria and types of cell divisions.
- ❖ Students are able to discuss the cell, structure of ribosome, lysosome and golgi complex.
- ❖ Students are able to discuss the endoplasmic recticulum structure .
- ❖ Studetns are able to classify in structure and function of mitochondria

Practical

Zoology: PRACTICAL Based on paper I, II and III

Notes:

1. With reference to whole mounts and museum specimens, in case of unavailability of certain animal types, diagrams, photographs, models and digital techniques etc. should be substituted. Study will include classification (up to orders) with diagnostic characters and comments.
2. Candidates will keep a record of all work done in the practical class.

Paper-I: Life and Diversity of Animals- Nonchordata – I (Protozoa to Aschelminthes)

I. Microscopic Techniques : Organisation and working of optical microscopes: Dissecting and Compound Microscope:

II. Study of museum specimens (Classification of animals up to orders)

I. Protozoa: Euglena, Volvox, Elphidium (Polystomella), Foraminiferous shell, Monocystis, Opalina, Paramoecium, Paramoecium showing Binary fission, Paramecium Conjugation, Balantidium, Nyctotherus, Vorticella

II. Porifera: Sycon, Leucosolenia, Hyalonema, Euplectella, Spongilla
III. Coelenterata : Obelia Colony & Medusa, Millepora, Physalia, Vellela, Aurelia, Alcyonium, Gorgonia, Pennatula, Metridium, Stone Corals
V. Ascheliminthes : Ascaris, Drancunculus, Ancylostoma, Wuchereria

2. Study of Permanent Slides

I. Porifera: Sponge gemmules, Sponge spicules,V.S. Sycon, T.S. Sycon,
II. Coelenterata: Obelia medusa, Obelia Colony
III. Platyhelminthes: Miracidium, Sporocyst, Redia and Cercaria, Metacercaria larvae of Fasciola, Hexacanth and Onchosphere larvaa of Taenia solium, Scolex ofTaenia, Mature and gravid proglottids ofTaenia solium.

3. External features and Anatomy through audio visual presentation

I. Cockroach: External features, Mouth parts, Digestive, nervous and reproductive system
II. Earthworm: External Features, Digestive, nervous and reproductive system

Paper-II : Life and Diversity of Animals – (Annelida to Hemichordata)

1. Study of museum specimens (Classification of animals up to orders)

I. Annelida: Nereis, Heteronereis, Aphrodite, Chaetopterus, Arenicola,
I. Arthropoda: Peripatus, Lepus, Palemon, Eupagurus (hermit Crab), Carcinus (Crab), Scolopendra, Julus, Scorpion, Spider, Limulus, Cysticerca/Locust, Dragonfly, Queen Termite, Cymax, Moth/ Butterfly,

II. Mollusca : Chiton, Dentalium, Cyprea, Pila, Aplysia, Mytilus, Pincteda, Loligo, Sepia, Octopus, Nautilus
III. Echinodermata: Antedon, Asterias, Ophiothrix, Echinus, Holothuria
IV. Hemichordata: Balanoglossus

2. Study of permanent slides

I. Annelida: Parapodia of Nereis, T.S. of Leech through Buccal Cavity and Crop II. Arthropoda: Crustacean Larvae- Nauplius, Zoea, Metazoea, Megalopa, Mysis III. Mollusca: Veliger and Glochidium larvae, T.S. of Unio Shell
IV. Echinodermata: T.S. of arm of star fish
V. Hemichordata: Balanoglossus through collar and proboscis

3. Audiovisual demonstration

I. Prawn: Appendages, digestive, Nervous and Reproductive system, Statocyst, Hastate Plate
ii. Pila: Nervous system, Osphradium, Gills, Radula

Paper III: Cell Biology

1. Study of pictures of ultra structure of prokaryotic cell & eukaryotic cell
2. Demonstration of mitosis cell division in onion root tips by squash method
3. Demonstration of meiosis through audio visual Presentation
4. Study of mitochondria in Buccal Epitheli

Suggested Reading:

Life and Diversity of Animals – Non Chordates-I & II

1. Barnes, R. (1981). Invertebrate zoology. *W. B. Saunders Co*

2. Barrington, E. W. J. (1969). Invertebrate structure and function. *ELBS*
3. Barradaile L.A. & Potts F.A.The Invertebrate
4. Jordan, E. L. & Verma, P. S. Invertebrate Zoology. *S. Chand & Co*.
5. Kotpal, Agrawal&Khetrapal. Modern Text Book of Zoology - Invertebrates,
6. Puranik P.G. & Thakur R.S.Invertebrate Zoology
7. Majupuria T.C. Invertebrate Zoology
8. Dhami & Dhami. Invertebrate Zoology
9. Parker & Hashwell, Textbook of Zoology Vol. I (Invertebrates) A.Z.T.B.S. Publishers
10. R.L. Kotpal, 2007, Phylum Protozoa to Echinodermata (series), Rastogi and Publication, Meerut
11. Vidyarthi – Text Book of Zoology, Agrasia Publishers, Agra
12. Marshal & Williams. Text book of zoology.
13. Boolotin & Stiles. College zoology. MacMillan
14. Kohli, Triguranayati, 2007, Invertebrate, R.B.D. Publishing House, Jaipur

Practical Books

15. A manual of Practical Zoology Invertebrates – P. S. Verma
16. Dr. S.S. Lal Practical Zoology Invertebrates 9th edition,Rastogi Publication Meerut & Distributors, New Delhi

Suggested Reading :Cell Biology:

1. Alberts et al (2001). Molecular biology of the cell. Garland publications.
2. De Robertis, E. D. P. & De Robertis, E. M. F. (1987). Cell and molecular biology. Lea & Febiger Intl. ed.
3. Powar, C. B. (1986). Cell biology. Himalaya Publ.
4. Burke, J. D. C. (1970). Cell biology. *William & Wilkins Co*
5. Dr. S.P. Singh, Dr. B.S. Tomar., Cell Biology 9th revised edition, Rastogi Publication, Meerut
6. Gupta P.K., Cell and Molecular Biology, Rastogi Publication, Meerut
7. Veer Bala Rastogi. Introduction to Cell Biology, Rastogi Publication, Meerut
8. Verma and Agrawal .Concepts of Cell Biology
9. Narendra Jain, Maya Singh, Shikha Patni, S.K. Singh, 2016, Cell Biology and Genetices, College Book Center, Jaipur
10. K.C. Soni, 2008, Cell Biology and Genetices, College Book Center, Jaipur

Semester-I

Course Code	Course Title	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory+Practical	Total
JVB 101	General English	**Core Foundation(CF)**	**4**	**30**	**70**	**100**

Objective:

1. Students will be able to recognize and understand the meaning of targeted grammatical structures in written and spoken form.
2. Students will practice the grammar skills involved in writing sentences and short paragraphs.

Unite -I Grammar and Usage :

1. Parts of Speech
2. Basic Sentence Patterns
3. Sentences beginning with 'It' and 'There'
4. Tenses
5. Phrasal Verbs
6. Articles and other Determiners
7. Direct & Indirect Speech
8. Active and Passive Voice
9. Modal Auxiliaries
10. Simple, Complex and Compound sentences.

Unite -II Book : A Cavalcade of Modern English Prose

Essays :

(1) Essentials of Education (2) Testament

Unite -III Writing Skills

(1) Paragraph Writing (2) Letter & Application Writing

Unite -IV Vocabulary

(1) Word often confused (2) Antonyms and Synonyms

Outcome:

1. Students will begin to self-edit their oral and written production.
2. Students will make less grammatical errors.
3. Students will become clear of grammatical terms.
4. Students will get exposure of writing letters, application and paragraph.

Books :

1. A Textbook of General English for Undergraduate students by R.P. Bhatnagar, Rajul Bhargava, Jain Prakashan Mandir, 1024, Shinghiji ki Gali, Chaura Rasta, Jaipur-302 002.
2. English Grammar, Composition and Reference skills by R.P. Bhatnagar & Rajul Bhargava, Board of Secondary Education, Ajmer.
3. Text Book: A Cavalcade of Modern English Prose, R.P. Bhatnagar, Jain Pustak Mandir, Chaura Rasta, Jaipur.
4. R. Quirk et al (ed.) A Grammar of Contemporary English. Longman, London, 1972.
5. English for Indian Learners by R.P. Bhatnagar, University book house, (P), Jaipur.

सेमेस्टर–I

Course Code	Course Title	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
JVB 102	**अहिंसा एवं शांति (अहिंसा एवं अणुव्रत)**	**Core Elective (CE)**	**4**	**30**	**70**	**100**

उद्देश्य–

1. अणुव्रत के विशेष संदर्भ में अहिंसा तत्त्व को समझाना।

इकाई–1

अणुव्रत का दार्शनिक आधार

इकाई–2

अणुव्रत का प्रायोगिक स्वरूप : अणुव्रत आन्दोलन

इकाई–3

अणुव्रत आन्दोलन के अहिंसक कार्यक्रम

इकाई–4

अणुव्रत आन्दोलन का सामाजिक/राजनीतिक स्वरूप

उपलब्धियाँ–

1. अणुव्रत आंदोलन को जानकर संयम की दिशा में आगे बढेंगे।

पाठ्य पुस्तक / संदर्भ ग्रन्थ

1. अणुव्रत दर्शन– आचार्य महाप्रज्ञ
2. अहिंसा और अणुव्रत– सिद्धान्त और प्रयोग– मुनि सुखलाल एवं आनन्दप्रकाश त्रिपाठी
3. गांधी पश्चात् शांति आंदोलन– प्रो. अनिल धर

प्रायोगिक–

1. कायोत्सर्ग, महाप्राण ध्वनि, ज्योति केन्द्र पर श्वेत रंग का ध्यान।
2. आसन– शंशाकासन, योगमुद्रा
3. अनुप्रेक्षा– सहिष्णुता
4. अणुव्रत आचार संहिता

Semester-II

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Practical	Total
BSC 201	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		

Chemistry-Paper-I : Inorganic chemistry

Objectives:

- To give knowledge about the mathematical concepts of ionic solid structure and packing.
- To aware about metallic bond and weak interactions among molecules.
- To provide information about various properties of s & p-block elements and their correlations.
- To develop their concept about structural principles of silicates and their applications.

Unit-I :**IonicSolids**

Ionicstructures(ABandAB$_2$ type),packingofions,Radiusratioandcoordinationnumber, calculationoflimiting radiusratiofor tetrahedral, octahedralandcubiccrystalstructure, limitationsof radius ratio rules,Polarizing powerand polarisability ofions,Fajansrule, latticeenergy andborn landeequation,Born Haber cycle andits applications, solvation energyand solubilityofionic solids.

Unit-II :Metallic Bond &Weak interactions

Introductionofmetallicbond,propertiesofmetals,theoriesofMetallicbond- oldelectron free theory,valancebondtheory,limitationsofvalencebondtheory,molecularorbitalorbandtheory,latticedefects in ionicsolids, semiconductors.

Hydrogen bondingand VanderWaalsforces.

Unit-III :s-BlockElements

Comparativestudy,diagonalrelationships,salientfeaturesofhydrides, solvation and complexationtendenciesincludingtheirfunction in biosystems andintroductionto alkyls and aryls.

Unit-IV :Some importantcompoundsofp-block elements

Hydrides of boron, diborane and higher boranes, borazines, borohydrides, fullerenes, carbides, flurocarbons, silicates (structural principle), tetrasulphur tetranitride, basic properties of halogens, interhalogens and polyhalides.

Learning Outcomes: After complition the course student would able to:

- Explain the mathematical concepts of ionic solid structure and packing.
- Plot and interpret shapes of ions and bonding structures.
- Identifies the relationship among properties of metals on the basis of various theories of bonding.
- Classify the s & p block elements like hydrides and halogens on the basis of atomic structure, periodicity and their basic properties.

Chemistry-Paper-II : Organic chemistry

Objectives:

- To understand isomerism in organic compounds
- To develop their knowledge about geometric isomerism, aromaticity and halogen compounds.
- To aware them about nomenclature, mechanism and application of organic compounds.
- To develop conceptual knowledge about various principles relaed to geometrical structure, reactions and configuration of various compounds.

UnitI : Stereochemistryoforganiccompounds

Conceptof isomerism, typeofisomerism.Optical isomerism;elements of symmetry, molecular chirality-allenes and biphenyl, Enantiomers, stereogenic centre, optical activity, propertiesofenantiomers.Chiralandachiralmoleculeswithtwostereogeniccentres,distereomers Threo,and erythro diastereomers, meso compounds. Resolutionof enantiomers, inversion, retention andracemisation. Relative andabsolute configuration, sequence rule, D&L and R&S systemofnomenclature.

Unit-II :Geometrical,Conformational isomerism&Arenes

Determinationofconfigurationofgeometricisomers,E&Z- systemofnomenclature, geometricisomerismin oximesand in cyclic compounds.

Conformational analysisof ethane and n-butane. Newman projectionandSawhorse formulae. Fischerandflyingwedge formula. Differencebetween configurationand conformation

Nomenclatureofbenzenederivatives.The arylgroup,aromaticnucleusandsidechain.Structureof benzene,molecularformulaandKekulestructure.Stability andcarbon-carbonbondlengthofbenzene,resonance structure,MO picture.

Unit-III :**Aromaticity &Aromatic electrofilic substitution**

The Huckel's rule, aromaticions.

Generalpattern of the mechanism, role ofsigma and picomplexes. Mechanism ofnitration,halogenations,sulphonation,mercurationandFriedelCraftreactionwithenergyprofile diagrams. Activatinganddeactivatingsubstituents,orientationandortho/pararatio.Sidechainreactionsof benzenederivatives. Birchreduction.

Unit-IV :Alkylandarylhalides &Polyhalogen compounds

Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanism of nucleofilic substitution, reaction of alkyl halides, $SN^1$and SN^2 reaction with energy profile diagram.

Chloroform, carbon tetra chloride. Methods of formation of aryl halides, nuclear and side chain reaction. The addition-elimination and the elimination addition mechanism of nucleofilic aromatic substitution reaction. Relative reactivities of alkyl halides v/s allyl, vinyl and aryl halides. Synthesis and uses of DDT and BHC.

Learning Outcomes: After complition the course student would able to:

- Explain about elememts of symmetry, profile and methods of formation of organic compounds.
- Apply various mechanism rules to define chain reactions, configuration and formation of arenes, halogen compounds.
- Classify various derivatives on the basis of isomerism, configuration and energy profile.

- Describe various rules and reactions about stereochemistry, aromaticity and orientation related to chemical compounds.

Chemistry-Paper-III :Physical chemistry

Objectives:

- To develop curiosity about laws of crystallography and chemical kinetics. .
- To provide information about derivation of equations, order and preparation of energy profile .
- To aware about the scope, factors and theories of chemical kinetics.
- To give information about colloidal state, their prepation and determinants.

Unit I:Solidstate

Definitionofspacelattice,Unitcell.Lawofcrystallography(i)lawofconstancyofinterfacialangles (ii)law of rationalityofindices(iii)lawofsymmetry.Symmetryelementsincrystals. Xraydiffraction bycrystals.Derivationof Braggsequation,DeterminationofcrystalstructureofNaCl,KClandCsCl(Laue'smethodandpowdermethod).

UnitII :Colloidalstate

Definitionofcolloids,classificationofcolloids.Solidsinliquids(sols):properties- kinetics, opticalandelectrical.Stabilityofcolloids,protectiveaction,HardySchulzelaw. Goldnumber.Liquidsin solids (gels):classification,preparationandproperties,inhibition,generalapplicationofcollides. Liquidinliquid (emulsions): typesofemulsions,preparation,Emulsifiers.

Unit-III :ChemicalKinetics

Chemicalkineticsand itsscope,rateofareaction,factorsinfluencing the rateofareaction, Concentrationdependenceofrates,mathematical characteristicsofsimplechemicalreaction-zeroorder,firstorder,secondorder,pseudoorder,halflifeandmean life.

Determinations of the orderof reaction-differentialmethod, method of integration, method ofhalf-life period and isolation method.Theoriesofchemicalkinetics,Effectoftemperatureontherate reaction,Arrheniusconceptofactivationenergy.Simplecollisiontheory basedonhardspheremodel,transition statetheory(equilibriumhypothesis).Expressionfortherateconstantbasedonequilibrium constantand thermodynamic aspects.

Unit-IV :Solutions,Dilutesolutions &Colligativeproperties

idealandnon idealsolutions,methodsofexpressing concentrationsofsolutions, activityand activitycoefficient. Raoult`slaw,relativelowering ofvapourpressure,molecularweightdetermination. Osmosislawofosmoticpressureanditsmeasurement,determinationofmolecularweightfrom osmoticpressure, Elevationofboiling pointanddepression offreezing point. Thermodynamicderivationofrelationbetween molecularweightandelevationofboiling pointanddepression in freezing point. Experimentalmethodsfor determining variouscolligative properties. Abnormal molarmass degree of dissociation and association of solutes.

Learning Outcomes: After complition the course student would able to:

- Draw and interpret symmertries and structures of crystalsand colloids.
- Compare among various forms of crystals, order and trainsition state of compounds.
- Measure and calculate the mathematical characteristics simple chemical reactions and determinants.

Practical's

Inorganic chemistry:

Quantitative analysis:Volumetric analysis

(a) Determination ofaceticacid incommertial vinegar usingNaOH.

(b) Determination of alkalicontent ant acid tablet usingHCl.

(c) Estimation of calcium content in chalk as calciumoxalatebypermanganometery.

(d) Estimation of hardness of waterbyEDTA.

(e) Estimation of ferrous andferric bydichromatemethod.

(f) Estimation of copper usingthiosulphate.

Organic chemistry:

(A) Laboratorytechniques

(a) Determination ofm.p. ofnaphthalene, benzoic acid, urea etc. OR

(b) Determination ofb. p. of ethanol , methanol, cyclohexane, etc

(B) Qualitative analysis

(a) Detectionof extra elements(N, S.andhalogens) andfunctionalgroupse.g. (phenolic,alcoholic,carboxylic,carbonyl,ester,carbohydrate,amine,amide andnitro) insimple organic compounds

Viva voceandrecord

Suggested Reading:

1. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
2. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
3. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
4. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
5. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
6. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
7. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
8. भौतिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाउस, जयपुर
9. अकार्बनिक रसायन, जी.के. रस्तोगी, यशपाल सिंह, कॉलेज बुक हाउस, जयपुर
10. प्रायोगिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाउस, जयपुर

Semester-II

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Practical	Total
BSC 202	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		

Physics-Paper-I : ELECTROMAGNETISM – II

Objectives:

- To aware about the of concepts related to Faraday‘s law, induced emf.
- To give information about Maxwell‘s equations to solutions of problems relating to transmission lines.
- To develop knowledge about the transient behavior of R-C circuit.
- To aware about the transient behavior of R-L circuit.

UNIT – I Magnetic Fields in Matter:
Electric current due to orbital electron, the field of current loop, Bohr magneton. Orbital gyro magnetic ratio Electron spin and magnetic moment. Magnetic susceptibility, magnetic field caused by magnetized matter. Magnetization current. Free current and the field H.

UNIT –II Electric Field in Matter:
The moment of a charge distribution. Atomic and molecular dipoles. Atomic polarizability. Permanent dipolemoment, dielectrics. The Capacitor filled with a dielectric. The potential and field due to a polarized sphere.

UNIT –III Dielectric:
Dielectric. Dielectric sphere placed in a uniform field. The field of charge in dielectric medium and Gauss’s law.The connection between electric susceptibility and atomic polarizability. Polarization in changing field. The boundcharge (polarization) current.

UNIT -IV Transient behavior and Maxwell’s Equations:
Transient behaviour of an R-C circuit. Electromagnetic Induction and Maxwell’s Equations, Faraday’s law indifferential form. Mutual inductance, Self inductance Transient behaviour of an L-R circuit, the displacementcurrent, Maxwell’s equations in differential and integral forms.

Learning Outcomes: After complition the course student would able to:

- Understand the concepts related to Faraday‘s law, induced emf, maxwell‘s equations, transit behavior, electric field in matter, atomic & molecular dipoles.
- Applies Maxwell‘s equations to solutions of problems relating to transmission lines, uniform plane wave propagation, magnetic field in matter.
- Understand the transient behavior of R-C circuit & L-R circuit.
- Classify the moment of a charge distribution.
- Discuss on the magnetic susceptibility and free current.

Suggested Readings :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना,, विद्युत चुम्बकत्व, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics-Paper-II:OSCILLATIONS AND WAVES –I

Objectives:

- To aware about the concepts of mechanics,
- To give information about physical characteristics of SHM
- To calculate logarithmic decrement relaxation factor and quality factor.
- To aware acoustics and the properties of matter.
- To develop knowledge about obtaining solution of the oscillator.

UNIT -I Oscillations:

Oscillations in an arbitrary potential well, Simple harmonic motion, examples-spring mass system, mass on a spring,torsional oscillator, LC circuit, energy of the oscillator,

UNIT -II Damped Oscillator:

Damping of oscillator, viscous and solid friction damping. Power dissipation. Anharmonic oscillator, simplependulum as an example.

UNIT -III Driven Oscillator:

Driven harmonic oscillator with viscous damping. Frequency response, phase relations. Quality factor, Resonance.Introduction of j operator concept in Electrical oscillations, series and parallel LCR circuit. Electro-mechanicalsystem-Ballistic Galvanometer Effect of damping.

UNIT – IV Coupled Oscillator:

Equation of motion of two coupled S.H Oscillators. Normal modes, motion in mixed modes. Transient behaviour.Effect of coupling in mechanical systems. Electrically coupled circuits, frequency response. Reflected impedance.Effect of coupling and resistive load.

Learning Outcomes: After complition the course student would able to:

- Discuss on the simple harmonic motion and its equation.
- Differentiate between damped oscillator and driven oscillator.
- Interpret the term frequency response and phase relation.
- Applies the concept of Ballistic galvanometer.
- Identify the coupled oscillator and some electrically coupled oscillators.

Suggested Readings :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, दोलन तथा तरंग, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics-Paper-III:OSCILLATIONS AND WAVES –II

Objectives:

- To aware about the concepts of lattice dynamics.
- To give information about electric transmission line.
- To calculate the wave equation and analysis the fourier series.
- To aware about the electromagnetic wave.

UNIT -I Lattice dynamics:
Dynamics of a number of oscillators with near-neighbour interactions. Equation of motion for one dimensionalmono-atomic and diatomic lattice, acoustic and optical modes, dispersion relations. Concept of group and phasevelocities.

UNIT – II Electrical Transmission Line:
Electrical transmission line, propagation velocity, losses, characteristic impedance, standing waves, effect oftermination.

UNIT –III Wave Motion:
Wave motion – Elastic waves in a solid rod. Pressure waves in a gas column. Transverse waves in a string, waves inthree dimensions, spherical waves, Fourier series and Fourier analysis.

UNIT – IV Electromagnetic Wave:
Plane electromagnetic (EM) wave. Energy and momentum of EM wave. Radiation pressure. Radiation resistance offree space. EM waves in dispersive media (normal case). Spectrum of electromagnetic radiations.

Learning Outcomes: After complition the course student would able to:

- Discuss on the group and phase velocities.
- Differentiate between 1-D mono atomic & diatomic lattice.
- Interpret the term propagation velocity and losses.
- Applies the concept of transverse wave in the string.
- Identify the spectrum of electromagnetic radiation.

Suggested Readings :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, दोलन तथा तरंग, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics Practical : II

1. To study the random decay and determine the decay constant using the statistical board.
2. Using compound pendulum study the variation of time period with amplitude in large angle oscillations.
3. To Study damping using Compound pendulum study the damping.
4. To study the excitation of normal modes and measure frequency splitting using two coupled oscillator.
5. To study the frequency of energy transfer as a function of coupling strength using coupled oscillators.
6. (a) To study the viscous fluid damping of a compound pendulum and Determing damping coefficient and Q of the oscillator.
   (b) To study the electromagnetic damping of a compound pendulum and to find the variation of dampingcoefficient with the assistance of the conducting lamina.
7. To find J by Callender and Barne's Method.
8. To determine Youngs modulus by bending of beam.

9. To determine Y. σ and η Searle's method.
10. To measure Curie temperature of Monel alloy.
11. To determine modulus of rigidity of a wire using Maxwell's needle.
12. Study of normal modes of a Coupled pendulum system. Study of oscillations in mixed modes and find theperiod of energy exchange between the two oscillators.
13. To study Variation of surface tension with temperature using Jaegger's method.
14. Any experiment according to theory paper.

Suggested Readings :

1. प्रभा दशोरा, प्रायोगिक भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015

Semester-II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 203	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		

Mathematics-Paper-I: Discrete Mathematics II

Objectives:

- To aware the Particular Solutions of Generating Function.
- To give information about the Graph.
- To Interpret the Eulerian and Hamiltonian Graphs.
- To give information about Trees.

Unit 1

Discrete numeric unctions and Generating functions. Recurrence relations and Recursive Algorithms — Linear Recurrence relations with constant coefficients.

Unit 2

Homogeneous solutions. Particular solution. Total solution. Solution by the method of generating functions.

Unit 3: Graphs — Basic terminology, Multigraphs, Weighted graphs, Paths and circuits, Shortest paths, Introduction to Eulerian and Hamiltonian Graphs. Travelling SalesMan problem. Union, Join, Product and composition of graphs. Planar graphs and Geometric dual graphs.

Unit 4: Trees — Properties, Spanning tree, Binary and Rooted tree. Digraphs — Simple digraph, Asymmetric digraphs, Symmetric digraphs and complete digraphs. Digraph and Binary relations. Matrix representation of graphs and digraphs.

Learning Outcomes: After complition the course student would able to:

- Applies the Particular Solutions of Generating Function.
- Discuss about the Weighted Graph, Shortest Paths.
- Plot Eulerian and Hamiltonian Graphs.
- Discuss about the Trees Properties.
- Calculate the homogeneous solutions.

Suggested Reading :

1. V.K.Balakrishnan, Introductory Discrete Mathematics, Prentice-Hall, 1996.

2. J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with Applications to Computer Science, McGraw-Hill Book Co., 1995.
3. C.L. Liu, Elements of Discrete Mathematics, (Second Edition), McGraw Hill, International Edition, 1986.
4. Kenneth H. Roson, Discrete Mathematics and Its Applications, Tata Mc-Graw Hiils, New Delhi, 2003.
5. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड़, जितेन्द्र सैनी, विविक्त गणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
6. जी.सी. गौखरू सैनी, विविक्त गणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics-Paper-II :Integral Calculus

Objectives:

- To develop knowledge about the concepts Beta and Gamma Function.
- To aware the Concept of Double Integrals in Cartesian and Polar Co-ordinates.
- Calculate Areas and Rectification.
- To give information about the Volumes and Surfaces of Solids of Revolution.

Unit 1 Beta and Gamma functions, Reduction formulae (simple standard formulae),

Unit 2 Double integrals in Cartesian and Polar Coordinates, Change of order of integration. Triple integrals. Dirichlet's integral.

Unit 3 Areas, Rectification,

Unit 4 Volumes and Surfaces of solids of revolution.

Learning Outcomes: After complition the course student would able to:

- Calculate the concepts Beta and Gamma Function.
- Calculate of Double Integrals in Cartesian and Polar Co-ordinates.
- Calculate Areas and Rectification.
- Discuss the volumes and Surfaces of Solids of Revolution.
- Calculate the dirichlet's integral.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी,, समाकलन गणित, आर. बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, समाकलन गणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics-Paper-III :Analytic Geometry II

Objectives:

- To give information about the Central Conicoids.
- To aware tangent line and tangent plans.
- To develop concept generating Lines of Hyperboloid of One Sheet and its Properties.
- To give information about of a General Equation of Second g degree in 3-D to Standard Forms.

Unit 1 ; Central Conicoids — Ellipsoid, Hyperboloid of one and two sheets,

Unit 2 ; tangent lines and tangent planes, Direct sphere, Normals.

Unit 3 : Generating lines of hyperboloid of one sheet and its properties.

Unit 4 ; Reduction of a general equation of second degree in three-dimensions to standard forms.

Learning Outcomes: After complition the course student would able to:

- Classify the Central Conicoids.
- Discuss the Generating Lines of Hyperboloid of One Sheet and its Properties.
- Reduction of a General Equation of Second Degree in 3-D to Standard Forms.
- Discuss the tangent lines and tangent plans.

Suggested Reading:

1. N.Saran and R.S.Gupta, Analytical geometry of Three Dimenssions, Pothishala Pvt. Ltd., Allahabad, 1992.
2. P.K. Jain and Khalil Ahmed, A Text Book of Analytical geometry of Three Dimenssions, Wiley-Eastern Ltd., 2000.
3. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, एनालिटिक ज्यामिती, आर. बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
4. जी.सी. गौखरू सैनी,, एनालिटिक ज्यामिती, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-II

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 204	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		

Botany-Paper-I :CELL BIOLOGY

Objectives:

- To distinguish between structure of cell, cell wall and plasma membrane.
- To understand the concept of cell organelles with their detailed information.
- To know the ultra structure of Nucleus and chromosome.
- To compare the different stages of cell division (mitosis and meiosis).
- To comprehend the structure and composition of chromosomes.

UNIT I: Structure of Cell, Cell wall and Plasma membrane

History of cell and cell theory, microscopy, elementary idea on micrometry and cell fractionation, characteristics of prokaryotic and eukaryotic cell, chemistry, structure and function of cell wall and plasma membrane.

UNIT II: Structure of Cell Orgenells

Ultra structure and function of Mitochondria, Chloroplast, Endoplasmic reticulum, Golgi complex, Peroxisome, Glyoxysome, Ribosome, Vacuoles.

UNIT III: Structure of Nucleus and chromosome

Detailed structure and function of Nucleus, nuclear envelope, nuclear pore complex and nucleolus. Chromatin Structure, morphology and organization of chromosomes. Special types of chromosomes - Sex chromosomes, polytene and lampbrush chromosomes.

UNIT IV: Cell cycle and Cell division

Cell cycle and Cell division: Amitosis, Mitosis: different stages, mitotic spindle and chromosome movement in detail, Meiosis I and II: different stages and its significance, cytokinesis, General account of chiasmata formation, crossing over, linkage and synaptonemal complex.

Learning Outcomes: After complition the course student would able to:

- Know the ultra structure of Nucleus and chromosome.
- Distinguish between structure of cell, cell wall and plasma membrane.
- Understand the concept of cell organelles with their detailed information.
- Know the different stages of cell division (mitosis and meiosis).
- Discuss the structure and composition of chromosomes.

Suggested Readings:

- Alberts, B., Johnson, A., Lewis, J., Roff, M., Roberts, K. and Walter, P., 2008. Molecular Biology of the Cell. Garland Publishers, New York.
- De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology. 8th edition. Lippincott Williams and Wilkins, Philadelphia.
- Gupta, P.K. 2009. Cytology, Genetics, Evolution and Plant breeding, Rastogi publication, Meerut.
- Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th Edition. John Wiley and Sons. Inc. New Jersey, USA.
- Lodish, H., Berk, A., Matsudaira, P., Kaiser, C. A., Krieger, M., Scott, P.M., Zipursky, L.and Darnell, J. 2008. Molecular Cell Biology. W. H. Freeman and company, Macmillan publishers, London.
- Roy, S.C. and De, K.K. 1999. Cell biology. New central Book Agency (P) Ltd., Calcutta.
- Verma, P.S. and Agrawal, V.K. 2012. Cell Biology, Genetics, Molecular Biology, Evolution and Ecology. S. Chand and Co. Ltd., New Delhi.

Botany-Paper-II :GENETICS AND PLANT BREEDING

Objectives:

- To know the concept of genetic inheritance
- To study the laws of Mendel
- To understand the chromosomal theory of inheritance.
- To learn about the concept of cytoplasmic inheritance.
- To understand different methods of plant breeding.

UNIT I: Genetic inheritance

Mendel's laws of inheritance- Dominancy, law of segregation, law of independent assortment, deviations from Mendel's laws; interaction of genes, incomplete dominance, codominance, lethal alleles, epistasis, pleotropy, polygenic inheritance (grain color in wheat, corolla length in *Nicotiana tabacum*) and multiple allelism: ABO blood groups in human.

UNIT II: Chromosomal inheritance

Linkage, crossing over and chromosome mapping- interrelationships and importance. Linkage maps, chromosome theory of inheritance, sex determination and sex linked inheritance. Chromosomal aberrations: deletion, duplication, inversion, translocation, aneuploidy and polyploidy. Extra nuclear genome: mitochondrial and chloroplast.

UNIT III: Genes and Mutations

Concept of gene: *Neurospora* genetics- one gene one enzyme hypothesis. Brief account on fine structure of gene in eukaryotes and prokaryotes. Mutations- types of mutations, point mutation-transition, transversion and frame shift mutation. Physical and chemical mutagens.

Cytoplasmic inheritance: Maternal influence, shell coiling in snail, Kappa particles in *Paramaecium.*

UNIT IV: Plant breeding

Introduction and objectives of plant breeding , general methods of breeding in-self-pollinated, cross pollinated and vegetative propagated crop plants : Introduction and acclimatization, selections and hybridizations, hybrid vigour and inbreeding depression, green revolution, Role of mutation and polyploidy in plant breeding, national and international agriculture research institute, famous plant breeders and their contribution (Indian and international), Plant breeding work done on wheat and rice in India.

Learning Outcomes: After complition the course student would able to:

- Undersand the concept of genetic inheritance
- Study the laws of Mendel
- Interpret the chromosomal theory of inheritance.
- Explain the concept of cytoplasmic inheritance.
- Discuss different methods of plant breeding.

Suggested Readings:

- Brooker, R. J. 1999. Genetics: Analysis and Principles. Addison-Wesley, Boston.

- Choudhary, H. K. 1989. Elementary Principle of Plant Breeding. Oxford and IBM Publishing Co., New Delhi.
- De Robertis, E. D. P. and De Robertis, E. M. F. 2006. Cell and Molecular Biology. 8th edition. Lippincott Williams and Wilkins, Philadelphia.
- Dnyansagar, V. R. 1986. Cytology and Genetics, Tata Mc Graw - Hill Pub Co. Ltd., New Delhi.
- Gardner, E. J., Simmons, M. J. and Snustad, D. P. 2008. Principles of Genetics. 8th Edition, Wiley India.
- Gupta, P. K. 2009. Cytology, Genetics, Evolution and Plant Breeding, Rastogi Publication, Meerut.
- Miglani, G. S. 2000. Advanced genetics. Narosa Publishing House, New Delhi.
- Shukla, R. S. and Chandel, P. S. 2000. Cytogenetics, Evolution and Plant Breeding, S. Chand and Co. Ltd., New Delhi.
- Singh, R. B. 1999. Text Book of Plant Breeding. Kalyani publishers, Ludhiana.
- Snustad, D. P., Simmons, M. J. 2011. Principles of Genetics. V Edition. John Wiley and Sons Inc. New Jersey USA.

Botany-Paper-III :BRYOPHYTA

Objectives:

- ❖ To acquire knowledge on bryophytes with its classification, habitat and life cycle.
- ❖ To understand habitat, structure, reproduction with life cycle of Riccia and Marchantia.
- ❖ To learn about class anthocerotopsida.
- ❖ To know about the life cycle of funeria.
- ❖ To apply the knowledge of bryophyta in daily life.

UNIT I:

Bryophytes: General characteristic, origin, evolution, classification (Eichler and Proskauer), habitat range, thallus structure, reproduction, alternation of generation and economic importance.

UNIT II:

Habitat, structure, reproduction and life cycle of the following: Hepaticopsida; *Riccia andMarchantia*.

UNIT III:

Habitat, structure, reproduction and life cycle of the following: Anthoceropsida; *Anthoceros.* Phylogenetic relationship with hepaticopsida and Bryopsida.

UNIT IV:

Bryopsida: Habitat, structure, reproduction and life cycle of *Funaria.* Sterilisationof sporogenous tissues in Bryophytes.

Learning Outcomes: After complition the course student would able to:

- ❖ Acquire knowledge on bryophytes with its classification, habitat and cycle.
- ❖ Understand habitat, structure, reproduction with life cycles of Riccia and Marchantia.
- ❖ Describe the class anthocerotopsida.
- ❖ Explain the concept of life cycle of funeria.
- ❖ Interpret the importance of bryophyte.

Suggested Readings:

- Chopra, R.N. and Kumar, P.K. 1988. Biology of Bryophytes**.** Wiley Eastern Ltd. New Delhi.
- Pandey, S.N., Mishra, S.P. and Trivedi, P.S. 1981. A text book of Botany vol. II, Vikas publishing House Pvt. Ltd, New Delhi.
- Parihar, N.S. 1965. An Introduction to Bryophyta. Central Book Depot, Allhabad.
- Puri, P. 1985. Bryophytes. Atmaram and Sons, Delhi.
- Smith, G.M. 1938. Crytogramic Botany Vol. II. Bryophytes and Pteridophytes. Mc Graw Hill Book Company, London.
- Sporne, K.R. 1967. The Morphology of Bryophytes. Hutchinson University Library, London.
- Tyagi, A.and Saxena, M. 2014. Algae, Lichens and Bryophyta, CBH, Jaipur
- Vashishta, B. R., Sinha, A. K. and Kumar, A. 2011. Botany for degree students, Bryophyta. S. Chand and Co. New Delhi.
- Watson E.V. 1971. The structure and life of Bryophytes. Hutchinson University Library, London.

BOTANY PRACTICAL II

1. Demonstration of the phenomenon of protoplasmic streaming in leaf.
2. To study chloroplast, chromoplast and leucoplast in plant material.
3. Study of Mitosis in root tip and Meiosis in flower bud from temporary and permanent slides.
4. Study the prokaryotic, eukaryotic cell and cell organelles by electron micro photographs.
5. To study the effect of organic solvent on membrane permeability.
6. Genetic problems on monohybrid, dihybrid cross, test cross and back cross.
7. Karyotype preparation.
8. Identification of chromosomes on the basis of their size and centomere position.
9. Pedigree analysis for dormant and recessive autosomal and sex linked traits.
10. Study of Barr body in epithelial cells of females.
11. Study of habit, habitat, vegetative thallus organization and structure, reproductive structures of the following taxa through temporary mounts and permanent slides:
12. *Riccia, Marchantia, Anthocero and Funaria.*

Semester-II

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Practical	Total
BSC 205	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		

Zoology-Paper-I :Developmental Biology

Objectives

- To describe how organisms maintain gametic population.
- To understand fertilization process.
- To understand way of cleavage and different patterns to form zygote.
- To understand the fundamental embryonic development.
- To understand the complete process of formation of germ layers.

UNIT-I

1.1 History of embryology and Types
1.2 Gametogenesis: Spermatogenesis, Structure of sperm, Oogenesis, Structure of egg, Types of eggs

UNIT-II

2.1 Fertilization-Type of Fertilization, Process of Fertilization
2.2 Parthenogenesis
2.3 Planes and Patterns of cleavage, Blastulation, Gastrulation,

UNIT-III

3.1 Concept of embryonic induction; Primary organizers differentiation and competence.
3.2 Extra embryonic membranes, Type and physiology of Placenta
3.3 Structure of hen's egg, Development of chick up to 96 hrs stage.

UNIT-IV

4.1 Stem cells: Sources, types and their use in human welfare; Cloning
4.2 Elementary Idea of Teratogenesis
4.3 Ageing and Sencescence, IVF, Embryo transfer-Test tube babies, GIFT, ZIFT and Bioethics

Learning Outcomes: After complition the course student would able to:

- Describe the process of: Gametogenesis, Fertilization and early development, Parthenogenesis
- Understand the concept of embryonic induction: primary organizer and competence, Developmental stages of chick (upto 96 hours).
- Discuss for the extra embryonic membranes.
- Discuss for the placenta
- Describe of stem cell

Zoology-Paper-II : Genetics

Objectives

- To describe how the behavior of chromosomes during meiosis can explain mendal law.
- To understand how inheritance patterns are affected by position on chromosomes.
- To understand the similarities and differences between how genetic information is passed on in prokaryotes and eukaryotes.
- To understand gene interactions.
- To classify the sex determination in human.

Unit – I

1.1 Mendelism: Brief history of Genetics and Mendel's work, Mendelian Laws, their significance and current status

1.2 Genetic Interactions- Epistasis-dominant and recessive, codominance, incomplete dominance, complementary, supplementary, inhibitory, duplicate and Lethal genes

1.3 Multiple Allelic interactions: Inheritance of blood group and Rh factor

Unit –II

2.1 Linkage and crossing over: Basic concept, types and theories, elementary idea ofChromosome mapping

2.2 Sex determination – ZZ, XY, XO, ZW pattern, Sex determination in Human,

Unit – III

3.1 Chromosomes Number, size, shape, type structure, Lampbrush chromosomes,

3.2 Cytoplasm inheritance: Kappa particles in Paramecium, Chloroplast Genetics, Cytoplasmic Inheritance in chlamydomonas

Unit –IV

4.1 Disorders related to chromosomal number- Turner syndrome, Klinefelter's syndrome and Down's syndrome

4.2 Elementary idea of Thalassemia, Sickle Cell Anaemia, Diabetes mellitus

Learning Outcomes: After complition the course student would able to**:**

- Understand the Mendelism & Multiple allelism.
- Understand the concept of gene & gene interaction, and Sex- linked Inheritance.
- Describe the Blood Group, RH Factor .
- Interpret the terms Chromosome , Thalassemia,Sickle cell anemia
- Describe in sex determination in human

Zoology-Paper-III : Molecular Biology

Objectives

- To Understand about the genetic material (Nucleic acids) and DNA replication.
- To Understand about various types of RNA and process of Transcription & Translation.
- To describe the Genetic Code, and protein synthesis.
- 4.To classify the bacterial DNA structure
- To describe the nucleolus structure and function

Unit – I

1.1 Interphase Nucleus: Organization, Ultrastructure and functions of Nucleus, Pore Complex, Nuclear Membrane

1.2 Nucleolus: Structure and functions

1.3 Chromosome: Ultrastructure and types, Chromosomal Organisation: Nucleosome Model, Solenoid Model,

1.4 Giant chromosomes: Lamp-brush and Polytene chromosome

Unit - II

2.1 1DNA: Structure of DNA, Polymorphism of DNA (A, B, C, D and Z)

2.2 RNA: Structure of RNA, types of RNA, RNA as a genetic material

Unit - III

3.1 DNA replication: Meselson and Stahl experiments, Mechanism of replication –origin of replication, concept of replication, directionality of replication, Role of enzymes in replication

3.2 Bacterial DNA Structure

3.3 Replication in Bacterial DNA

Unit IV

4.1 Genetic code: Characteristics of genetic code, Wobble hypothesis

4.2 Protein synthesis: Central Dogma; Transcription Mechanism in Prokaryotes, Transcription in Eukaryotes, Enzymes and factors of transcription;

4.3 Protein Synthesis: Elementary idea of the mechanism of translation

Learning Outcomes: After complition the course student would able to:

- Understand about the genetic material (Nucleic acids) and DNA replication.
- Interpret about various types of RNA and process of Transcription & Translation.
- Understand the Genetic Code, and protein sysnthesis.
- Describe the bacterial DNA structure
- Discuss the nucleolus structure and function

Zoology --Practical Based on paper I, II and III

Paper-I: Developmental Biology

1. **Study of development of chick with the help of**
   a. Whole mounts: 18 Hours (Primitive streak stage), 21 hrs, 24 hours, 33 hrs, 48 hours 72 hours and 96 hours.
   b. Study of the embryo at various stages of incubation in vivo by making a window in egg shell.

Paper-II: Genetics

1. Life cycle of Drosophila; Identification of male and female drosophila;. Study of mutants in Drosophila (Bar eye, white eye, yellow body, sepia eye, curled wing, vestigial wing)
2. Identification of blood groups & Rh. Factor

Paper-III: Moleculor Biology

1. Demonstration of salivary gland chromosome in Chironomous larva
2. Use of colchicine in arresting anaphase movement (onion root tips)
3. Study of cell permeability using mammalian RBCs.

Suggested Readings:

1. Genetics; Winchester, A. M.; Oxford and IBH Publishing Co.
2. Cell and Molecular Biology; De Robertis and De Robertis; Saunders College.
3. Genetics; Strickberger W. M.; Prentice Hall of India.
4. Cell Biology; Powar, C.B; Himalayan Publishing House.
5. Principles of Genetics; Gardener, E. J.;Wiley eastern, New Delhi.
6. A Textbook of Genetics; Rastogi, V.B.; Ramnath and Kedarnath
7. Molecular Biology of the gene; Watson, J.D; Benzamin/ Cummings.
8. Biochemistry; Voet &Voet; John Wiley & Sons.
9. Cytology and Genetics. Dyansagar, C.R. Tata McGraw Hill Publ. Co. New Delhi.
10. Cell Biology : Dyson, R.D. Allen and Bacon, New York.
11. Cell Biology. Rastogi S.C. : Tata McGraw Hill Publ. Co. New Delhi.
12. Cell Biology and Genetics. Kohli, S. jain, S. and Ramesh Book Depot. Jaipur.
13. Cytology : Verma, P.S. and Agrawal V.K : S.Chand and Co. New Delhi.
14. Genetics. Verma, P.S. and Agrawal V.K. S.Chand and Co., New Delhi.
15. Cell Biology and Genetics; Kohli, K.S;Ramesh Book Depot
16. Genetics; Winchester, A.M; Oxford and IBH Publishing Co.
17. Cell and Molecular Biology; De Robertis and De Robertis; Saunders College.
18. Genetics; Strickberger; Macmillan, Prentice Hall of India.
19. Cell Biology; Powar, C.B; Himalayan publishing House.
20. Principles of Genetics; Gardener, E,J; Wiley eastern, New Delhi.
21. A Textbook of Genetics; Rastogi, V.B.; Ramnath & Kedarnath.
22. Cell and Molecular Biology; Gerald Karp; John Wiley and Sons,inc
23. Molecular Biology of the cell; Bruce Alberts, Julian Lewis, James D.Watson; Garland Publishings
24. Textbook of Zoology; Shivapuri, Jacob, D. and Vyas, D.K.; Ramesh Book Depot.
25. Zoology: Storer, T.I. and Using, K.L.: Tata McGraw Hill Publishing Co., New Delhi.
26. D. Reinhold, New York (Indian repring : Affiliated East West Press, New Delhi.)
27. Student Text Book of Zoology. Vol.I.II and III. Sedgwick.A.
28. Text book of Zoology. Parker, T.J., Haswell. W.A.Macmillan Co., London.
29. Gilbert, S. T. (2000). Developmental biology, 6th ed. *Sinauer, Sunderland*.
30. Hoar, W. S. (1983). General and comparative physiology. *Prentice Hall*.
31. Prosser, C. L. Comparative animal physiology.
32. Saunders, J. W. Developmental biology: Patterns/Principles/Problems. MacMillan Publ.
33. Wilson, J. A. Principles of animal physiology. Collins MacMillan Publ.

34. Sandhu. T. B. of Embryology
35. Armugam. T. B. of Embryology
36. Pattern. Early Embryology of Chick
37. Verma & Agrawal. Chordate Embryology
38. Tomar. Chordate Embryology
39. Asha Sharma, Chetan K. Sharma, Development Biology, R.B.D. Publishing House, Jaipur
40. K.V. Shastri, Vinita Sukhla, 2014, Development Biology, Rastogi Publication, Meerut, Delhi
41. S.K. Sharma, 2015, Micro Biology & Bio-technology,College Book Center, Jaipur

Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 301	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		

Chemistry-Paper-I :inorganic chemistry

Objectives:

- To develop the conceptual knowledge of acid and bases.
- To aware about the classification of acids, non aquous solvents and separation methods.
- To give information about various characteristics & laws realed to hard and soft acid and bases.
- To acquaint the knowledge of principles and purifying process for various solvents.

Unit I : Acids and Bases

Arrhenius (Water- ion system), Bronsted- Lowry (The proton donor acceptor system), The Lux-Flood (oxide ion concept), Lewis concepts of acids and bases (The electron donor acceptor concept) and solvent system and solvolysis, ionic product of solvent, limitations of solvent system.

Unit II : Hard and soft acids and bases (HSAB)

Classification of acids and bases as hard and soft. Pearson's HSAB concept, acid- base strength and hardness and softness, symbiosis, theoretical basis of hardness and softness, electronegativity and hardness and softness, limitations of HSAB.

Unit III : Non-aqueous solvents

Physical properties of solvent, types of solvent and their general characteristics, reactions in non-aqueous solvents with reference to liq. NH_3 and liq. SO_2

Unit IV : Seperation methods and Analysis Process

Principles and process of solvent extraction, the distribution law and partition coefficient, batch extraction, continuous extraction and counter current distribution, Gravimetric methods, theory of precipitation, co-precipitation, post precipitation, theory of purifying the precipitates.

Learning Outcomes: After complition the course student would able to:

- Differentiate between the various types of acid and bases.
- Describe the rules and principles related to explain the properties of non aqueous solvents.
- Apply the rules of separation and purification to extract various impurities.
- Explain the general characteristics and types of solvents.

Chemistry-Paper-II :Organic chemistry

Unit I : Alcohols

Classification and nomenclature. Monohydric alcohols- Methods of formation by reduction of aldehyde, ketones, carboxylic acids and esters. Hydrogen bonding, acidic nature, reaction of alcohols. Dihydric alcohols- methods of formation, chemical reactions of vicinal glycols, oxidation cleavage [Pb(OAc)4 and HIO4] and pinacol- pinacolone rearrangement. Trihydric alcohols- methods of formation, chemical reactions of glycerol.

Unit II : Phenol

Nomenclature, structure and bonding, preparation of phenols, physical properties and acidic character. Comparative acidic strength of alcohols and phenols, resonance stabilization of phenoxide ion, reaction of phenols, electrophilic aromatic substitions, acylations and carboxylation. Mechanisms of Fries rearrangement, Claisen rearrangement. Gattermann synthesis, Hauben- Hoesch reaction, Lederer Manasse reaction and Reimer Tiemann reaction.

Unit III : Aldehyde and ketones

Nomenclature and structure of the carbonyl group. Synthesis of aldehyde and ketones with particular reference to the synthesis of aldehydes from acid chlorides, synthesis of aldehyde and ketones using 1, 3 dithianes, synthesis of ketones from nitriles and from carboxylic acids. Physical properties. Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, perkin and Knovenagel condensations, condensation with ammonia and its derivatives. Wittig reaction, Mannich reaction, use of acetals as protecting group, oxidation of aldehyde and ketones, Cannizzaro reaction, Bayer Villiger oxidation of ketones, MPV, Clemmensen's reduction, Wolf Kishner reduction, $LiAlH_4$ and $NaBH_4$ reduction, Halogenation of enolizable ketones.

Unit IV : Ethers and epoxides & Organic synthesis via Enolates

Nomenclature of ethers and methods of their formation, physical properties, chemical reactions- cleavage and auto oxidation, Ziesel 's method. Synthesis of epoxides. Acid and base- catalyzed ring opening of epoxides, orientation of epoxide ring opening; reactions of Grignard and organolithium reagents with epoxides.

Acidity of α hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethylacetoacetate; The Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate. Alkylation of 1,3- dithianes, alkylation and acylation of enamines.

Objectives:

- To develop knowledge about classification & nomenclature of organic compounds.
- To aware about the chemical reactions, mechanism and properties of alcohol & ethers.
- To develop understading the proper use of various laws related to synthesis and catalyzing process.
- To explain the various reactions on the basis of their mechanism.

Chemistry-Paper-III :Physical chemistry

Learning outcomes: After complition the course student would able to:

- Calssify the various organic compounds on the basis of mechanism and structure.
- Apply the knowledge of processing derivatives for synsthesize various products.
- Describe and discuss about technical terminology related to alcohols, ketones & ethers ec.
- Explain different methods of formation according to chemical reactions.

Unit I : Thermodynamics-I & First law of thermodynamics

Definition of thermodynamics terms: systems, surroundings etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamics process. Concept of heat and work.

Statement, definition of internal energy and enthalpy. Heat capacity. Heat capacities at constant volume and pressure and their relationship. Joule law-Joule Thomsan co-efficient and inversion temperature. Calculation of w,q,dU &dH for the expansion of ideal gases under isothermal and adiabatic condition for reversible process.

Unit II : Themochemistry

Standard state, standard enthalpy of formation- Hess`s Law of heat summations and its applications, Heat of reaction at constant pressure and constant volume. Enthalpy of neutralization. Bond dissociation energy and its calculation from thermo-chemical data, temperature dependence of enthalpy. Kirchhoff's equation.

Unit III : Electrochemistry I

Electrical transport- conduction in metals and in electrolyte solutions, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of equivalent and specific conductance with dilution. Migration of ions and Kohlrausch law, Arrhenius theory of electrolyte dissociation and its limitations, weak and strong electrolytes. Ostwald dilution law its uses and limitations.

Debye Huckel– Onsager`s equation for strong electrolytes (elementary treatment only). Transport number, definition and determination by Hittorf method and moving boundary method. Application of conductivity measurements; determination of degree of dissociation, determination of Ka of acids, determination of solubility product of a sparingly soluble salt, condutometric titrations.

Unit IV : Chemical equilibrium

Equilibrium constant and free energy. Thermodynamic derivation of law of mass action. Le- Chatelier`s principle. Reaction isotherm and reaction isochore – Clapeyron equation and Clausious- Clapeyron equation, application

Learning Outcomes: After complition the course student would able to:

- Calculate and measure equivalent conductance, bond energy and thermo chemical data.
- Differentiate among intensive and extensive properties of system according to thermodynamics.
- Plot and interpret graph, equations and interrelationship related to volume, pressure and heat energy.
- Describe various phenomenon of thermodynamics, thermochemistry and electrochemistry.
- Measure thermo chemical data, enthalpy, solubility and equilibrium constant etc

.

Practicals

Inorganic Chemistry

Preparation of standard solutions

Dilution 0.1M to 0.001M solutions

Gravimetric analysis:(Any One)

i) Analysis of Cu as CuSCN ,

ii) Analysis of Ni as Ni (dimethylglyoxime) and

iii) Analysis of Zn as Zn3(PO4)2

Organic Chemistry

Qualitative Analysis : Identification of two organic compound through the functional group analysis, determination of melting point/boiling point and preparation of suitable derivatives of any one.

Suggested Reading:

1. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
2. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
3. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
4. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
5. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
6. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
7. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
8. अकार्बनिक रसायन, सुरेश आमेटा, उमा शर्मा, पी.के. शर्मा, मुकेश मेहता, हिमांशु पब्लिकेशन्स, उदयपुर
9. अकार्बनिक रसायन, जी.के. रस्तोगी, यशपाल सिंह, कॉलेज बुक हाऊस, जयपुर
10. प्रायोगिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाऊस, जयपुर

Semester-III

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Practical	Total
BSC 302	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		

Physics-Paper-I:Statistical And Thermodynamical Physics-I

Objectives:

- To aware general thermo-dynamical interaction.
- To develop concept about carnot's engine and Maxwell relation.
- 3 To apply the concepts production of low temperature.
- 4. To apply the concepts of low temperature.

UNIT I General Thermo-dynamical Interaction:

Thermal interaction; Zeroth law of thermodynamics Helmholtz free energy; Adiabatic interaction and enthalpy; General interaction and first law of thermodynamics; Infinitesimal general interation; Gibb's free energy and Phasetransitions. Clausius-Clapeyron equation; Vapour pressure curve.

UNIT II Carnot's Engine and Maxwell Relation:

Heat engine and efficiency of engine, Carnot,s Cycle; Thermodynamic scale as an absolute scale; Maxwell relationsand their applications.

UNIT III Production of Low Temperature:

Joule Thomson expansion and J.T. coefficients for ideal as well as Vander Waal's gas. Porous plug experiment,Temperature inversions. Regenerative cooling and cooling by adiabatic expansion and demagnetization.

UNIT IV Application of Low Temperature:

Liquid Helium, He I and He II, super fluidity, quest for absolute zero. Nernst heat theorem. Qualitative Discussionof Superconductivity.

Learning Outcomes: After complition the course student would able to:

- Identify and describe the statistical nature of concepts and laws in thermodynamics, in particular: entropy, temperature, chemical potential, Free energies, partition functions.
- Use the statistical physics methods, such as Boltzmann distribution, Gibbs distribution, Fermi-Dirac and Bose-Einstein distributions to solve problems in some physical systems.
- Apply the concepts and principles of black-body radiation to analyze radiation phenomena in thermodynamic systems.
- Apply the concepts and laws of thermodynamics to solve problems in thermodynamic systems such as gases, heat engines and refrigerators etc.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, उष्मा गतिकी एवं सांख्यकीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics-Paper-II:Optics –I

Objective

- To give information about geometrical optics.
- To aware about the lenses and these properties.
- To develop concept about the interference.
- To give information about polarization and types of polarization.

UNIT-I Geometrical Optics:

Fermat's principle, Laws of reflection and refraction from Fermat's principle, refraction at a spherical surface.Axial, lateral, angular magnification and their interrelationship; Abbe's Sine condition for spherical surfaces;

UNIT-II Lenses:

Refraction through a thick and thin lenses and its Focal length , Focal length of two thin lenses separated by adistance, Cardinal points of a co-axial lens system, properties of cardinal points; construction of image usingcardinal points.

UNIT-III Interference:

Young's double slit experiment, temporal and spatial coherence, coherence length, Division of amplitude,Interference in thin films, colour in thin films. Wedge shaped film, Newton rings and determination of wavelengthand refractive index by Newton ring. Michelson Interferometer, Measurement of wavelength and refractive index byMichelson Interferometer.

Unit-IV Polarization:

Polarization states of electromagnetic (EM) waves, reflection and refraction of plane EM wave at plane dielectricsurface, boundary conditions, derivation of Fresnel's relations. Huygen's theory, Theory of double refraction usingFresnal's ellipsoidal surface (no mathematical derivation). Production and analysis of plane, circularly andelliptically polarized light, quarter and half wave plates.

Learning Outcomes: After complition the course student would able to:

- Gain knowledge on various theories of light
- Acquire skills to identify and apply formulas of optics and wave physics
- Classify the properties of light like reflection, refraction, interference, diffraction etc
- Applies the diffraction and polarization.
- Classify the theory of double refraction.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, प्रकाशिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics-Paper-III:Electronics& Solid State Devices –I

Objectives:

- To give information about circuit analysis.
- To aware about the network theorems.
- To develop concept about the semiconductor.
- To give information about rectifiers and voltage regulation.

UNIT-I Circuit Analysis:

Network-some important definitions, loop and nodal equation based on DC and AC circuits (Kirchhoff's Laws),Four terminal network parameters; Current volt conventions, Open circuit, short circuit and hybrid parameters ofany four terminals network. Input, Output and mutual impendence for an active four terminal network.

UNIT – II Network Theorems:

Superposition, Thevenin, Norton, Reciprocity, Compensation and maximum power transfer and miller theorems.

UNIT – III Semiconductors:

Intrinsic and extrinsic semiconductors, charge densities in N and P materials, conduction by drift and diffusion ofcharge carriers. PN diode equation, capacitance effects. Nature of charge carriers by Hall effect and Hall coefficient.Zener Diode, tunnel diode, photovoltaic effect.

UNIT – IV Rectifiers and Voltage Regulation:

Half-wave, full wave and Bridge rectifiers, Calculation of ripple factor, efficiency and regulation. Filters: shuntinductors, shunt capacitor, L sections and π sections filters. Voltage regulation and voltage stabilization by Zenerdiode, Voltage multiplier circuits.

Learning Outcomes: After complition the course student would able to:

- Applies the kirchhoff's law (first and second) and circuit analysis.
- Calculate the network theorem (superposition, thevenin, reciprocity, compensation, maximum power transfer and miller theorems).
- Discuss the concept of the semiconductor, type of semiconductor, zener diode and hall effect.
- Identify the concept of rectifiers, voltage regulation, various type of filter.
- Calculation of ripple factor, efficiency and regulation

.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, इलेक्ट्रोनिकी एवं ठोस प्रावस्था युक्तियां, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics Practical: III

1. Study of dependence of velocity of wave propagation on line parameter using torsional wave apparatus.
2. Study of variation of reflection coefficient on nature of termination using torsional wave apparatus.
3. Using Platinum resistance thermometers find the melting point of a given substance.
4. Using Newton's rings method find out the wave length of a monochromatic source and find the refractiveindex of liquid.
5. Using Michelson's interferometers find out the wavelength of given monochromatic source (Sodium light).
6. To determine dispersive power of prism.
7. To determine wave length by grating.
8. To determine wave length by Biprism.
9. Determine the thermodynamic constant using Clements & Desorme's method.
10. To determine thermal conductivity of a bad conductor by Lee's method.
11. Determination of ballistic constant of a ballistic galvanometer.
12. Study of variation of total thermal radiation with temperature
13. To study the Specific rotation of sugar solution by polarimer.
14. Any experiment according to theory paper.

Suggested Reading :

1. प्रभा दशोरा, द्वितीय वर्ष, प्रायोगिक भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 303	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		

Mathematics-Paper-I :Real Analysis

Objectives:

- To aware the Real Numbers as Complete Ordered Field, Closed & opened Sets.
- To gain knowledge about the Cauchy's Sequences, SuBSCquences.
- To develop knowledge about the Notion of Limit & Continuity for Functions of Two Variables.
- To develop concept about the properties of continuous function on close intervals.

Unit 1: Real numbers as complete ordered field, Limit point, Bolzano-Weierstrass theorem, Closed and Open sets, Union and Intersection of such sets. Concept of compactness. Heine-Borel theorem. Connected sets. Real sequences- Limit and Convergence of a sequence, Monotonic sequences.

Unit 2: Cauchy's sequences, Subsequences, Cauchy's general principle of convergence.

Unit 3 ; Properties of continuous functions on closed intervals. Properties of derivable functions, Darboux's and Rolle's theorem.

Unit 4: Notion of limit and continuity for functions of two variables. Riemann integration — Lower and Upper Riemann integrals, Riemann integrability, Mean value theorem of integral calculus, Fundamental theorem of integral calculus,

Learning Outcomes: After complition the course student would able to:

- Applies the Real Numbers as Complete Ordered Field, Closed & opened Sets.
- Calculate the Cauchy's Sequences, SuBSCquences.
- Discuss the Properties of Continuous Functions on Closed Intervals.
- Classify the Notion of Limit & Continuity for Functions of Two Variables.
- Interprets the fundamental theorem.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, रियल एनालिसिस, आर. बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, रियल एनालिसिस, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics-Paper-II : Differential Equations I

Objectives

- To give information about Degree& Order of a Differential Equation.
- To aware Linear Equation & Exact Differential Equation.
- To develop concept of the 1st Order but Higher Degree Differential Equation Solve for x,y &p.
- To develop knowledge about the Homogeneous Linear Differential Equations.

Unit 1: Degree and order of a differential equation. Equations of first order and first degree. Equations in which the variables are separable. Homogeneous equations and equations reducible to homogeneous form.

Unit 2; Linear equations and equations reducible to linear form. Exact differential equations and equations which can be made exact.

Unit 3: First order but higher degree differential equations solvable for x,y and p. Clairaut's form and singular Solutions with Extraneous Loci. Linear differential equationS with constant coefficients, Complimentary function and Particular integral.

Unit 4 : Homogeneous linear differential equations, Simultaneous differential equations.

Learning Outcomes: After complition the course student would able to:

- Calculate Degree& Order of a Differential Equation.
- Differentiate between Linear Equation & Exact Differential Equation.
- Calculate the 1st Order but Higher Degree Differential Equation Solve for x,y&p.
- Discuss on the Homogeneous Linear Differential Equations.
- Discuss on the linear differential equation constant coefficients.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी,अवकलन समीकरण, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, अवकलन समीकरण, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics-Paper-III : Numerical Analysis

Objectives:

- To aware Relation b/w Differences and Derivatives .
- To Understand the Divided Differences by Newton's .
- To give knowledge about the Stirling's and Bessel's Interpolation Formulae.
- To develop concept of Numerical Integration .

Unit 1: Differences. Relation between differences and derivatives. Differences of a polynomial. Newton's formulae for forward and backward interpolation.

Unit 2 ; Divided differences. Newton's divided difference, Lagrange's interpolation formula.

Unit 3: Central differences.Gauss's, Stirling's and Bessel's interpolation formulae. Numerical Differentiation. Derivatives from interpolation formulae.

Unit 4 ; Numerical integration, Derivations of general quadrature formulas, Trapazoidal rule. Simpson's one-/ third, Simpson's three-eighth and Gauss's quadrature formulae.

Learning Outcomes: After complition the course student would able to:

- Calculate Relation b/w Differences and Derivatives .
- Discuss on the Divided Differences by Newton's .
- Applies the Stirling's and Bessel's Interpolation Formulae.
- Identify the concept of Numerical Integration.
- Applies the trapezoidal rule.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, संख्यात्मक विश्लेषण, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, संख्यात्मक विश्लेषण, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-III

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Practical	Total
BSC 304	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		

Botany-Paper-I :Molecular Biology

Objectives:

- To know the concept of genetic material
- To understand the structure of DNA with its model
- To get knowledge about the concept, types and process of DNA replication
- To understand the concept of transcription and Translation
- To learn about the regulation of gene expression

UNIT I: Genetic Material

- Biological, Chemical and physical Nature of Heredity material.
- Structure of DNA, WATSON & Crick model of DNA, Nuclcosome model.
- Structure and types of RNAs (mRNA, tRNA adr RNA)

UNIT –II DNA Replication

- Concept, Types and process of DNA Replication.
- Staht experiment of semiconservative replication of DNA
- Okazaki fragments, DNA Polymerases, DNA protein interaction.
- Preliminary account of DNA damage and repair.

UNIT-III Transcription and Translation

- Transcription in Eukaryotes, role of promoters, RNA Polymerases, Pre RNA synthests, pre RNA Processing, copping, splicing and polyadenylation.
- Translation in Eukaryotes, Genetic code (Initiation, Elongation and Termination.)

UNIT-IV Regulation of Gene Expression

- Regulation in Gene expression in prokaryotes and Eukaryotes,
- Negative and Positive control.
- Attenuation and Antitermination.
- Reverse Transcription and its application.

Learning Outcomes: After complition the course student would able to:

- Explain the concept of genetic material
- Understand the structure of DNA with its model
- Describe the concept, types and process of DNA replication
- Differentiate the transcription and Translation
- Interpret the regulation of gene expression

Suggested Readings:

1. Becker, W.M., Kleinsmith, L.J., Hardin, J. and Bertoni, G. P. 2009. The World of the Cell. 7th Edition. Pearson Benjamin Cummings Publishing, San Francisco.
2. Brown, T. A. 2010. Gene cloning and DNA analysis: An Introduction. Blackwell Publication, USA.
3. Buchanan, B., Gruissem, W. and Jones, R. 2000. Biochemistry and Molecular Biology of Plants. American Society of Plant Biologists., USA.
4. Chrispeel, M.J. and Sadava, D.E. 1994. Plants, Genes and Agriculture. Jones and Barlett Publishers, USA.
5. Cooper, G.M. and Hausman, R.E. 2009. The Cell: A Molecular Approach. 5th edition. ASM Press and Sunderland, Washington, D.C. Sinauer Associates, MA.
6. De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology 8th edition. Lippincott Williams and Wilkins, Philadelphia.

7. Glick, B.R. and Pasternak, J.J. 2003. Molecular Biotechnology: Principles and Applications of recombinant DNA. ASM Press, Washington.
8. Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th edition. John Wiley and Sons. Inc. New jersey, USA.
9. Mascarenhas, A.F. 1988. Hand book of Plant tissue culture. Publication and information. Div., ICAR, New Delhi.
10. Purohit, S.S. and Mathur, S.K. 1996. Biotechnology Fundamental and Application. Agro Botanical Publisher, Bikaner.
11. Razdan, M.K., 1993. An introduction to Plant tissue culture. Publication and Information Div., ICAR, New Delhi.
12. Rana, S.V.S. 2012. Biotechnology theory and practice. (Third Ed.) Rastogi Publication, Meerut.
13. Rastogi, V.B. 2008. Fundamentals of Molecular Biology.Ane Books, Meerut, India.
14. Smith, R. H. 2000. Plant Tissue Culture: Techniques and Experiments. 2nd edition, Academic Press, USA.
15. Upadhyaya, A. and Upadhayaya, K. 2005. Basic Molecular Biology. Himalaya Publishers. New Delhi.

Botany-Paper-II :Biotechnology

Objectives:

- To know the whole concept of Biotechnology
- To distinguish between morphogenesis and micro propagation
- To aware about the mechanism of plant tissue culture.
- To learn about the isolation, culture and somatic cell hybridization
- To acquire knowledge about recombinant DNA technology and PCR technique.
- To understand the introduction, process of transgenic plants.

UNIT I: Biotechnology and Plant tissue culture

Biotechnology: Functional definition. Basic aspects of Plant tissue culture, Basal medium, Media preparation and aseptic culture technique. Concept of cellular totipotency, Differentiation and morphogenesis and Micropropagation.

UNIT II: Protoplast, Anther and Embryo culture

Protoplast isolation, culture and Somatic cell hybridization, Anther culture , Embryo culture and their Applications, Applications of Plant tissue culture,

UNIT III:Recombinant DNA technology

Techniques used in rDNA technology. Restriction enzymes. Vectors for gene transfer. Plasmids and Cosmids. Genomic and c-DNA library, Polymerase Chain Reaction (PCR), Applications of PCR technique, DNA Finger Printing.

UNIT IV: ,**Transgenic plants**

Introduction , Process of production of transgenic plants, types of transgenic plants ,
Application of transgenic plants and Biotechnology

Learning Outcomes: After complition the course student would able to:

- Comprehend the concept of Biotechnology
- Distinguish between morphogenesis and micro propagation
- Describe the role of plant tissue culture.
- Explain the isolation, culture and somatic cell hybridization
- Acquire knowledge about recombinant DNA technology and PCR technique.
- Interpret the transgenic plants.

Suggested Readings:

1. Becker, W.M., Kleinsmith, L.J., Hardin, J. and Bertoni, G. P. 2009. The World of the Cell. 7th Edition. Pearson Benjamin Cummings Publishing, San Francisco.
2. Brown, T. A. 2010. Gene cloning and DNA analysis: An Introduction. Blackwell Publication, USA.
3. Buchanan, B., Gruissem, W. and Jones, R. 2000. Biochemistry and Molecular Biology of Plants. American Society of Plant Biologists., USA.
4. Chrispeel, M.J. and Sadava, D.E. 1994. Plants, Genes and Agriculture. Jones and Barlett Publishers, USA.
5. Cooper, G.M. and Hausman, R.E. 2009. The Cell: A Molecular Approach. 5th edition. ASM Press and Sunderland, Washington, D.C. Sinauer Associates, MA.
6. De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology 8th edition. Lippincott Williams and Wilkins, Philadelphia.
7. Glick, B.R. and Pasternak, J.J. 2003. Molecular Biotechnology: Principles and Applications of recombinant DNA. ASM Press, Washington.
8. Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th edition. John Wiley and Sons. Inc. New jersey, USA.

9. Mascarenhas, A.F. 1988. Hand book of Plant tissue culture. Publication and information. Div., ICAR, New Delhi.
10. Purohit, S.S. and Mathur, S.K. 1996. Biotechnology Fundamental and Application. Agro Botanical Publisher, Bikaner.Razdan, M.K., 1993. An introduction to Plant tissue culture. Publication and Information Div., ICAR, New Delhi.
11. Rana, S.V.S. 2012. Biotechnology theory and practice. (Third Ed.) Rastogi Publication, Meerut.
12. Rastogi, V.B. 2008. Fundamentals of Molecular Biology.Ane Books, Meerut, India.
13. Smith, R. H. 2000. Plant Tissue Culture: Techniques and Experiments. 2nd edition, Academic Press, USA.
14. Upadhyaya, A. and Upadhayaya, K. 2005. Basic Molecular Biology. Himalaya Publishers. New Delhi.

Botany-Paper-III :Plant Physiology I

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.**Objectives:**

- To understand structure, properties, components and phenomenon of water
- To know about different theories related to water absorption.
- To learn about Nitrogen and phosphorous cycle
- To get knowledge about concept and process of photosynthesis and respiration.
- To distinguish Aerobic and anaerobic pathways

.

UNIT I: Water

Structure and properties of water, osmosis, water potential and its components, absorption of water, root pressure, pathway of water movement; concepts of symplast and apoplast. Ascent of sap, mechanism of stomatal movements, factor affecting transpiration, it's theories, mechanism and significance, antitranspirants and guttation.

UNIT II: Mineral Nutrition

Transport of ions across cell, mechanism of active and passive transport, translocation of, macro and micro nutrients; role of essential nutrients in plant metabolism and their deficiency symptoms. Outline of Nitrogen and phosphorus cycle. Transamination and deamination.

UNIT III: Photosynthesis

Photosynthesis, discovery and structure of pigments (chlorophyll and accessory pigment) ,light harvesting units, law of limiting factors. Light reaction- photophosphorylation- (cyclic and non cyclic), dark Reaction- Calvin and Benson cycle, Hatch and Slack pathway, Crassulacean acid metabolism and photorespiration.

UNIT IV: Respiration

Respiration: Aerobic and anaerobic, glycolysis, tricarboxylic acid cycle, oxidative phosphorylation, and factors affecting oxidative processes, pentose phosphate pathway, fermentation.

Learning Outcomes: After complition the course student would able to:

- Understand structure, properties, components and phenomenon of water
- C out different theories related to water absorption.
- Explain the Nitrogen and phosphorous cycle
- Get knowledge about concept and process of photosynthesis and respiration
- Distinguish Aerobic and anaerobic pathways

Suggested Readings:

1. Hopkins, W.G. and Huner, P. A. 2008. Introduction to Plant Physiology**.** John Wiley and Sons, USA.
2. Jain, V.K. 2013. Fundamental of Plant Physiology. S. Chand and Company Ltd., New Delhi.
3. Malik, C. P. and Srivastava A.K. 1982. Text book of Plant Physiology. Kalyani publication, New Delhi.

4. Mukherjee S., Ghosh A. K. 2006. Plant Physiology. New Central Book Agency, Calcutta.
5. Parashar, A. N. and Bhatia, K. N. 1985. Plant Physiology. Trueman Book Company, New Delhi.
6. Sinha, R. K. 2007. Modern Plant Physiology. 2nd Edition Tata McGraw, New Delhi.
7. Taiz, L. and Zeiger, E. 2006. Plant Physiology. 4th Edition, Sinauer Associates Inc. Publishers, Massachusetts, USA.
8. Verma, S. K. and Verma, M. 2000. A Text book of Plant Physiology, Biochemistry and Biotechnology. S. Chand and co. Ltd., New Delhi.
9. Verma, V. 2007. Text Book of Plant Physiology. ANE Books, India.

BOTANY PRACTICAL III

1. To determine the water potential of given plant material.
2. Demonstration of phenomenon of osmosis using potato osmometer.
3. Demonstration of phenomenon of plasmolysis.
4. To study the permeability of plasma membrane using different concentration of organic solvents.
5. To study the effect of temperature on permeability of plasma membrane.
6. To demonstrate root pressure.
7. Study of effect of temperature on rate of transpiration.
8. Study of transpiration rate in dorsiventral and isobilateral leaves by use of potometer.
9. Study of the mechanism of stomatal opening and closing.
10. Rate of photosynthesis under varying HCO_3 concentration in an aquatic plant using bicarbonate (Wilmott and Bubbler).
11. Demonstration of O_2 evolution during photosynthesis by inverted funnel method.
12. To study that light is necessary for photosynthesis by using ganong screen.
13. To demonstrate of anaerobic and aerobic respiration.
14. To study that $C_{O2,}$ light and chlorophyll is essential for photosynthesis (Moll's half experiment).
15. Study C3 andC4 plant with the kranz anatomy.
16. To study the R.Q. by Ganong's respirometer.

Semester-III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 305	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		

Zoology-Paper-I: Life and Diversity of animals – Chordata- I

Objectsives:

- To explain what the vertebrates are.
- To understand the general characters of each class of vertebrates.
- To understand the origin and evolutionary relationship in different classes of vertebrates.
- To understand the classification of pisces
- To develop the general characters and classification in Amphibia

Unit I: Protochordates

1.1 **Protochordata**: General characters and classification up to class Type Study:

1.2 ***Herdmania*** : Morphology, digestive system, Nervous System and sense organs, Excretory System, Reproductive system, Ascidian tadpole larva

1.3 ***Amphioxus***: Structure, digestive system, respiratory system, circulatory system, senseOrgans, excretory system

Unit – II Agnatha and Pisces

2.1 Agatha: GeneralFeatures of Agnatha and classification up to classesType study: General Features of Petromyzon, Ammocete Larva

2.2 Pisces: Classfication of Pisces upto class; Difference between Chondrichthyes and Osteichthyes Type Study**:** General Morphology and anatomy of Scoliodon

Unit-III Tetrapoda

3.1 Amphibia: Classification and characters with suitable examples, adaptations for amphibious life

3.2 Reptilia: Classification and characters with suitable examples,

3.3 Aves: General classification and characters with important examples;

3.4 Mammalia-I: Classification and characters with suitable examples

Unit – IV Miscellaneous

4.1 Protochordates: General features and phylogeny of Urochordates &cephalochordates; Retrogressive metamorphosis

4.2 Pisces: Fins (structure and origin); Types of scales; Migration; Parental Care

Learning Outcomes: After complition the course student would able to:

- Discuss and study the classification of Protochordata, Ascidia & Amphioxus

- Understand the classification of Agnatha & Gnathostomata, Characters of Petromyzon, Ammocoet larva, .
- Learn about the classification of Pisces, and basics of pisciculture, Scales, Fins, migration in fishes.
- Understand the classification of Amphibia, Reptilia, and the General Topics like Adaptive radiation in Amphibian, Neoteny, Parental care in Amphibians,
- Understand the classification of Aves, Mammals and the General Topics like perching mechanism, flight adaptation, migration and feathers in birds and adaptation, hair and dentition in Mammals

Zoology-Paper-II:Microbiology& Parasitology

Objectsives:

- To understand the classification Microorganisms.
- To Understand and study the Bactria.
- To Understand the Parasite Protozoan's.
- To Understand the Virus, Hepatitis and HIV.
- To explain the morphology of bacteria

Unit –I: Microbiology

1.1 The scope of Microbiology: Characterization, Classification and identification of Microorganisms.

1.2 History and landmark events in Microbiology: Working of A.V. Leeuvenhock, Louis Pasteur, Robert Koch, Germ Theory of diseases.

1.3 World of Microbes: General Morphology of Protozoa, fungi – Molds and Yeasts

Unit-II: Bacteria

2.1 The World of Bacteria – Morphology of Bacteria; Difference between Gram-positive and Gram-negative Bacteria

2.2 Basic idea of Culture: Types of culture media, Maintenance of pure cultures

2.3 Growth & Reproduction: Bacterial division, growth curve, generation time, measurement of growth. Asepsis, sterilization with physical and chemical agents; Reproduction- Asexual and sexual

Unit-III: Other Microbes

3.1 Virus: Structure, Classification; Life Cycle- Lytic and Lysogeny; A Bacteriophage

3.2 Hepatitis: Structure and types of causative agent, Precaution, Prevention and Control

3.3 HIV and AIDS: Epidemiology, prevention, control and treatment

Unit-IV: Parasitology

4.1 Parasitic Protozoans: life cycle, pathogenesis and disease caused by Entamoebae; Plasmodium, Trypanosoma, Leishmania

4.2 Epidemiology of infectious diseases with reference of Human:

- Bacterial [Tuberculosis, Leprosy, Meningitis]
- Fungal[any one]diseases

Learning Outcomes: After complition the course student would able to:

- Applies the classification Microorganisms.
- Understand and study the Bactria.
- Explain the Parasite Protozoans.
- Classify the Virus,Hepatitis and HIV.
- Interprets the plasmodium, trypanosome, leishmania.

Zoology-Paper-III: Physiology- I

Objectsives:

- To develop the metabolic activities in mammalian body.
- To understand the various Biomolecules in body.
- To understand the structural chemistry of proteins, carbohydrates, fats.
- To understand the functions of Biomolecules in body Secretion.
- To explain the process of digestion.

Unit I Respiration

1.1 Mechanism and regulation of Respiration

1.2 Transport of oxygen and carbon dioxide, Respiratory Pigments

1.3 Respiratory quotient, Respiratory volumes and capacities

1.4 Respiratory Disorders and effect of smoking

Unit II Circulation

2.1 Body Fluid: Composition and functions of blood; Lymph composition & function; Blood Pressure, Regulation of Blood Pressure

2.2 Blood clotting – Intrinsic and extrinsic factors, Blood groups and Rh factor

2.3 Physiology of cardiac muscles, structure & function of heart; Human Cardiac Cycle; Cardiac Rhythm; Origin of Heart Beat; Regulation of Heart Beat

2.4 Elementary idea of Haemostasis, ECG, factors contributing to heart problems; Angioplasty; Angiography

Unit III Nutrition and Digestion

3.1 Balanced diet

3.2 Digestion and absorption of carbohydrates, proteins and fats

3.3 Hormonal regulation of gastrointestinal function

3.4 Vitamins- Fat soluble and water soluble vitamins; Sources, deficiency and diseases

Unit IV Excretion

4.1 Types of Nitrogenous waste products (ammonotelic, uricotelic, ureotelic)

4.2 Structure and function of kidney; Nephron; Renal blood supply

4.3 Mechanism of Urine formation in mammals; Counter Current Principle

4.4 Hormonal control of renal function; Rennin- Angiostensin System, Micturition, Regulation of Body Fluids & Acid Base balance

Learning Outcomes: After complition the course student would able to:

- Understand the Physiology of Digestion & Respiration.
- Discuss the Physiology of Circulation & nerve impulse and Reflex Action.
- Understand the Physiology of Excretion
- Describe in nitrogenous waste products.
- Interprets in hormonal control of renal function

Zoology -----Practical Based on paper I, II and III

Paper-I: Study of Chordates:

A. Study of Specimen.
   a) **Protochordata**: Herdmania, Ciona, Salpa, Doliolum, Amphioxus
   b) **Lower Chordates**: Petromyzon, Myxine/Bdellostoma, Ammocete larva,
   c) **Pisces:** Sphyrna, Trygon (Sting ray), Pristis (Saw Fish), Raja (Skate),Torpedo, Chimaera (Rat Fish), Acipensor, Amia, Lepidosteus, Notopterus, Labeo, Clarius, Anguilla (eel), Exocoetus, Hippocampus, Echenesis Sucker Fish), Protopterus,
   d) **Amphibia:** Icthyophis, Cryptobranchus, Ambyostoma (Tiger Salamander), Axolotl Larva, Salamandra, Proteus, Siren, Alytes, Pipa, Hyla, Rhacophorous (Flying Frog)

B. Study of Slides.
   a) Tadpole larva of Herdmania, Herdmania Spicules, T.S. of Amphioxus (Through Oral hood, Pharyngeal, Intestinal and Caudal regions)
   b) V.S. of Skin of Scoliodon, Amphibia

C. Mounting.
   a) Herdmania Spicules, Placiod Scale

D. Dissection: [Through demonstration by chart/ CAL/ Video]

a) **Major:** Afferent branchial vessels; Efferent branchial vessels; Cranial nerves ofScoliodon.

b) **Minor:** Internal Ear; Eye Muscles; Ampulla of Lorrenzini

Paper-II : Microbiology and Parasitology

1. Preparation and use of culture media for microbes
2. Study of microbes in food material (milk, Curd etc.)
3. Staining procedure for parasites
4. Identification of Protozoan parasites from permanent slides.
   - Trypanosoma(epimastigote or trypomastigote form); Leishmania (promastigote and amastigote form); Plasmodium (sporozoites and signet ring); Giardia; Entamoeba (trophozoites);;
5. Identification and characterization of helminth parasites from permanent slides
   - Cercaria of Fasciola; Eggs of Schistosoma; Cyst of Echinococcus granulosus; Microfilarie of Wuchereria

Paper: III Physiology:

1. Demonstration of ptyalin enzyme activity
2. Estimation of haemoglobin content; RBC Counting, WBC Counting; Haematocrit value and ESR of given blood sample
3. Histological Slides of mammalian T.S. of spinal Cord, stomach, duodenum, ileum, liver, lung, kidney

Suggested Readings:

Chordates:

1. Colbert's evolution of the vertebrates; Colbert, E.H; John Wiley & Sons

2. Text book of Chordate Zoology vol. II ; Sandhu, G.S. and Sandhu, G.S; Campus Books.
3. Modern text book of Zoology-Vertebrates; Kotpal, Rastogi Publication.
4. Vertebrate Zoology; Rastogi, V.B.; Ramnath & Kedarnath.
5. Young, O.Z.: The Life of Vertebrates, Oxford University Press, Oxford.
6. Young,J.Z,: The life of vertebrates. Oxford University Press London 1962(Low Priced Text Reprint English Language Book Socieety London,1962).
7. Barrington,E.J.W.: The Biology Hemichordata & Protochordata Oliver & Boyd,London,1965
8. Young J. Z : The life of mammals Oxford University Press London 1963
9. R.L Kotpal,2015, Chordata, Rastogi Publishing, Meerut, Delhi

Parasitology:

1. Burton J Bogitsh Human Parasitology 3rd edition Elsevier.
2. Roberts, L. S. and J. Janovy, Jr. 2004. Foundations of Parasitology. 7th Edition. McGraw Hill, Boston.
3. Smith. Animal Parasitology 1996. Cambridge University Press.
4. Marr et al. Molecular Medical Parasitology 2003, Elsevier.
5. Lawrence R. Ash and Thomas C. Orihel. Atlas of Human Parasitology. American Society for clinical pathology press 5th edition, 2007.
6. Janet Amundson Romich. Understanding Zoonotic Diseases. 2007
7. Paul Schmid-Hempel. The Integrated Study of Infections, Immunology, Ecology, and Genetics (Oxford Biology), 2011
8. H.S Singh &P. Rastogi,2016, Parasitology, Himalaya Publishing House, pvt. Ltd. Delhi

Microbiology

1. Mani,A., Selvaraj, A.M., Narayanan, L.M. & Arumugam, N. 1996 : Microbiology – saras publications – Nagercoil-India.
2. Sharma, P.D. 1998: Microbiology – Rastogi Publ. Meerut, India
3. Subba Rao, N.S., 1999: Soil Microbiology, Oxford IBH Co. New Delhi, India.
4. Sullia,S.B. & Santharam,S. 2004-General Microbiology, Oxford IBH, India.
5. Meenakumari, S. Microbial Physiology, MJP-Publ.-Chennai, India.
6. Purushotam Kaushik, 2005: Microbiology –S.Chand & Co. New Delhi, India
7. Vijaya Ramesh, 2005: Environmental Microbiology, MJP.Publ., Chennai, India
8. Vijaya Ramesh, 2007: Food Microbiology, MJP.Publ. Chennai, India.
9. Rajan,S. 2007: Medical Microbiology – MJP.Publ. Chennai, India.
10. Purohit, S.S. 2007: Microbiology - Agrobios Publ. India
11. Trivedi, P.C.2008: Applied Microbiology - Agrobios Publ. India
12. Prescott, 2009: Industrial Microbiology - Agrobios Publ. India
13. Parihar, L. 2008: Advances in Applied Microbiology - Agrobios Publ. India
14. Agarwal,A.K.2008: Industrial Microbiology, Agrobios Publ. India.
15. Bohra, A. 2006: Food Microbiology, Agrobios Publ. India
16. Bhastiya&Jain,2015, Immunology, microbiology,&Biotechnology, Himalaya Pubishing House pvt. Ltd. Delhi

Physiology:

1. Ganong: Review of Medical Physiology (22nd ed. 2005, Lange Medical)
2. Guyton and Hall: A text book of Medical Physiology (11th ed. 2006, Saunders).
3. Keele & Neil: Samson Wright's Applied Physiology (13th ed. 1989, Oxford)
4. Hall of India Pvt. Ltd., New Delhi - 110 001.
5. Wood, D.W., 1983. Principles of Animal Physiology 3rd Ed.,
6. Prosser, C.L. Brown 1985. Comparative Animal Physiology, Satish Book Enterprise, Agra - 282 003.
7. Wilson, J. A. Principles of animal physiology. Collins MacMillan Publ.
8. Chordate zoology and animal physiology. S. Chand and Co
9. K.V. Shastri, 2015, Animal Physiology and Biotechnology, Rastogi Publication, Merrut, Delhi

Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 401	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		

Chemistry-Paper -I :Inorganic chemistry

Objectives:

- To develop the knowledge about chromatography, oxidation reduction and polymerization.
- To aware about the conceptual knowledge of chromatography, polymer chemistry and bioinorganic chemistry.
- To acquaint about the classification of acids, non aquous solvents and separation methods.
- To give information about solvent systems, diagrams and preparation methods.
- To develop understanding about phosphazenes, trace elements and nitrogen fixation.

Unit I : Chromatography

Types of chromatographic methods and their applications, principle of differencial migration, Adsorption phenomenon, nature of the adsorbent, solvent systems, Rf values.

Unit II : Oxidation and Reduction

Use of redox potential data, analysis of redox cycle, redox stability in water, disproportionation, Frost, the diagrammatic representation of potential data, Latimer and Pourbaix diagrams, principles involved in the extraction of the elements.

Unit III : Polymer chemistry of Silicones& Phosphazenes

Classification, Preparation and Structure of silicons, silicon resin, silicon rubber, silicon fluid, industrial application of silicones.

Preparation, properties, substitution reaction and structure of Phosphazenes

Unit IV : Bioinorganic chemistry

Essential and trace elements in biological processes, metalloporphyrins with special reference to haemoglobin and myoglobin. Biological role of alkali and alkaline earth metal ions with reference to Na+, K+, Ca+2 and Mg+2, nitrogen fixation.

Learning Outcomes: After complition the course student would able to:

- Differentiate between oxidation& reduction and structures of silicons .
- Describe the principles related to differential migration, substitution and biochemistry .
- Apply the methods of chromatography, industrial uses of silicon and biochemistry to solve different issues.
- Interpret the diagrams related to redox reaction, structure and processes of polymerization.

Chemistry-Paper -II :Organic chemistry

Objectives:

- To develop knowledge about classification & nomenclature of carboxylic acid and dicarboxylic acid .
- To aware about the chemical reactions, mechanism and properties of polymers, halonitroarenes and amines.
- To develop concept of various laws related to synthesis and catalyzing process.
- To aquaint the various reactions on the basis of their mechanism.

Unit I : Carboxylic acids & Dicarboxylic acids

Nomennclature, structure and bonding, physical properties, acidity of carboxylic acids, effects of substituents on acid strength, preparation of carboxylic acids, reactions of carboxylic acids – Hell Volhard Zelinisky reaction, synthesis of acid chlorides, esters and amides, reduction of carboxylic acids, mechanism of decarboxylation. Method of formation and chemical reaction of haloacids, hydroxyl acids, malic tartaric and citric acids. Methods of formation and chemical reactions of α, β- unsaturated monocarboxylic acids. methods of formation and effect of heat and dehydrating agents (succinic, glutaric and adipic acids).

Unit II : Carboxylic acids derivatives & Synthetic polymers

Structure and nomenclature of acid chlorides, esters, amides (urea) and acid anhydrides, relative stability of acyl derivatives. Physical properties, inter conversion of acid derivatives by nucleophilic acyl substitution. Preparation of carboxylic acid derivatives, chemical reactions, mechanism of esterification and hydrolysis (acidic and basic).

Addition or chain growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler Natta polymerization and vinyl polymers. Condensation or step growth polymerization. Polyesters, polyamides, phenol-formaldehyde resin, urea-formaldehyde resin, epoxy resins and polyurethanes. Natural and synthetic rubbers.

Unit III : Alkyl nitrates, Nitroarenes & Halonitroarenes

Preparation of nitroalkanes and nitroarenes. chemical reactions of nitro alkanes, mechanism of nucleophilic substitution in nitro arenes and their reduction in acidic, neutral and alkaline medium, picric acid.

Reactivity, structure and nomenclature of amines, physical properties, stereochemistry of amines. Separation of mixture of primary, secondary and tertiary amines, structural features effecting basicity of amines.

Unit IV Amines

Amines salts as phase transfer catalyst, preparation of alkyls and aryl amines (reduction of nitro compounds, nitriles), reductive amination of aldehylic and ketonic compounds. Gabriel- Pthalamide reaction, Hofmann bromamide reaction.

Reaction of amines, electrophilic aromatic substitution in aryl amines, reaction of amines with nitrous acids. Diazotization, mechanism, synthetic transformation of aryl diazonium salts, azocoupling.

Learning Outcomes: After complition the course student would able to:

- Calssify the various organic compounds on the basis of mechanism and structure.
- Apply the knowledge of processing derivatives for synsthesize various products.
- Describe and discuss about technical terminology related to acids, alkyl nitrates and amines.

- Discuss about the methods of formation, structural features and mechanism of various compounds.

Chemistry-Paper -III:Physical Chemistry

Objectives:

- To aware about laws of thermodynamics, pH, polarization of molecular structure.
- To develop conceptual knowledge about entrophy, electrolytes dipole moment etc.
- To develop analytical view about evaluation of absolute entrophy, activity coefficient and magnetic propertires of compounds.
- To give information about carnt theorem, mixing of gases, overvoltage and referectivity.

Unit I : Second and Third law of thermodynamics & Concept of entropy

Need for the law, different statements of the law, Carnot cycle and its efficiency. Carnot theorem. Thermodynamic scale of temperature.

Entropy as a state function, entropy as a function of Volume and temperature, entropy as a function of pressure and temperature, entropy change in physical change, Clausius inequality, entropy as a criteria of spontaneity and equilibrium, Entropy change in ideal gases and mixing of gases

Nernst heat theorem, statement and concept of residual entropy, evaluation of absolute entropy from heat capacity data. Gibbs and Helmholtz functions: Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities, A & G as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change. Variation of G and A with P, V and T.

Unit II : Electrochemistry II

Types of reversible electrodes, gas metal ion, metal-metal ion, metal insoluble salt-anion and redox electrodes. Electrode reactions, Nernst equation, derivation of cell E.M.F. and single electrode potential, standard hydrogen electrode, reference electrodes, standard electrode potential, sign convention, electrochemical series and its significance.

Electrolytic and Galvanic cells-reversible and irreversible cells, conventional representation of electrochemical cells. EMF of a cell and its measurements, computation of cell EMF, calculation of thermodynamic quantities of cell reactions (ΔG, ΔH and K), polarization, over potential and overvoltage.

Concentration cell with and without transport, liquid junction potential, application of concentration cells, solubility product and activity coefficient, potentiometric titrations.

Unit III : pH & Corrosion

Definition of pH and pKa determination of pH using hydrogen, quinhydrone and glass electrodes, by poteniometric methods. Buffers- mechanism of buffer action. Henderson- Hazel equation. Hydrolysis of salts.

Fundamental of electrolytic corrosion: theories and kinetics, corrosion prevention. Batteries, fuel cells

Unit IV : Physical properties and molecular structure

Optical activity, polarization (Clausius-Mosotti equation) orientation of dipoles in an electric field, dipole moment, induced dipole moment, measurement of dipole moment temperature method and refractivity method, dipole moment and structure of molecular magnetic properties- paramagnetism, dimagnetism and ferromagnetics.

Learning Outcomes: After complition the course student would able to:

- Classify the electrodes, cells and properties of organic compounds.

- ❖ Determine and interpret the function of volumes, equations, coefficients related to entrophy, corrosion and molecular structures.
- ❖ Describes various properties of compounds on the basis of energy, potential and dipole moment etc.
- ❖ Measure the entropy change, pH and polarization and magnetic properties of compounds.

Practicals

Organic Chemistry

TLC/ Paper chromatography

(a) Separation of fluorescein and methylene blue

(b) Separation of leaf pigments from spinach leaves

Synthesis of organic compounds (Any Four)

(a) Acetylation of salicylic acid aniline glucose and hydroquinone

(b) Aliphatic electrophilic substitution - Preparation of iodoform from ethanol and acetone

(c) Aromatic electrophilic substitution

- Nitration
- Preparation of m-dinitrobenzene Preparation of p-nitroacetanilide Halogenations
- Preparation of p-bromoacetanilide
- Preparation of 2,4,6-tribromophenol

(d) Diazotization/Coupling

- Preparation of methyl orange and methyl red

(e) Oxidation

- Preparation of benzoic acid from toluene

(f) Reduction

- Preparation of aniline from nitrobenzene
- Preparation of m-nitroaniline from m-dinitrobenzene
- Physical Chemistry

Phase Equilibrium :

1. To study the effect of a solute (e.g. NaCl,succinic acid) on the critical solution temperature of two partially
2. miscible liquids (e.g. Phenol-Water system) and to determine the concentration of that solute in the given phenol-water system.
3. To construct the phase diagram of two component (e.g. diphenylamine-benzophenone) system by cooling curve method.

Transition Temperature:

1. Determination of the transition temperature of the given substance by thermometric/dialometric method (e.g. MnCl2
   4H2O/SrCl2 2H2O).

Thermochemistry :

1. To determine the solubility of benzoic acid at different temperature and to determine H of the dissolution process.

2. To determine the enthalpy of neutralization of a weak acid/weak base versus strong base/strong acid and determine the enthalpy of ionization of the weak acid /weak base.
3. To determine the enthalpy of solution of solid calcium chloride and calculate the lattice energy of calcium chloride from its enthalpy data using Born Haber cycle.

Viva-Voce and Record

Suggested Reading:

1. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
2. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
3. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
4. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
5. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
6. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
7. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
8. भौतिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाउस, जयपुर

Semester-IV

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Practical	Total
BSC 402	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		

Physics-Paper -I: Statistical And Thermodynamical Physics-II

Objectives:

- To aware kinetic theory of gases.
- To Understand the transport phenomenon of gases.
- To give knowledge about the classical statistics.
- To develop concept of quantum statistics.

UNIT I Kinetic Theory of Gases:

Distribution law of molecular velocities, most probable, average and RMS velocities, Energy distribution function;Experimental verification of the Maxwell velocity distribution the principle of equipartition of energy.

UNIT II Transport Phenomenon of Gases:

Transport Phenomenon: Mean free path, distribution of free paths, coefficients of viscosity, thermal conductivity,diffusion and their interrelation.

UNIT III Classical Statistics:

Validity of classical approximation, Phase space, micro and macro states; Thermodynamical probability, entropyand thermodynamic probability; Monoatomic ideal gas; Barometric equation ; Specific heat capacity of diatomicgas; Heat capacity of solids.

UNIT IV Quantum Statistics:

Black body radiation and failure of classical statistics, Postulates of quantum statistics, indistingushability , wavefunction and exchange degeneracy, a priori-probability; Bose Einstein statistics and its distribution function ;Plankdistribution function and radiation formula ;Fermi Dirac statistics and its distribution function ,contact potential,thermionic emission ;Specific heat anomaly of metals ;Nuclear spin statistics (para and ortho hydrogen)

Learning Outcomes: After complition the course student would able to:

- Analyze phase equilibrium condition and identify types of phase transitions of physical systems.
- Make connections between applications of general statistical theory in various branches of physics.
- Design, set up, and carry out experiments, analyze data recognising and accounting for errors and compare with theoretical predictions.
- Differentiate between B-E statistics & F-D statistics
- Discuss on the nuclear spin statistics.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना,, उष्मा गतिकी एवं सांख्यकीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015–16

Physics-Paper -II :Optics –II

Objectives:

- To aware fraunhofer diffraction.
- To Understand the Fresnel class of diffraction and resolving power.
- To give knowledge about the optical activity and holography.
- To develop concept of lasers.

UNIT-I Fraunhofer Diffraction:

Fraunhofer diffraction at single slit and a circular aperture, intensity distribution and width of central maxima, anddetermination of slit size, two slit diffraction and its intensity distribution with missing orders. Diffraction due to Nslits with intensity distributions. Plane transmission grating its formation and intensity distribution.

UNIT-II Fresnel class of Diffraction & Resolving Power:

Fresnel class of diffraction, half period zones, zone plate, diffraction due to circular aperture. Diffraction at straightedge, thin and thick wire, rectangular slit. Rayleigh's criterion, resolving power of prism, telescope, microscope andplane transmission grating.

Unit-III Optical Activity and Holography:

Optical activity, Specific rotation, biquartz and half shade polarimeters. Basic concepts of holography, constructionof a hologram and reconstruction of the image, important features of hologram and uses of holography.

Unit-IV Lasers:

Difference between ordinary and laser source, stimulated and spontaneous emission, stimulated absorption. Einstein's A and B coefficients, population inversion, conditions for laser action, meta-stable states, pumping. Typesof lasers, construction, working and energy level schemes of He-Ne and Ruby laser. Properties and uses of lasers.

Learning Outcomes: After complition the course student would able to:

- Applies interference in design and working of interferometers.
- Discuss on the resolving power of different optical instruments.
- Identify the working of holography and their applications in various fields.
- Classify the optical fiber and their applications in communication.
- Differentiate between simple light source and laser

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, प्रकाशिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015–16

Physics-Paper -III:Electronics& Solid State Devices –II

Objectives:

- To aware about transistor.
- To Understand the amplifiers with feedback.
- To give knowledge about the amplifiers and oscillators.
- To develop concept of field effect transistor and digital circuits.

UNIT-I Transistor:

Notations and volt -ampere characteristics for bipolar junction transistor, concept of load line and operating point,hybrid parameters. Transistor as Amplifiers: CB, CE, CC configurations, its characteristic curves and theirequivalent circuits. Analysis of transistor amplifiers using hybrid parameters and its frequency response. Fixed andemitter biasing, bias stability in transistor circuits.

UNIT-II Amplifiers with Feedback:

Concept of feedback, positive and negative feedback, voltage and current feedback circuits, Advantages of negativefeedback- stabilization of gain by negative feedback, Effect of feedback on output and input resistance. Reduction ofnonlinear distortion by negative feedback. Effect on gain- frequency response.

UNIT-III Operational Amplifier & Oscillators:

Differential amplifier, DC levels shifter, operational amplifier, input and Output impedances, input offset current.Application: Unity gain buffer, Adder, Subtractor, Integrator and Differentiator. Feedback requirements foroscillations, circuit requirement for oscillation, basic oscillator analysis. Colpitt and Hartley oscillators. R-Coscillators, piezoelectric frequency control.

UNIT-IV Field Effect Transistor and Digital Circuits:

Field Effect Transistor (FET) and its characteristic biasing JFET, ac operation of JFET and MOSFET.
Binary, Hexadecimal and Octal number systems. Binary arithmetic. Logic fundamentals AND, OR, NOT, NOR.,NAND, XOR gates, Boolean theorems, transistor as a switch, logic gates: circuit realization of logic functions.Analog to digital and digital to analog analysis. DDL, RTL, TTL circuits.

Learning Outcomes: After complition the course student would able to:

- Identify characteristics of transistor (common base configuration, common emmiter configuration, common collector configuration).
- Discuss on the amplifiers with feedback.
- Discuss on the concept of operational amplifier & oscillators.
- Classify the field effect transistor and digital circuits.
- Differentiate between TTL and RTL.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, इलेक्ट्रोनिकी एवं ठोस प्रावस्था युक्तियां, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015–16

Physics Practical: IV

1. Plot thermo emf versus temperature graph and find the neutral temperature (Use sand bath)
2. Study of power supply using two diodes/bridge rectifiers with various filter circuits.
3. Study of half wave rectifier using single diode and application of L and π section filters.
4. To study characteristics of a given transistor PNP/NPN (Common emitter, common base and commoncollector configurations
5. Determination of band gap using a junction diode.
6. Determination of power factor (cos □) of a given coil using CRO.
7. Study of single stage transistor audio amplifier (Variation of gain with frequency).
8. To determine e/m by Thomson's method.
9. Determination of velocity of sound in air by standing wave method using speaker, microphone and CRO
10. Measurement of inductance of a coil by Anderson's bridge.
11. Measurement of capacitance and dielectric constant of a liquid and gang condenser by de- Sauty Bridge.
12. Any experiment according to theory paper.

Suggested Reading :

1. प्रभा दशोरा,, द्वितीय वर्ष प्रायोगिक भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015–16

Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 403	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		

Mathematics-Paper-I: Real analysis and matric space

Objectives:

- To give information about the Sequence and Series of Functions.
- To aware about the Term by Term Differentiation and Integration.
- To develop knowledge about the Metric Space
- To develop knowledge about the Subspace.

Unit 1 . Sequence and series of functions —

Pointwise and Uniform convergence, Cauchy's criterion, Weierstrass M-test, Abel's test, Dirichlet's test for uniform convergence of series of functions, Uniform convergence and Continuity of series of functions,

Unit 2; Term by term differentiation and integration. Metric space —

Definition and examples, Open and Closed sets, Interior and Closure of a set, Limit point of a set.

Unit 3:

Subspace of a metric space, Product space, Continuous mappings, Sequence in a metric space, Cauchy sequence. Complete metric space,

Unit 4 : Baire's theorem, Compact sets and Compact spaces, Connected metric spaces.

Learning Outcomes: After complition the course student would able to:

- Discuss on the Sequence and Series of Functions.
- Calculate the Term by Term Differentiation and Integration.
- Classify the Metric Space, Subspace.
- Applies the Compact Sets and Compact Space.
- Calculate the connected matric space.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी रियल एनालिसिस एण्ड मैट्रिक स्पेस, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली,2015–16
2. जी.सी. गौखरू सैनी, रियल एनालिसिस एण्ड मैट्रिक स्पेस, जयपुर पब्लिशिंग हाउस, जयपुर,2015

Mathematics-Paper-II: Differential Equations II

Objectives:

- To give knowledge about the exact linear differential equations of nth order.
- To aware about the linear differential equations of second order.
- To know the partial differential equations of first order.
- To Understand the homogeneous and non-homogenous linear partial differential equation.

Unit 1 ; Exact linear differnitial equations, of nth order. Existence and uniqueness theorem.

Unit 2: Linear differential equations of second order. Linear independence of solutions. Solution by transformation of the equation by changing the dependent variable/the independent variable, Factorization of operators, Method of variation of parameters, Method of undetermined coefficients.

Unit 3: Partial differential equations of the first order. Lagrange's linear equation. Charpit's general method of solution.

Unit 4 ; Homogeneous and non-homogeneous linear partial differential equations with constant coefficients. Equations reducible to equations with constant coefficients.

Learning Outcomes: After complition the course student would able to:

- Calculate the exact linear differential equations of nth order.
- Classify the linear differential equations of second order.
- Discuss the partial differential equations of first order.
- Identify the homogeneous and non-homogenous linear partial differential equation.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी रियल एनालिसिस एण्ड मैट्रिक स्पेस, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, रियल एनालिसिस एण्ड मैट्रिक स्पेस, जयपुर पब्लिशिंग हाउस, जयपुर,2015

Mathematics- Paper-III: Optimization Theory vector calculus

Objectives:

- To aware about the Linear Programming Problem.
- To develop knowledge of properties and Elementary Theorems on Duality Only.
- To understand the Differentiation & Integration of vector Point functions.
- To conceptualize the Divergence & Curls.

Unit 1: The linear programming problem. Basic solution. Some basic properties and theorems on convex sets.. Fundamental theorem of L.P.P.

Unit 2 ; Theory of simplex method only Duality. Fundamental theorem of duality, properties and elementary theorems on duality only.

Unit 3: Scalar and Vector point functions. Differentiation and integration of vector point functions. Directional derivative. Differential operators.

Unit 4 '; Gradient, Divergence and Curl. Theorems of Gauss, Green, Stokes (without proof) and problems based on these theorems.

Learning Outcomes: After complition the course student would able to:

- Applies Linear Programming Problem.
- Classify the Properties and Elementary Theorems on Duality Only.
- Discuss on the Differentiation & Integration of vector Point functions.
- Identify the Divergence & Curls.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी रियल एनालिसिस एण्ड मैट्रिक स्पेस, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, रियल एनालिसिस एण्ड मैट्रिक स्पेस, जयपुर पब्लिशिंग हाउस, जयपुर,2015

Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 404	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		

Botany-Paper-I :Pteridophytes

Objectives:

- To develop knowledge on pteridophytes with its origin and classification
- To know general characteristics of psilophyta.
- To understand the life cycle of class lycophyta and sphenophyta.
- To discuss economic importance of pteridophytes.
- To compare pteridophyte with bryophyte and gymnosperms.

UNIT I:

Pteridophytes**:** General account of Pteridophytes, origin, classification (G.M. Smith), evolution of stele, development of sporangia (eusporangiate and leptosporangiate) and life cycle patterns of homosporus and heterosporus pteridophytes.

UNIT –II:

Heterospory and seed habit, Apospory and Apogamy. General characteristics of Psilotophyta: Morphology, anatomy and reproduction of *Psilotum*

UNIT-III:

General characteristic of Lycophyta and Sphenophyta: Morphology,anatomy and reproduction of *Seleginella* and *Equisetum*

UNIT-IV:

General characteristics of Filicophyta: Morphology, anatomy and reproduction of *Pteridium* and *Marsilea*. Economic importance of Pteridophytes.

Learning Outcomes: After complition the course student would able to:

- Develop knowledge on pteridophytes with its origin and classification
- Explain general characteristics of psilophyta.
- Understand the concept of lycophyta and sphenophyta.
- Discuss concept of filicophyta and their economic importance
- Compare pteridophyte with bryophyte and gymnosperms.

Suggested Readings:

1. Bierhorst, D.W. 1971. Morphology of Vascular Plants. MacMillan Co., N.Y. and Collier-MacMillan Ltd., London.
2. Parihar, N.S. 1996. The Biology and Morphology of Pteridophytes**.** Central Book Depot, Allahabad.

3. Singh, V., Pandey, P. C. and Jain, D. K .2013. A text book of Botany. IV edition, Rastogi publication, Meerut.
4. Sharma, O. P. 1990. Textbook of Pteridophyta, MacMillan India Ltd., Delhi.
5. Vashishta, P.C. 1997. Botany for Degree Students- Pteridophyta. S. Chand and Company, New Delhi.
6. Wilson, N. S. and Rothewall, G. W. 1993. Paleobotany and Evolution of Plants. (2nd Edition), Cambridge University Press, U. K.

Botany- Paper-II:Gymnosperms And Paleobotany

Objectives:

- To know the general characteristics, distribution, classification of gymnosperms
- To learn about the economic importance of gymnosperms
- To understand the morphology anatomy, reproduction of the cycadales .
- To acquire knowledge about Ephedrales and Palaeobotany.
- To discuss the dominant fossils flora of different ages.

UNIT I:

Gymnosperm: General characteristics, distribution, classification (K. R. Sporne, 1965) and economic importance. Brief account of Progymnosperm, affinities of Gymnosperms with Pteridophytes and Angiosperms.

UNIT: II

General characteristics of Cycadales, Coniferales: Morphology, anatomy, reproduction and life cycle with special reference to the genera *Cycas* and *Pinus.*

UNIT: III

General characterstics of Ephedrales: Morphology, anatomy, reproduction and life cycle of *Ephedra.* Palaeobotany: Geological time scale, fossil types and their formation, technique ofstudy of fossils.

UNIT IV:

General account of dominant fossils flora of different ages, palaeobotany in relation to exploration of fossil fuels. Primitive land plant: *Rhynia*, Fossil pteridophytes: reconstructed plant-*Lepidodendron* and *Calamites*, Fossil gymnosperm-*Williamsonia*.

Learning Outcomes: After complition the course student would able to:

- Interpret the general characteristics, distribution, classification of gymnosperms
- Acquaint with the economic importance of gymnosperms
- Discuss the morphology anatomy, reproduction of the cycadales .
- Acquire knowledge about Ephedrales and Palaeobotany.
- Explain the dominant fossils flora of different ages.

Suggested Readings:

1. Bhatnagar, S. P. and Moitra, A. 1997. Gymnosperms. New Age International (P) Ltd., Publisher, New Delhi.
2. Clark, D. L. 1976. Fossils, Palaeobotany and Evolution. W.M.C. Brown Company, New York.
3. Meyen, S. V. 1978. Fundamentals of Palaeobotany. Chapman and Hall, London.
4. Sharma, O. P. 1997. Gymnosperms. Pragati Prakashan, Meerut, India.
5. Sporne, K. R. 2002. The Morphology of Gymnosperms. B. I. Pub. Pvt. Ltd. Mumbai, Kolkata, Delhi.
6. Thomas, B. A. and Spice, R. A. 1986. The Evolution and Palaeobotnay of land Plants. Publ. Crom. Helm London and Sydney.
7. Vasishta P.C. 1980. Gymnosperms. S. Chand and Co. Ltd., New Delhi.

Botany- Paper-III :Plant Physiology II And Biochemistry

Objectives:

- To know structure, biosynthesis and physiological role of plant hormones
- To understand structure, physiological role with distinguishable factors of hormones
- To provide knowledge of vernalization and photoperiodism.
- To comprehend the introduction, importance, nomenclature and classification of carbohydrates lipids, proteins.
- To acquire knowledge about enzymes.

UNIT I:

Seed dormancy and germination, phases of growth and development; plant movement and biological clock and their regulatory factor.Growth hormones: Structure, biosynthesis, and physiological role of auxins, gibberllins.

UNIT II:

Structure, biosynthesis and physiological role of Cytokinine and Ethylene. Growth inhibitors: ABSEisic acid.Physiology of Flowering: Photoperiodism, flowering stimulus, florigen concept, vernalization. Discovery, chemical nature and role of phytochrome in photomorphogenesis and senescence.

UNIT III:

Carbohydrates: Introduction, Importance, Nomenclature and Classification of Carbohydrates , Molicular Structure and Function of monosaccharides, oligosaccharides andpolysaccharides. Glycisidic linkage and Glycoprotein.

Lipids–Structure and classification of lipids, fatty acids- saturated and unsaturated, Alpha Oxidation, Bita oxidation and Glyoxalate Cycle, oxidation of fatty acids.

UNIT IV:

Proteins- Amino acids as basic units, structure and classification of proteins (primary,secondary, tertiary and quaternary), Physical and Chemical Properties.

Enzymes :Structure, Nomenclature and classification of enzymes, Characteristics of Enzymes, mechanism of action, Multi Enzyme System, Regulation of Enzyme Activity.

Learning Outcomes: After complition the course student would able to:

- Get knowledge about structure, biosynthesis and physiological role of plant hormones
- Understand structure, physiological role with distinguishable factors of hormones
- Discuss the concept of vernalization and photoperiodism.
- Describe the importance, nomenclature and classification of carbohydrates lipids, proteins.
- Acquire knowledge about enzymes

Suggested Readings:

1. Berg, J.M., Tymoczko, J.L., Stryer, L. 2006. Biochemistry. 6th Edition, W.H. Freeman and Company, New York.
2. Buchanan, B., Gruissem, W. and Jones, R. 2000. Biochemistry and Molecular Biology of Plants. American Society of Plant Biologists, USA.
3. Conn, E.E., Stumpf, P.K. and Bruening, G. 2006. Outlines of Biochemistry. 4th Edition, John Wiley and Sons Inc. New Jersey, USA.
4. Elliot, W.H. and Elliot, D.C. 2009. Biochemistry and Molecular Biology. Oxford Publishers, India.
5. Hopkins, W.G. and Huner, P.A. 2008. Introduction to Plant Physiology. John Wiley and Sons, USA.
6. Mukherjee, S., Ghosh, A.K. 2006. Plant Physiology. New Central Book Agency, Calcutta.
7. Nelson, D.L. and Cox, M.M. 2004. Lehninger Principles of Biochemistry, 4th edition, W.H. Freeman and Company, New York, USA.
8. Ranjit, K. 2008. Research methodology: A step by step guide for beginners. Pearson, India.
9. Sinha R. K., 2007. Modern Plant Physiology. 2nd Edition Tata McGraw, New Delhi.
10. Taiz, L. and Zeiger, E. 2006. Plant Physiology. 4th Edition Sinauer Associates Inc. Publishers, Massachusetts, USA.
11. Voet, D. and Voet, J.G. 2000. Biochemistry, John Wiley, New York.
12. Wilson, K. and Walker, J. 2008. Principles and techniques of Biochemistry and Molecular Biology, Cambridge University Press.

BOTANY PRACTICAL IV

1. Double staining technique and technique for preparation of permanent slides.
2. Study of following with the temporary slide preparation and specimens:
   Pteridophytes: *Psilotum, Selaginella, Equisetum, Pteridium*and*Marselia*(Vegetativeand reproductive).
3. **Gymnosperm:** *Cycas*(coralloid root, T.S. of coralloid root, T.S. of leaflet, petiole, malecone and L.S. of male cone, microsporophyll, megasporophyll, T.S. of microsporophyll, ovule, L.S. of ovule and seed).
4. *Pinus* (T.S. of stem and needle, male cone and female cone, L.S. of male cone and femalecone, seed).
5. *Ephedra* (Stem T.S., leaf T.S., male and female cones, L.S. of ovule, seed).
6. Study of fossil specimens.
7. Principle, working and use of colorimeter and spectrophotometer.
8. Principle, types and application of centrifuges.
9. Principle and types of Chromatography.
10. Separation of amino acids by paper chromatography and thin layer chromatography.
11. Microchemical tests for carbohydrates (Fehling's test, Benedicts test) and proteins (Ninhydrin test, Xanthoproteic test).
12. Separation of chlorophyll and carotenoid pigments by solvent method
13. Separation of chlorophyll and carotenoid pigments by paper chromatography .
14. Estimate chlorophyll and carotenoid content in C3 andC4 plant.
15. To test the presence of ascorbic acid in different plant juices.
16. Bioassay of plant growth hormone(auxin,gibberellins and cytokinin).
17. Measurement of growth using auxanometer.

Semester-IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 405	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		

Zoology-Paper-I :Life and Diversity of animals – Chordata II

Objectives:

- To learn about the comparative study scoliodon and Rana of Integumentary system i.e. Structure of skin.
- To Understand and study the comparative study scoliodon and Rana of Heart and brain.
- To Understand and study the comparative study scoliodon and Rana of Bones.
- To Understand and study the Poisonous and nonpoisonous snakes.
- To explain the flight adaption

UNIT-I: Comparative Anatomy of Vertebrates-I

Comparative anatomy of the following organ systems of Scoliodon, Rana,

1.1 Integument and its derivatives.
1.2 Alimentary canal and accessory digestive glands.
1.3 Respiratory organs.

UNIT-II Comparative Anatomy of Vertebrates-II

Comparative anatomy of the organ systems of Scoliodon, Rana,

2.1 Heart, aortic arches and their evolution.
2.2 Brain and cranial nerves,
2.3 Comparative structure and evolution of urinogenital system (pro, meso and metanephric kidney and genital ducts in males and females).

Unit III: Comparative Anatomy of Vertebrates-III

Comparative anatomy of the organ systems of Scoliodon, Rana,

3.1 Osteology**:** Girdles, limb bones, Vertebrae, ribs and sternum; jaw suspension, Structure and types of vertebrae
3.2 Sense Organ**:** Comparative anatomy of eye
3.3 Sense Organ**:** Membranous labyrinth; sound production

Unit IV: Miscellaneous

4.1 Reptila**:** Poisonous and Non Poisonous Snakes of India.
4.2 Aves: Flight Adaptation; Flight Muscles; Perching Mechanism
4.3 Mammals-I**:** Dentition; Adaptive radiation

Learning Outcomes: After complition the course student would able to:

- Understand and study the comparative study scoliodon and Rana of Integumentary system i.e. Structure of skin.
- Study the comparative study scoliodon and Rana of Heart and brain.
- Comparative study scoliodon and Rana of Bones.
- Interprete Poisonous and nonpoisonous snakes.
- Discuss the flight adaption

Zoology-Paper-II: Biochemistry and Endocrinology

Objectives

- To explain the function of Carbohydrates and other metabolism.
- To aware the function of Lipids and metabolism
- To understand the importance of Bio molecules
- To learn about the function of Proteins and metabolism
- To aware the Types of Endocrine glands

Unit I: Carbohydrates and their metabolism

1.1 Biomolecule: Structure, types, function and properties of Carbohydrate
1.2 Metabolism: Glycolysis; fermentation; citric acid cycle; gluconeogenesis;
1.3 Glycogen metabolism (glycogenesis and glycogenolysis).

Unit II: Lipids and their metabolism

2.1 Biomolecule: Structure, types, function and properties of Lipid
2.2 Fatty acid; Triglycerides and Steroids
2.3 Metabolism: Biosynthesis and β-oxidation of saturated fatty acids, ketogenesis
2.4 LipidDisorders: Ketosis, Lipidosis

Unit III: Proteins and their metabolism

3.1 Biomolecule: Amino acids; essential and non-essential amino acids
3.2 Biomolecule: Structure, types, function and general properties of Proteins; four levels of structures in proteins
3.3 Enzymes: Major classes, Basic mechanism of action, kinetics and factors affecting enzyme activities

Unit IV: Endocrine Glands and Disorders

Structure, biological actions and regulation of following endocrine glands:

4.1 Pituitary
4.2 Thyroid; Thymus
4.3 Adrenal; Pineal; Pancreas
4.4 Testes and Ovary

Learning Outcomes: After complition the course student would able to:

- Interprets the function of Carbohydrates and other metabolism.
- Explain the function of Lipids and metabolism
- Interprete the importance of Bio molecules
- Understand the function of Proteins and metabolism
- Explain the Types of Endocrine glands

Zoology-Paper-III:Physiology- II

Objectsives:

- To Understand the Nerve and Muscles.
- To explain the Sensory Physiology.
- To Understand the Reproduction.
- To understand the hormones action.
- To learn about the human ear mechanism of hearing

Unit –I: Nerve and Muscle Physiology

1.1 Nerves: Types of neurons, E.M. structure of neuron; Myelinated and non-myelinated nerve fibres

1.2 Muscles: Ultra structure of striated muscle, Physiology of Muscle Contraction; sliding filament theory of muscle contraction; Neuromuscular Junction

Unit II: [Sensory Physiology]

2.1 Structure of human eye; image formation and colour vision

2.2 Structure of human ear, mechanism of hearing

2.3 Elementary idea of EEG, MRI, CT-scan, mental health (epilepsy, neurosis, psychosis)

Unit III [Reproduction]

3.1 Oestrous and menstrual cycle

3.2 Male and female sex hormones

3.3 Causes of infertility in male and female

Unit IV [Hormones]

4.1. General mechanism of hormone action: Peptide hormone; Steroid hormone

4.2 Neurohypophysial hormones – Oxytocin and Vasopressin

4.3 Hormones of the Adenohypophysis; Hypothalamic control of Adenohypophysis; Dwarfism; Acromegali

Learning Outcomes: After complition the course student would able to:

- Interprets the Nerve and Muscles.
- Understand the Sensory Physiology.
- Understand the Reproduction.
- Classify the hormones action.
- Describe the human ear mechanism of hearing

Zoology Practical- IV

Paper-I: Study of Chordates:

A. Study of Specimen.

a) **Reptilia:** Chelone, Trionyx, Testudo, Sphenodon, Hemidactylus, Draco,Phrynosoma, Chamaeleon, Typhlops, Python, Eryx (Sand Boa), Bungarus, Naja, Vipera, Hydrophis, Crocodylus, Alligator, Gavials

b) **Aves:** Archeopteryx, Pavo cristatus, Psittacula (parrot), Great Indian Bustard,Saras crane

c) **Mammals:** Echidna (Tachyglossus/ Spiny Anteater), Ornithorhyncus (Duck-billed Platypus), Macropus (Kangaroo), Bat, Loris, Manis, Herpestes (Mongoose)

B. Study of Permanent Slides.

a. V.S. of Skin of Reptiles, Aves and Mammals.

C. Osteology (Comparative study of amphibia to mammals articulated and disarticulated)

a) Vertebrae.
b) Limb bones.
c) Girdles.
d) Ribs.

D. Dissection:

a) A Rat: External Feature, General anatomy, General Viscera [through chart/ video/ CAL]

Paper-II: Biochemistry

1. Biochemical detection of carbohydrates, proteins and lipids in a given sample
2. Calorimetric estimation of glucose / Protein in a given solution

Paper-III: Physiology II

I. Study of Permanent Slides

a. Histological Slides: Bone, Cartilage, Striated Muscle Fibre
b. Endocrine Glands: Pituitary, Thyroid, Parathyroid, Thymus, Adrenal cortex, Adrenal Medula, ovary, testis
c. To study the knee jerk reflex in man

Suggested Readings:

Biochemistry:

1. Stryer, I. (1988). Biochemistry II. Freeman and Co.
2. Plummer, L. (1989). Practical biochemistry. Tata McGraw.
3. Murray, R. K. et al (1995). Harper's biochemistry, 24th ed. Prentice Hall.
4. Lewin, B. (2000). Gene. John Wiley & sons.
5. Strikburger, M. W. (1994). Genetics. Macmillan Publ. Co.
6. Russel, P. J. (1998). Genetics. The Benjamin Cummins Publishing Co.
7. Lehninger (2004). Principles of biochemistry 4thed.
8. Gilbert, F. (2000). Basic concepts in biochemistry: A student's survival guide.2nd ed. McGrawHill
9. Price, N. E. & Stevens, L. (1982). Fundamentals of enzymology. OUP
10. K.V. Shastri, 2015, Animal Physilogy and Biochemistry, Rastogi Publication, Meerut, Delhi

Physiology:

1. Ganong: Review of Medical Physiology (22nd ed. 2005, Lange Medical)

2. Guyton and Hall: A text book of Medical Physiology (11th ed. 2006, Saunders).
3. Keele & Neil: Samson Wright's Applied Physiology (13th ed. 1989, Oxford)
4. K.V. Shastri : Physiology
5. William S. Hoar, 1976. General and Comparative Physiology, Prentice
6. K.V. Shastri, 2015, Animal Physilogy and Biochemistry, Rastogi Publication, Meerut, Delhi

Endocrinology

16. Hadley: Endocrinology (5th ed. 2000, Prentice Hall)
17. Turner and Bagnara: General Endocrinology (6th ed. 1984, Saunders)
18. Norris: Vertebrate Endocrinology, Fourth Edition, 2007, Academic Press

- ❖ Measure the correlation of various values, complex formation and spectral properties of elements of transistion series.
- ❖ Classify the coordination compounds, magnetic behavior and stereochemistry of lanthanides and actinides.
- ❖ Define the separation process, structural properties and electronic configuration of compounds

Chemistry- Paper-II :Organic Chemistry

Objectives:

- To develop conceptual knowledge about infrared absorption spectroscopy,nomenclature of organometallic compounds.
- To aquaint about various laws of spectroscopy and methods of synthesis related to organmetallic and heterocyclic compounds.
- To aware about laws related to IR spectrum, types of tranisitions and preparation of heterocyclic compounds.
- To develop understanding about effects of solvents, structural features and basicity of pyridine, piperidine and pyrrole.

UnitI Electromagneticspectrum: Absorptionspectra(UV) &InfraredIRabsorptionspectroscopy

Ultravioletabsorptionspectroscopy- absorption laws (Beer- LambertLaw)molarabsorptivity, presentationandanalysisofUVspectra,typesofelectronictransitions, effectofsolventsontransitions,effectofconjugation, conceptofchromophoreandauxochrome.Bathochromic, hypsochromic andhyperchromic and hypochromicshifts, UVspectra ofconjugated enes andenones.
Molecularvibrations,Hookeslaw,selectionrules,intensity andposition ofIRbands,measurementofIRspectrum,fingerprint region, characteristicabsorptionsofvarious functional groups andinterpretationofIRspectra ofsimple organic compounds

UnitII :Organometalliccompounds

TheGrignardreagent-formation,structureandchemicalreaction,organozinc compound: formation and chemicalreactions.Organolithiumcompounds-Formation and chemical reactions.
Nomenclature,structuralfeatures,methodsofformationandchemicalreactions of thiols,thioethers, sulphonic acids, sulphonamide and sulpha guanidine.

UnitIII :Heterocyclic compounds- I

Introduction, molecularorbital picture and aromatic characteristic of pyrrole, furane,thiophene andpyridine.Methodsofsynthesisandchemicalreactionswithparticularemphasisonthe mechanism ofelectrophilicsubstitution.Mechanism ofnucleophilicsubstitution reaction inpyridinederivatives. Comparisionofbasicityofpyridine, piperidine and pyrrole

UnitIV : Heterocycliccompounds-II:

Introductiontocondensedfiveandsixmemberedhetrocycles.Preparationand reactionofindole,quinolineand isoquinolinewithspecialreference tofischer indolesynthesis,skraupsynthesis andBischler-Napieralskisynthesis,mechanismofelectrophilicsubstitution reactionofindole,quinolineandiso quinoline.

Learning Outcomes: After complition the course student would able to:

- Calssify the various organic compounds on the basis of UV spectra and transition.
- Describe and discuss about formation, structure and chemical reactions of heterocyclic compounds.
- Draw and interpret the molecular orbit picture and aromatic characteristics of organometallic and heterocyclic compounds.
- Define various devivatives and reaction mechanism of synthesis and substitution related to heterocyclic compounds.

Chemistry- Paper-III :Physical Chemistry

Objectives:

- To aware about degree of freedom, phase equilibria and quantum mechanism.
- To develop conceptual knowledge about entrophy, electrolytes dipole moment etc.
- To develop analytical view about evaluation of absolute entrophy, activity coefficient and magnetic propertires of compounds.
- To give information about carnt theorem, mixing of gases, overvoltage and referectivity.

UnitI: PhaseEquilibriumI

Statementandmeaning of the terms-phase,componentand degree of freedom, thermodynamicderivationofGibbsphaserule,phaseequilibriaofonecomponentsystem-water,CO_2 andS systems.

Phaseequilibriaoftwocomponentsystem:Solid-liquidequilibria,simpleeutecticBi-Cd,Pb-Ag systems, desilverisationoflead.

Solidsolutions**:**Compoundformationwithcongruentmelting point(Mg-Zn)andincongruentmeltingpoint, (NaCl-H_2O),($FeCl_3$-H_2O) and $CuSO_4$-H_2O) system. Freezingmixtures,acetone-dryice.

UnitII :PhaseEquilibriumII

Liquid–Liquidmixtures- Idealliquidmixtures.Raoult`s andHenry`slaw.Nonideal system-azeotropes-HCl–$H_2O$and ethanol-watersystems.

Partially miscible liquids- Phenol-water, trimethylamine-water, nicotine-water systems. Lower andupper consulate temperature. Effectof impurityon consulattemperature.

Immiscible liquids,steamdistillation. Nernstdistribution law-Thermodynamic derivation,applications.

UnitIII :QuantumMechanicsI

Black-bodyradiation,Planck`sradiationlaw,photoelectriceffect,heatcapacityof solids, Behr`s modelofhydrogenatom(noderivation)andits defects. ComptonEffect.De Brogliehypothesis, Heisenberg`suncertainty principle,Sinusoidalwaveequation,Hamiltonianoperator,Schrodingerwaveequation anditsimportance,physicalinterpretationofthewavefunction,postulatesofquantummechanics,particleina one dimensionalbox.

SchrodingerwaveequationforH-atom,separationintothreeequations(withoutderivation),quantumnumbers and their importance, hydrogen like wave functions, radialwave functions,angularwave functions.

UnitIV :Adsorption

Differencebetween adsorption,absorptionandsorption, Chemisorption,adsorbentandadsorbate, reversible and irreversible adsorption, Characteristics of adsorption ,adsorption of gases by solids, factors affecting adsorption,typesofadsorption, typesofadsorptionisotherms,FreundlichandLangmuiradsorption isotherms.

Learning Outcomes: After complition the course student would able to:

- Classify the electrodes, cells and properties of organic compounds.
- Determine and interpret the function of volumes, equations, coefficients related to entrophy, corrosion and molecular structures.
- Describes various properties of compounds on the basis of energy, potential and dipole moment etc.
- Measure the entropy change, pH and polarization and magnetic properties of compounds.

Term paper/ practicals

Inorganic chemistry:

Preparation:

1. Preparation ofsodiumtrioxalato ferrate (III), $Na_3[Fe(C_2O_4)_3]$ (b)preparation ofNi-DMG complex$[Ni(DMG)_2]$
2. Preparation ofcopper tetraammine complex $[Cu(NH_3)]SO_4$
3. Preparation ofcis-and trans-bisoxalato diaquachromates (III) ion
4. Preparation ofsodiumtetrathionate

Organic Chemistry

Qualitative analysis: Analysis ofan organic mixture containingtwo solid componentsusingwater,$NaHCO_3$,and NaOHforseparationand preparation ofsuitable derivatives.

Suggested Reading:

1. A New Concise Inorganic Chemistry; Fifth Edition; J.D. Lee; Blackwell Science, London, 1989.
2. Inorganic Chemistry; Third Edition; D.F. Shriver and P.W. Atkins; Oxford University Press, New York, 1999.
3. Inorganic Chemistry; Third Edition; Gary L. Miessler and Donald A. Tarr; Pearson Education Inc. Singapore, 2005.
4. Organic Chemistry; Seventh Edition; T.W. Graham Solomons & Craig B. Fryhle; John Wiley and Sons, 1998.
5. Organic Chemistry; Sixth Edition; Robert Thornton Morrison & Robert Neilson Boyd; PHI Pvt. Ltd, 2004.
6. Organic Chemistry Vol. I ; Fifth Edition; I.L. Finar; Longman Scientific and Technical, Singapore, 1975.
7. Organic Chemistry: Vol 1, Mukerjee and Singh
8. Organic Chemistry: Vol 2, Mukerjee and Singh
9. Organic Chemistry: Vol 3, Mukerjee and Singh
10. A Text Book of Physical Chemistry; A.S. Negi, S.C. Anand; New Age International (P) Limited, New Delhi, 2002.
11. The Elements of Physical Chemistry; P.W. Atkins; Oxford University Press, 1996.
12. University General Chemistry; C.N.R. Rao; Macmillan India Ltd., New Delhi, 1998.
13. Physical Chemistry: Puri Sharma and Pathania
14. Physical Chemistry: J. Moore
15. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
16. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
17. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
18. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
19. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
20. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
21. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
22. प्रायोगिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाऊस, जयपुर
23. कार्बनिक रसायन, वी.के. रस्तोगी, यसपाल सिंह, कॉलेज बुक हाउस, जयपुर

Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 502	Physics-I	CE*	4	15	20	25	100
	Physics-II				20		
	Physics-III				20		

Physics-Paper-I :Mathematical Physics and Special Theory of Relativity – I

Objectives:

- To understand the concept of co-ordinate transformation.
- To know the concept of tensor analysis and dirac delta function.
- 3.To understand the Special functions (Legendre, Bessel, hermite and laguerre) .
- To aware the techniques of variables and its application to boundary value problems

UNIT I Coordinate Transformation:

Orthogonal curvilinear coordinate system, scale factors, expression for gradient, divergence, curl and their application to Cartesian, circular cylindrical and spherical polar coordinate. Coordinate transformation and Jacobian.

UNIT II Tensor analysis & Dirac Delta function:

Transformation of covariant, contravariant and mixed tensor; Addition, multiplication andcontraction of tensors; Metric tensor and its use in transformation of tensors. Dirac delta function and its properties.

UNIT III Special functions:

The second order linear differential equation with variable coefficient and singular points, seriessolution method and its application to the Hermite, Lagendre and Laguerre differential equations:basic properties like orthogonality, recurrence relation, graphical representation and generating function of Hermite, Lagendre , Leguerre functions (simple applications)

UNIT IV Boundary Value Problems:

Techniques of separation of variables and its application to following boundary value problems (i) Laplance equation in three dimensional Cartesian coordinate system- line charge beween twoearthed parallel plates (ii) Helmholtz equation in circular cylindrical coordinates – cylindricalresonant cavity, (iii) Wave equation in spherical polar coordinates – the vibrations of a circularmembrane, (iv) Diffusion equation in two dimensional Cartesian coordinate system – leatconduction in a thin rectangular plate, (v) Laplace equation in spherical coordinate system –electric potential around a spherical surface.

Learning Outcomes: After complition the course student would able to:

- Discuss the concept of co-ordinate transformation.
- Classify the concept of tensor analysis and dirac delta function.
- 3.Differentiate the Special functions (Legendre, Bessel, hermite and laguerre) .
- Applies the techniques of variables and its application to boundary value problems.

- ❖ 5 Identify the laplace equation in spherical co ordinate system.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, गणितीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics- Paper-II :Quantum Mechanics – I

Objectives:

- To Understand the Origin and Experimental Evidence of Quantum theory.
- To aware the Uncertainty Principles and Schrodinger's Wave Mechanics.
- To develop concept the Postulates and Operators of Quantum Mechanics.
- To understand the Simple Solutions of Schrodinger Equation.

UNIT I Origin and Experimental Evidence of Quantum Theory:

Development of quantum theory –Historical development and experimental evidence for quantumtheory Electromagnetic Radiation: Black Body Radiation, qualitative discussion of spectral distribution ofenergy, limitation of classical theory, Planck's radiation law, photoelectric effect, Compton effect, MatterWaves: De Broglie hypothesis, Davison Germer experiment.

UNIT–II Uncertainty Principles and Schrodinger's Wave Mechanics :

Uncertainty principle and its consequences gamma ray microscope, diffraction at a single slit, itsapplication such as (i) Non existence of electron in nucleus, (ii) Ground state energy of H–atom, (iii)Ground state energy of harmonic oscillator (iv) Natural width of spectral lines. Schrodinger's equation :Its need and justification, time dependent and time independent forms, physical significance of the wavefunction and its interpretation, probability current density.

UNIT–III Postulate's and Operators of Quantum Mechanics :

Operators in quantum mechanics, definition of an linear operator. Linear and Hermition operator, state function. Expectation value of dynamical variable-position, momentum and energy, Fundamentalpostulates of quantum mechanics, Eigen function and eigen values, Degeneracy. Orthogonality of eigenfunction, Commutation relations, Ehrenfest's theorem and complementarily wave packet, group and phasevelocities, Principle of superposition, Gaussian wave packet.

UNIT IV Simple Solutions of Schrodinger equation :

Time independent Schrodinger equation and stationary state solution, Boundary and continuity conditions on the wave function, particle in one dimensional box, eigen function and eigen values , discrete energy levels, extension of results for three dimensional case and degeneracy of levels.

Learning Outcomes: After complition the course student would able to:*:*

- Discuss the Origin and Experimental Evidence of Quantum theory.
- Apply the Uncertainty Principles and Schrodinger's Wave Mechanics.
- Identify the Postulates and Operators of Quantum Mechanics.
- Calculate the Simple Solutions of Schrodinger Equation
- Discuss on the descrete energy level.

Suggested Reading:

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, क्वांटम यांत्रिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics- Paper-III:Solid State Physics

Objectives:

- To know the concept of Crystal Binding and crystal Structure.
- To understand the Thermal and Electrical Properties of the Solids.
- To aware the concept of Band Theory of Solids.
- To develop concept the Magnetic Property of materials.

UNIT-I Crystal Binding and Crystal Structure:

Various types of Bindings: Cohesive energy and compressibility of ionic crystals , Space Lattice andCrystal Structure, Bravis Lattice, Miller Indices and Crystal Structure, Spacing of Planes in CrystalLattice, Determination of different crystal properties for SC, FCC, BCC,HCP and perovaskite structure,X-ray Diffraction and Bragg's Law, Laue equation of X-ray diffraction, Debye Scherer and LaueCamera.

UNIT-II Thermal and Electrical Properties of the Solids:

Concepts of Thermal Energy and Phonons, Internal Energy and Specific Heat, the Various Theories of Lattice Specific Heat of Solids: The Einstein Model, Debye Model, Electronic Contribution of theinternal Energy hence to the Specific Heat of Metals, Thermal Conductivity of the lattice. ElectricalConductivity: Drude-Lorentz Theory of Electrical Conductivity, Boltzmann Transport Equation,Sommerfield Theory of Electrical Conductivity, Mathiessen's Rule, Thermal Conductivity andWildemann-Franz's Law, The Hall Effect.

UNIT-III Band Theory of Solids:

Formation of Bands, Periodic Potential of a Solid, Wave Function in a Periodic Lattice and BlochTheorem, Density of states , Kronig Penny Model, Velocity of the Bloch electrons and DynamicalEffective Mass, Momentum, Crystal Momentum and Physical Origin of the Effective Mass, NegativeEffective Mass and concept of Holes, The distinction between metals, insulators, and semiconductors.

UNIT-IV Magnetic Properties:

Classification of Magnetic Materials, Origin of Atomic Magnetism, Dynamics of Classical Dipole InMagnetic Field, Magnetic Susceptibility, phenomenon of Diamagnetic, Para magnetic susceptibility of Ionic Crystal, Ferromagnetism, Temperature Dependence of Saturation of Spontaneous Magnetization, The Paramagnetic Region, the Nature of Ferromagnetism, Nature and Origin of Weiss Molecular Field, Heisenberg's Exchange Interaction, (Quantum Theory of Ferromagnetism), Relation between Exchange Integral and Weiss Constant, Ferromagnetism Domains, Magnetostriction

Learning Outcomes: After complition the course student would able to:

- Identify the concept of Crystal Binding and crystal Structure.
- Study the Thermal and Electrical Properties of the Solids.
- Classify the concept of Band Theory of Solids.
- Discuss the Magnetic Property of materials.
- Identify relation between exchange integral and Weiss constant.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, ठोस अवस्था भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics Practical: V

1. 1.Study of a RC transmission line at 50 Hz
2. Study of a RC transmission line
   - at fixed frequency
   - at variable frequency
3. Study of resonance in a LCR circuit 9 (Using air core inductance and damping by metal plate)
   - At fixed frequency by varying C, and
   - by varying frequency
4. Study of charecteristics of junction diode and zener diode
5. Study of
   - Recovery time of junction diode and point contact diode
   - Recovery time as function of frequency of operation and switching current
6. To design zener regulated power supply and study the regulation with various loads.
7. To study the characteristics of a field effect transistor (FET) and design/study amplifier of finite gain
8. To study the frequency response of a transistor amplifier and obtain the input and output impendence of the amplifier.
9. To Design and study of an R-C phase shift oscillator and measure output impendence (frequency response with change of component of R and C).
10. To study a voltage multiplier circuit to generate high voltage D.C. from A.C.
11. Using discrete components, study OR, AND, NOT logic gates, compare with TTL integrated circuits (I.C.'s).
12. Application of operational amplifier (OP-AMP) as : Minimum two of the following exercises- (a) Buffer (for accurate voltage measurement) (b) Inverting amplifier (c) Non inverting amplifier (d) Summing amplifier.

Suggested Reading :

1. प्रो. प्रभा दशोरा, तृतीय वर्ष प्रायोगिकी भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, नई दिल्ली,2015

Semester-V

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Practical	Total
BSC 503	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		

Mathematics-Paper-I:Algebra - I

Objectives:

- To Understand the definition and Simple Properties of Group & Subgroup.
- To aware the Cayley's Theorem and Fundamental Theorem of Isomorphism.
- To know the Definition of Ring and Subrings.
- 4 To gain knowledge of morphism of ring.

Unit 1: Definition and simple properties of Groups and Subgroups. Permutation group, Cyclic group. Cosets,

Unit 2 ; Lagrange's theorem on the order of subgroups of a finite order group.

Unit 3: Morphism of groups, Cayley's theorem. Normal, subgroups and Quotient groups. Fundamental theorems of Isomorphism.

Unit 4: Definition and simple properties of Rings and Subrings. Morphism of rings. Embedding of a ring

Learning Outcomes: After complition the course student would able to:

- Discuss on definition and Simple Properties of Group & Subgroup.
- Apply the Lagrange's Theorem on the Order of Subgroups.
- Calculate the Cayley's Theorem and Fundamental Theorem of Isomorphism.
- Discuss the definition of Ring and Subrings.
- Differentiate group, subgroup and quotient group.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी,बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics- Paper-II:Complex Analysis -I

Objectives:

- To Understand the Complex Plane, Connected & Compact Set.
- To Aware the Complex Valued function.
- To know the Complex Integral.
- To study taylor's theorem and laurent's theorem .

Unit 1: Complex plane. Connected and Compact sets. Curves and Regions in complex plane. Jordan curve Theorem (statement only). Extended complex plane. Stereographic projection.

Unit 2 ; Complex valued function — Limits, Continuity and Differentiability. Analytic functions, Cauchy-Riemann equations (Cartesian and polar form). Harmonic functions, construction of an analytic function.

Unit 3 : Complex integration, Complex line integrals, Cauchy integral theorem, Indefinite integral, Fundamental theorem of integral calculus for complex functions. Cauchy integral formula, Analyticity of the derivative of an analytic function, Morera's theorem, Poisson integral formula, Liouville' theorem.

Unit 4 : Taylor's theorem. Laurent's theorem. Maximum modulus theorem

Learning Outcomes After complition the course student would able to:

- Discuss the Complex Plane, Connected & Compact Set.
- Identify the Complex Valued function.
- Classify the Complex Integral.
- Solve the Taylor's Theorem and Maximum Modulus Theorem.
- Discuss on the fundamental theorem of integral calculus for complex functions.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics- Paper-III:Dynamics

Objectives:

- To Understand the Velocity and Acceleration.
- To Study the Motion along Horizontal & Vertical Elastic String.
- To aware the Motion in Resisting medium.
- To know about simple harmonic motion and Hooke's Law.

Unit 1: Velocity and acceleration — along radial and transverse directions, along tangential and normal directions.

Unit 2 : S.H.M., Hooke's law, motion along horizontal and vertical elastic strings.

Unit 3: Motion in resisting medium - Resistance varies as velocity and square of velocity.

Unit 4: Work and Energy. Motion on a smooth curve in a vertical plane. Motion on the inside and outside of a smooth vertical circle.

Learning Outcomes: After complition the course student would able to:

- Discuss the Velocity and Acceleration.
- Classify the Motion along Horizontal & Vertical Elastic String.
- Identify the Motion in Resisting medium.
- Calculate Work and Energy.
- Calculate the motion on the inside and outside of a smooth vertical circle.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित, जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 504	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		

Botany-Paper-I:Morphology Of Angiosperms

Objectives:

- To understand the basic plan of flouring plants.
- To get knowledge about the morphology of root system and shoot system.
- To learn the origin, development and types of leaves
- To study the detailed structure of flower.
- To aware students with the concept and significance of seed.

UNIT 1: Plant habit

The basic plan of flowering plants, modular types of growth, diversity of plant formin annuals, biennials and perennials, evolution of tree habit in gymnosperm, monocotyledons and dicotyledons, trees largest and longest lived plants.

UNIT II Morphology of Root System

Root: Structure of root, types and structural modification for storage, physiological and mechanical, interaction of root with other microorganisms.

Stem: Structure, types and modification (storage and mechanical), branching pattern, monopodial and sympodial growth, canopy architecture.

UNIT III: II Morphology of Leaves

Leaves: Origin, development, types, phyllotaxy, venation, lamina parts, shapes, size and modifications, leaf surface features and appendages, leaf surface area, stomata and trichome structure.

UNIT IV: II Morphology of Flower and Seed

Flower: Flower as a modified shoot, detailed structure of flower, types of inflorescence and specialized inflorescence, **fruit** Structure, types and classification,

Seed: detail structure of seed and seed coat (monocot and dicot), significance of seed, suspended animation, dispersal strategies.

Learning Outcomes: After complition the course student would able to:

- Understand the basic plan of flouring plants.
- Carry out the comparative morphology of root system and shoot system.
- Discuss the origin, development, types of leaves
- Get knowledge about the detailed structure of flower
- Interpret the concept of seed with its significance.

Suggested Readings:

1. Eames, A. J. 1981. Morphology of Angiosperms .McGraw Hill, New York.
2. Gifford, E.M. and Foster, A.S. 1989. Morphology and Evolution of Vascular Plants. W.H. Freeman, New York.
3. Sporne, K.R. 1974. Morphology of Angiosperms. Hutchinson University Press, London.
4. Singh, V.P., Pandey, P.C. and Jain, D.K**.** 2011. A Text book of Botany- Angiosperms. Rastogi Publication, Merrut.
5. Trivedi, P.C., Sharma, N. and Dhankad, R. S. 2009. Plant Morphology and Anatomy. Ramesh Book Depot. Jaipur.

Botany- Paper-II :Anatomy Of Flowering Plants

Objectives:

- To understand the structure and classification of tissues
- To distinguish simple and complex tissues.
- To know about the definition, classification, types and function of meristem.
- To study the anatomy of stem, root and leaf.
- To analyze different types of wood with secondary growth

UNIT I: Classification and structure of tissues

Simple tissue: Structure occurrence and function (parenchyma, collenchyma, sclerenchyma), Complex tissues: Structure, origin and function (xylem and phloem), tissue systems, Secretary tissues: Glands, glandular hairs, nectaries, hydathodes, schizogenous and lysigenous ducts, resin ducts, mucilage ducts and laticifers. Vascular bundle: Types (conjoint, collateral, bi-collateral, open closed, radial, concentric: amphicribal and amphivasal).

UNIT II: Meristem

Meristem definition, classification, types and function, Shoot apical meristem theories: Apical cell theory, histogen theory, tunica-corpus theory, continuing meristematic residue, cytohistological zonation. Root apical meristem theories: Apical cell theories, histogen theory, korper-kappe theory, quiescent cell theory,

UNIT III: Analogy of Stem, Root and Leaf

Stem: Primary structure in dicotyledonous and monocotyledonous, primary anomalous structures. Root: Primary structure in dicotyledonous and monocotyledonous, development of lateral roots and adventitious root. Leaf- Internal structure of dorsiventral,isobilateral and centric leaves.

UNIT IV: Secondary growth

Secondary growth in dicot and monocot stem. Secondary structures: Wood structure, types and formation of wood, annual rings, tyloses, dendrochronolgy,periderm,bark and lenticels. Anomalous secondary growth in dicot stem, in monocot stem in dicot roots.

Learning Outcomes: After complition the course student would able to:

- Understand the structure and classification of tissues
- Distinguish simple and complex tissues.
- Explain the definition, classification, types and function of meristem.
- Discuss the anatomy of stem, root and leaf.
- Analyze different types of woods with secondary growth.

Suggested Readings:

1. Cuttler, E.G. 1971. Plant Anatomy. Part III Organs, Edward Arnold Ltd., London.
2. Cuttler, E.G. 1969. Plant Anatomy. Part I Cells and Tissue. Edward Arnold Ltd., London.
3. Eames, A.J. and MacDaniels, L.H. 1987. An Introduction to Plant Anatom*y*. Tata MacGraw-Hill Publishing Company Ltd., New Delhi.
4. Esau, k. 1985. Plant Anatomy. 2nd Edition Wiley Eastern, New Delhi.

5. Fahn, A. 1997. Plant Anatomy. Aditya Books (P) Ltd., New Delhi.
6. Fahn, A. 2000. Plant Anatomy. Permagon Press.
7. Gifford, E.M. And Foster, A.S. 1989. Morphology and Evolution of Vascular Plants. W.H. Freeman, New York.
8. Pandey, S.N. and Chadha, A. 2014. A text book of Botany- Plant anatomy and Economic Botany. Vikas publishing house Pvt. Ltd, New Delhi.
9. Vashishta, P.C. 1974. Plant Anatomy. Pradeep Publication, Jalandhar.
10. Singh, V.P., Pandey, P.C. and Jain, D.K**.** 2011. A Text book of Botany- plant Morphology and anatomy. Rastogi Publication, Merrut.
11. Trivedi, P.C., Sharma, N. and Dhankad, R. S. 2009. Plant Morphology and Anatomy. Ramesh Book Depot. Jaipur.

Botany- Paper-III :Anatomy Of Flowering Plants Plant Systematics

Objectives:

- To understand the scope and importance of plant systematics .
- To study the different taxonomical tools.
- To get knowledge about the principle and rules of botanical nomenclature.
- To aware students with different families with Bentham and hooker classification.
- To learn about the botanical gardens and herbariums.

UNIT I:

Scope and importance of taxonomy, history and classification of angiosperm (Linneaus, Bentham and Hooker and Engler and Prantl), concept of species, genus and family. Taxonomic tools: Herbarium, E-Flora, botanical garden, monograph, library index, journals, key and icons.

UNIT II:

Principle and rules of botanical nomenclature: Ranks, names, type method, principle of priority and its limitations, Rules of Validity, Rules of Effectivity, Terms and concepts (primitive and advanced, homology and analogy, parallelism and convergence, monophyly, paraphyly and polyphyly

UNIT III:

Taxonomic studies of the following families (Bentham and Hooker), Dicots: Ranunculaceae, Brassicaceae, Malvaceae, Rubiaceae, Fabaceae, Apiaceae, Asteraceae, Apocynaceae and Asclepidaceae.

UNIT IV:

Taxonomic studies of the following families (Bentham and Hooker): Solanaceae, Convolvulaceae, Acanthaceae, Lamiaceae, Amaranthaceae, Euphorbiaceae, Liliaceae, Orchidaceae and Poaceae.

Learning Outcomes: After complition the course student would able to:

- Understand the scope and importance of angiosperms.
- Enhance knowledge about the taxonomical tools.
- Discuss the principle and rules of botanical nomenclature.
- Compare different families with Bentham and hooker classification
- Learn about the botanical gardens and herbariums.

Suggested Readings:

1. Naik, V.N.2011. Taxonomy of Angiosperms. TATA McGraw Hill, New Delhi.
2. Pandey, S.N. and Misra, S.P. 2008. Taxonomy of Angiosperms. Ane Books India, New Delhi.
3. Saxena, N.B. and Saxena, S. 2011. Plant Taxonomy. Pragati Prakashan, New Delhi.
4. Sharma, B.D. 1984. Flora of India vol. I. Botanical Survey of India, Calcutta.
5. Sharma, O.P. 1996. Plant Taxonomy. TATA McGraw Hill, New Delhi
6. Simpson, M.C. 2006. Plant Systematics. Elsevier, Amsterdam.
7. Singh, G. 2001. Plant systematics. Oxford and IBH, New Delhi.
8. Sivarajan, V.V. 1991. Introduction to Principles of Plant Taxonomy**.** Oxford and IBH, New Delhi.

BOTANY PRACTICAL V

1. Study of different modifications of root, stem, leaf by using specimens.
2. Study of different epidermal appendages (trichome etc.) by making slides.
3. Study of floral apex.
4. Survey and study of dispersal mechanism of seeds.

5. Microscopic studies on types and anatomy of stomata (monocotyledons and dicotyledons).
6. Study of apical and lateral meristem using plant material and slides
7. Anatomical study of root, stem and leaf (dicotyledons and monocotyledons) by making double stained temporary and permanent slides.
8. Anatomical studies of anomalous secondary structure in stem by making temporary andpermanent slides.
9. Anatomical study of dicot and monocot seed (Cicer, Maize and cotton)
10. Study of vegetative and floral characters of species of the families studied in theory.
11. Identification of selected taxa up to genus using taxonomic keys.
12. Herbarium technique.
13. Familiarity with local flora and preparation of herbarium sheet.

Semester-V

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Practical	Total
BSC 505	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		

Zoology-Paper-I: Ethology

Objectives:

- To understand Concepts of Ethology- Motivation, Fixed Action Patterns (FAP), Sign Stimulus; Innate Releasing Mechanism (IRM); Action Specific Energy (ASE); Learning; Imprinting.
- To understand Methods of Studying Behaviour: Studies in Laboratory- Neurotransmitter, physiological and Neurochemical techniques. Brief account on Pheromones,
- To explain the Social organization.
- To learn about the Biological Rhythms
- To explain the control of behavior neural control hormonal control

Unit I: Concept of Ethology

1.1 Introduction and history of Ethology

1.2 Concepts and patterns of behaviour: FAP, Sign Stimulus, Innate Releasing Mechanism, Action Specific Energy, Concept of motivation

1.3 Learned behaviour and types of learning

Unit II: Study of Behaviour

2.1. Methods of studying Brain Behaviour: Neurotransmitter, Physiological and Neurochemical Technique

2.2 Genetic basis of behaviour

2.3 Control of behaviour: Neural control, Hormonal control

2.4 Elementary idea of role of Pheromones

Unit III: Social Organisation

3.1 Elements of Social Behabiour

3.2 Living in groups: Characteristics and advantages with respect to Honey bee, Deer, monkey

3.3 Migration in Birds; Causes of migration and Navigation

Unit IV Biological Rhythms

4.1 Faunal diversity in India and World; Endangered Mammals and Birds of India

4.2 Wild life Conservation with reference to India & Rajasthan

4.3 National Parks, Sanctuaries and Biosphere Reserves of India

Learning Outcomes: After complition the course student would able to:

- Concepts of Ethology- Motivation, Fixed Action Patterns (FAP), Sign Stimulus; Innate Releasing Mechanism (IRM); Action Specific Energy (ASE); Learning; Imprinting.
- Methods of Studying Behaviour : Studies in Laboratory- Neurotransmitter, physiological and Neurochemical techniques. Brief account on Pheromones,
- Understand the Social organization.
- Interprets the Biological Rhythms
- Discuss the control of behavior neural control hormonal control

Zoology-Paper-II :Biotechniques, Instrumentation and Bioinformatics

Objectives:

- To learn about the term Electrophoresis, Radioactivity.
- To understand the working principle of Centrifuge, Incubator, pH meter.
- To understand the cell culture techniques and separation techniques in biology.
- To Understand the Principle, parts, and its application of Microscopic techniques. Understand the working principle of UV-Vis principle, Colorimeter.
- To aware the recognize the importance of various databases

Unit –I: Biotechniques

1.1 Concepts of sterilization: Filtration, autoclaving, dry heat sterilization, wet sterilization and radiation

1.2 Separation of biomolecules: Centrifugation (Sedimentation, density gradient);Chromatography (Elementary idea of Paper – ascending and Circular, thin layer, gel filtration and ion exchange-Principles and applications)

1.3 Electrophoresis: Agarose Gel Electrophoresis, SDS-PAGE

Unit-II: Micro Technique

2.1 Fixation, dehydration, clearing, embedding & section cutting

2.2 Difficulties encountered during section cutting (causes and remedies)

2.3 Double staining with Haematoxylin and Eosin

2.4 Histochemical staining techniques for carbohydrates (Periodic acid schiff), proteins (Mercury-bromophenol blue) and lipids (Sudan black-B)

Unit-III: Instrumentation

3.1 Microscope: Principle of Microscopy and types

3.2 Principles of colorimeter

3.3 Principles of spectrophotometers

Unit-IV: Bioinformatics

4.1 Bioinformatics: Definition, Scope, Basic concepts in bioinformatics, importance and role of bioinformatics in life sciences

4.2 Bioinformatics databases- introduction, types of databases

4.3 Nucleotide sequence databases, Elementary idea of protein databases

4.4 BLASTA, FASTA, PHYLOGENY TREE Analysis

Learning Outcomes: After complition the course student would able to:

- Discuss the term Electrophoresis, Radioactivity.
- Understand the working principle of Centrifuge, Incubator, pH meter.
- Understand the cell culture techniques and separation techniques in biology.
- Understand the Principle, parts, and its application of Microscopic techniques. Understand the working principle of UV-Vis principle, Colorimeter.
- Recognize the importance of various databases

Zoology-Paper-III:Immunology& Biotechnology

Objectives:

- To understand Distinguish Innate immunity and Acquired Immunity
- To understand the importance of Immune system
- To understand Study and understand the DNA Recombinant technology
- To Understand the Scope and Significance of Biotechnology
- To learn about mechanism of Antigen & Antibody reaction

Unit –I: (Basics of Immunology)

1.1 Characteristics of Immune System; Types of immunity: Active, passive, innate and acquired immunity

1.2 Types of antibodies and their structure and function.

1.3Mechanism of Antigen Antibody reactions: Precipitation, agglutination, Neutralisation, Opsonization, Complement

Unit –II: (Cells and Organs in Immunity)

2.1 Immune Cells & Organs: B and T Lymphocytes, Plasma Cell, Null Cell, Primary and Secondary Lymphoid Organs; tonsils, adenoids, thymus, bone marrow, bursa fabricus, macrophages

2.2 Mechanism: Humoral and Cell- Mediated Immunity.

2.3 Complement System, Interferons, Vaccines

Unit –III: (Biotechnology)

3.1 History, Scope and application of recombinant DNA technology; Genetic Engineering

3.2 Basic concepts in recombinant DNA technology, cDNA Library; DNA manipulation enzymes (Nucleases, Ligases, Polymerases)

3.3 Vectors for Gene Transfer (Plasmids and Phages)

Unit –IV: (Applications of Biotechnology)

4.1 Monoclonal antibodies and their production and applications

4.2 Protoplast Fusion and their Application

4.3 Environmental Biotechnology: Metal recovery; Petroleum recovery; Pest Control; Waste Water Treatment

Learning Outcomes: After complition the course student would able to:

- Distinguish innate immunity and Acquired Immunity.
- Understand the importance of Immune system.
- Study and understand the DNA Recombinant technology.
- Understand the Scope and Significance of Biotechnology.
- Discuss the mechanism of Antigen & Antibody reaction

Zoology Practical

Paper-I: Ethology

1. Locomotory behaviour of (Tribolium):
   - Effects of light intensity and light quality on the rate of locomotion
2. Study of individual and social behavioural patterns of a troop of monkey through visual aids
3. Antenal Grooming in Cockroach

Paper-II: Biotechniques, Instrumentation & Bioinformatics

1. Separation of amino acids by paper chromatography and TLC
2. Separation of proteins by electrophoresis technique
3. Double staining method
4. Demonstration of carbohydrates, proteins and lipids by histochemical methods
5. Introduction to basic laboratory instruments and equipments- Autoclave, Centrifuge, pH meter, Micropipettes, Digital balance, Homogenizer, Electrophoresis apparatus; Molar and normal solutions calculations
6. Use of internet for survey of literature using protein and nucleotide databases(NCBI)
7. Use of softwares like Microsoft offices, BLASTA, FASTA

Paper-III: Immunology & Biotechnology

1. Antigen – Antibody interaction by double diffusion method (Ouchterlony)
2. Study of histological slides of organs of immune system – Thymus, Lymph nodes and Spleen
3. Isolation of DNA/ Plasmid (Genomic DNA from any available source) by phenol extraction method.

Suggested Reading:

Biotechnology

1. Elements of Biotechnology – Gupta
2. T. B. of Biotechnology – Dubey
3. Modern Concept of Biotechnology – Kumar H. D
4. Advances in Biotechnology – Jogdand
5. T. B. of Biotechnology – Chatwal
6. Bhatiya and Jain, 2015, Immunology, Microbiology and Biotechnology, Himalaya Publishing House Pvt. Ltd. Delhi

Biotechnique and Microtechnique

1. Animal Tissue Technique – Humason
2. Histological Technique – Devaenport
3. Microtechnique – Jiwaji&Patki
4. Microtechnique – Wankhede
5. Biophysical Chemistry – Upadhyay, Upadhyay and Nath
6. Techniques in Life Sciences – D. B. Tembhare

Bioinformatics

1. Mount W. 2004. Bioinformatics and Sequence Genome Analysis 2nd Editon CBS Pub. New Delhi.
2. Bergman, N. H. Comparative Genomics. Humana Press Inc. Part of Springer Science+BusinessMedia, 2007.
3. Baxevanis, A. D. Ouellate, B. F. F. 2009. Bioinformatics: A Practical Guide to the
4. Analysis of Genes and Proteins.John-Wiley and Sons Publications, New York.
5. Campbell A. M. and Heyer, L. J. 2007. Discovering Genomics, Proteomics and Bioinformatics, 2nd Edition. Benjamin Cummings.

6. Des Higgins and Willie Taylor 2000. Bioinformatics: Sequence, Structure and Databanks.Oxford University Press.
7. Rashidi H. H. and Buehler 2002. Bioinformatics Basics: Applications in Biological Science and Medicine, CRC Press, London.
8. Gibas Cynthia and Jambeck P. 2001. Developing Bioinformatics Computer Skills:
9. ShroffPublishersand Distributors Pvt. Ltd. (O'Reilly), Mumbai.
10. Bhatiya and Jain, 2015, Immunology, Microbiology and Biotechnology, Himalaya Publishing House Pvt. Ltd. Delhi

Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 601	Chemistry-I	**Any Three CC**	**4**	**15**	**20**	**25**	**100**
	Chemistry-II				**20**		
	Chemistry-III				**20**		

Chemistry-Paper-I :Inorganic chemistry

Objectives:

- To develop understanding about metl ligand bonding, metal complexes and organometallic.
- To aware about the conceptual knowledge of spectral properties and kinetic aspects of metal complexes.
- To develop conceptual knowledge about slection rules, trans effect and substitution reactions .
- To give information about spectrochemical series, kinetic stability and bonding application of alkyls and aryls .

UnitI : Metal– ligandbondingin transition metalcomplexes

Anelementary ideaofcrystal-field theory,crystalfield splitting in octahedral,tetrahedralandsquareplanarcomplexes, factorsaffecting thecrystal– fieldparameters, colouroftransition metalions, limitationsofcrystalfield theory.

UnitII : Spectralpropertiesoftransitionmetalcomplexes

Typesofelectronictransitions,selection rulesfor d-d transitions, spectroscopic ground statesandSpectoscopic terms(L-SCoupling), spectrochemicalseries, orgel- energyleveldiagramfor d^1 and d^9 states,theelectronicspectrumof$[Ti(H_2O)_6]^{+3}$ complex ion.

UnitIII :Thermodynamic and kinetic aspects of metal complexes

Thermodynamic and kinetic stability, thermodynamicstabilityandfactorsaffectingthestability,substitutionreactionsofsquareplanarcomplexes, typesofsubstitutionreactions andtranseffect.

UnitIV :Organometallic chemistry

Definition, nomenclature and classification of organometallic compounds, preparation,properties,bonding nadapplicationsofalkylsandarylsofLi,Al, Hg,SnandTi,abriefaccountof metal–ethyleniccomplexesandhomogenoushydrogenation,mononuclearcarbonylsandthenatureofbonding in metal carbonyls.

Learning Outcomes: After complition the course student would able to:

- Classify the organometallic compounds and metal complexes on the basis of transition, stability and bonding structures.
- Measure the correlation among structural & kinetic properties of metal complexes.
- Apply the knowledge of bonding, spectral properties and structures to define basic properties of compounds.
- Draw and interpret the energy level diagram and spectroscopic series for various states

Chemistry-Paper-II :Organic Chemistry

Objectives:

- To develop conceptual knowledge about nuclear magnetic resonance, industrial uses and structures of compounds .
- To aware about classification, nomenclature and properties of carbohydrates, amino acids,fats and detergents.
- To develop understanding about synthesis, group analysis and insdustrial uses of fat, oil and detergents.

UnitI :Nuclear magneticresonance(NMR)spectroscopy

Protonmagneticresonance^{1}H-NMR spectroscopy,nuclear shieldinganddeshielding, chemicalshiftandmolecularstructure,spinspinsplittingandcouplingconstant, areas ofsignals, interpretation ofPMRspectraofsimpleorganic moleculessuchasethylbromide, ethanol, acetaldehyde,1,1,2tribromoethane, ethylacetate, tolueneandacetophenone.Problemspertaining to thestructure elucidation ofsimple organic compounds usingUV, IRand PMR spectroscopictechniques.

UnitII :Carbohydrates :

Classification andnomenclature, monosaccharides, mechanismof osazone formation, inter conversionofglucoseandfructose,chainlengthing andchainshortening ofaldose. Configurationof monosaccharide. erythroandthreodiastereomers.Conversionofglucoseintomannose.Formationofglucosides, ethersandesters.Determinationofringsizeofmonosaccharides.CyclicstructureofD(+)-glucose.Mechanism ofmutarotation.Structureofriboseanddeoxy ribose.Anintroduction todisaccharides(maltose,sucrose and lactose)and polysaccharides (starch and cellulose) withoutinvolvingstructure determination.

UnitIII :Aminoacids,peptides,proteinsandnucleicacid

Classification,structure and stereochemistry ofaminoacids. Acidbase behaviourof isoelectric pointand electrophoresis. Preparation and reactionofα aminoacid. Structure and nomenclature ofpeptidesand proteins.Classification ofproteins,peptide structure determination, end group analysis, selectivehydrolysis of peptides. Classicalpeptidessynthesis, solidphasepeptide synthesis. Structreof peptidesandproteins,levelsofproteinstructure.Proteindenaturation /renaturation.

introduction. Constituents ofnucleic acidriboandribonucieosides,nucleotides.The double helicalstructure ofDNA/RNA

UnitIV :Fats, oils and detergents

Natural fats edible and industrial oils of vegetable resin common fatty acids, glycerides,hydrogenation ofunsaturatedoils. saponificationvalue, iodinevalue,acidvalue,soaps,synthetic detergents,alkyland arylsulphonates.

Learning Outcomes: After complition the course student would able to:

- Calssify the various compounds on the basis of structure, stereochemistry and formation process.
- Describe and discuss about formation, structure and chemical reactions of carbohydrates, peptides and nucleic acids.
- Apply the knowledge of industrial uses of fats, oils and detergents to produce some useful products.

Chemistry-Paper-III: Physical chemistry

Objectives:

- To aware about conceptual knowledge of photochemistry,spectroscopy and mechanics.
- To develop understanding about qualitative and quantitative description of fluorescence,selection rules and isotopes.
- To develop analytical view about laws of photochemistry, degree of freedom and energy levels.
- To give information about transfer process, Raman spectrum and atomic orbitals.

UnitI: Photochemistry:

Interactionofradiationwith matter,differencebetween thermalandphotochemicalprocesses. Lawsofphotochemistry:Grothus-Drapper law, Stark-Einstien law, Jablonskidiagramdepicting various processes occurring intheexcitedstate.,qualitativedescription offluorescence,phosphorescence,non radiative process(internalconversion, intersystemcrossing)quantumyield,photosensitizedreaction-energytransferprocess (simple examples)

UnitII: Spectroscopy I

Introduction:Electromagnetic radiation of the spectrum, basic features of different spectrometers, statementofthe Born Oppenheimerapproximation, degree offreedom.

Rotationalspectrum:Diatomicmolecules,Energy levelsofrigidrotator,(semiclassicalprinciples)selectionrules, spectralintensity,distributionusingpopulationdistribution(MaxwellBoltzmanndistribution), determinationof bond length, qualitative description ofnonrigidrotator, isotopeeffect.

Electronicspectrum: Concept of potential energycurves for bondingand anti bonding molecular orbital's, qualitative description ofselection rulesand Frank–Condon principle.

UnitIII: Spectroscopy II

Vibrational spectrum: Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules,purevibrationalspectrum,intensity.,determinationofforceconstant,qualitativerelationsof force constantsandbondenergy,effectofanharmonicmotionand isotopeson thespectrum,ideaofvibrational frequencies ofdifferent functionalgroups.

Ramanspectrum**:** Conceptofpolarizability,purerotationalandpurevibrationalRamanspectraofdiatomic molecules,selection rules.

UnitIV: QuantumMechanicsII:

Molecularorbitaltheory:Basicideascriteriaforforming M.O.fromA.O.construction ofM.O.`sbyLCAO-H_2^+ ion,calculationofenergylevelsfromwavefunctions,physicalpictureofbondingand antibonding wavefunctions, conceptof σ, σ*andπ, π*orbitals and theircharacteristics.Hybridorbitals sp,sp^2, sp^3,calculationofcoefficients ofatomic orbitalsused in thesehybrid orbitals.

Learning Outcomes: After complition the course student would able to:

- To measure the calculation of energy levels, coefficients and spectral intensity of compounds.
- To plot and interpret the bond energy, force constant, potential energy curves of compounds.
- To describes various properties of compounds on the basis of energy, potential and dipole moment etc.
- To analyze the various structures of compounds on the basis of quantum mechanics.

Term paper / Practicals
Inorganic chemistry
Calorimetry

a) Jobs
b) Mole ratio method

Adulteration –food stuffs
Effluent analysis water analysis.

PhysicalChemistry
Electrochemistry
(a) To determine the strength of the given acidconductometricallyusingstandard alkalisolution
(b)To determine the solubilityand solubilityproductofasparinglysoluble electrolyte conductometrically
(c) Tostudythe saponificationofethylacetateacetate conductometrically
(d)To determine the ionizationconstantofa weakacid conductrometrically
(e) TotitratepotentiometricallythegivenferrousammoniumsulphatesolutionusingKMnO4/ $K_2Cr_2O_7$ astitrantand calculatetheredox potentialofFe^{++}/Fe^{+++}systemon the hydrogen scale.

Molecularweight determination:

1. Determination ofmolecularweightofa non volatilesolute byRastmethod/Beckmann freezingpoint method.
2. Determinationoftheapparentdegreeofdissociationofanelectrolyte(e.g.NaCl)inaqueoussolutionat differentconcentrations byebullioscopy.

Colorimetry:
ToverifyBeer-LambertlawKMnO4/$K_2Cr_2O_7$ anddeterminetheconcentrationofthegivensolutionofthe substance.

Viva-Voce&Record
Suggested Reading:

1. A New Concise Inorganic Chemistry; Fifth Edition; J.D. Lee; Blackwell Science, London, 1989.
2. Inorganic Chemistry; Third Edition; D.F. Shriver and P.W. Atkins; Oxford University Press, New York, 1999.
3. Inorganic Chemistry; Third Edition; Gary L. Miessler and Donald A. Tarr; Pearson Education Inc. Singapore, 2005.
4. Organic Chemistry; Seventh Edition; T.W. Graham Solomons & Craig B. Fryhle; John Wiley and Sons, 1998.
5. Organic Chemistry; Sixth Edition; Robert Thornton Morrison & Robert Neilson Boyd; PHI Pvt. Ltd, 2004.
6. Organic Chemistry Vol. I ; Fifth Edition; I.L. Finar; Longman Scientific and Technical, Singapore, 1975.
7. Organic Chemistry: Vol 1, Mukerjee and Singh
8. Organic Chemistry: Vol 2, Mukerjee and Singh
9. Organic Chemistry: Vol 3, Mukerjee and Singh
10. A Text Book of Physical Chemistry; A.S. Negi, S.C. Anand; New Age International (P) Limited, New Delhi, 2002.
11. The Elements of Physical Chemistry; P.W. Atkins; Oxford University Press, 1996.
12. University General Chemistry; C.N.R. Rao; Macmillan India Ltd., New Delhi, 1998.
13. Physical Chemistry: Puri Sharma and Pathania
14. Physical Chemistry: J. Moore
15. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
16. अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
17. प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
18. भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
19. कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
20. अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
21. प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर

Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 602	**Physics-I**	**CE***	**4**	**15**	**20**	**25**	**100**
	Physics-II				**20**		
	Physics-III				**20**		

Physics- Paper-I:Mathematical Physics and Special Theory of Relativity – II

Objectives:

- To Understand the Lorentz Transformation.
- To know the concepts of Four Vector Formulation, ongitudinal and Transverse Doppler's Effect.
- To aware the Transformation between Laboratory and Centre of mass.
- To develop concept about the Transformation Electric and Magnetic Field.

UNIT – I Lorentz Transformation:

Lorentz transformation and rotation in space-time, time like and space like vector, world line,macro-causality.

UNIT – II Four vector Formulation:

Four vector formulation, energy momentum four vector, relativistic equation of motion,invariance of rest mass, orthogonality of four force and four velocity, Lorentz force as anexample of four force, transformation of four frequency vector, longitudinal and transverseDoppler's effect.

UNIT – III Transformation between Lab and CM:

Transformation between laboratory and center of mass system. Four momentum conservation,kinemations of decay products of unstable particles and reaction thresholds: Pair production,inelastic collision of two particles, Compton effect.

UNIT – IV Transformation electric and Magnetic field:

Transformation electric and Magnetic fields between two inertial frames.

Learning Outcomes: After complition the course student would able to:

- Discuss the Lorentz Transformation.
- Classify the concepts of Four Vector Formulation, Longitudinal and Transverse Doppler's Effect.
- Identify the Transformation between Laboratory and Centre of mass.
- Calculate the Transformation Electric and Magnetic Field.
- Differentiate longitudinal and transverse Doppler 's effect.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, गणितीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics- Paper-II: Quantum Mechanics – II

Objectives:

- To Know the Bound State Problem-I
- To Understand the Bound State Problem-II
- To aware Application of Quantum Theory.
- o gain knowledge about molecular spectroscopy.

UNIT I Bound State Problems - I:

Potential step and rectangular potential barrier, calculation of reflection and transmissioncoefficient, Qualitative discussion of the application to alpha decay (tunnel effect), square wellpotential problem, calculation of transmission coefficient.

UNIT II Bound State Problems- II:

Particle in one dimensional infinite potential well and finite depth potential well, energy valueand eigen functions. Simple harmonic oscillator (one dimensional) eigen function, energy eigenvalues, zero point energy.

UNIT – III Applications of Quantum Theory to Atomic Spectroscopy:

Quantum features of spectra of one electron atoms. Frank–Hertz experiment and discrete energystates. Schrodinger equation for a spherically symmetric potential, Schrodinger equation for aone electron atom in spherically coordinates, separation of variables, Orbital angular momentumand quantization spherical harmonics, energy levels of H–atom, Shapes of n = 1 and n = 2 wavefunctions, Average value of radius of H–atom, Comparison with Bohr Model and BohrCorrespondence Principle. Stern and Gerlach experiment, spin and magnetic moment. Spin orbitcoupling and qualitative explanation of fine structure. Atoms in magnetic field Zeeman spliting.

UNIT – IV Molecular Spectroscopy:

Qualitative features of molecular spectra: Rigid rotator discussion of energy, eigen values andeigen function, rotational energy levels of diatomic molecules, Rotational spectra, vibrationalenergy levels of diatomic molecules, vibrational spectra, vibrational rotational spectra.

Learning Outcomes: After complition the course student would able to:

- Discuss on the Bound State Problem-I (Potential Step, Potential Barrier, Square Well Potential) and Tunnel Effect.
- Classify the Bound State Problem-II(One Dimensional Potential Box, Eigen Value, Eigen Function).
- Applies Quantum Theory to Atomic Spectroscopy.
- Identify the Concept of Molecular Spectroscopy.
- Differentiate vibrational spectra and rotational spectra

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना,, क्वांटम यांत्रिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics- Paper-III:Nuclear Physics

Objectives:

- To Understand the Concept of Nuclear Properties like Quadrupole Moment, Nuclear Spin, Nuclear Energy, Mass spectroscopy and Theory of Nuclear Forces.
- To know the Concept of Nuclear Fission.
- To Aware the Concept of Elementary Particles.
- To develop knowledge about the Concept of Detector and Accelerator.

UNIT-I Nuclear Properties:

Rutherford's theory of a particle scattering, Properties of Nuclei: Quadrupole Moment andNuclear Ellipticity, Quadrupole Moment and Nuclear spin, Parity and Orbital angularmomentum, Parity and its conservation, Nuclear Mass and Mass Spectroscopy, Nuclear Energy,Discovery of neutron and proton-neutron hypothesis, Neutron to proton Ration (n/z), The nuclearpotential, Nuclear mass, Mass Defect and Binding energy, Theory of Nuclear forces.

UNIT-II Nuclear Fission:

The Discovery of Nuclear Fission, The Energy Release in Fission, The Fission products massdistribution of fission products, Charge distribution of fission products, ionic charge of fissionproducts, Fission cross Section and threshold, Neutron emission in fission, The prompt neutronand delayed neutrons, Mechanism for the emission of delayed neutrons. Energy of fissionNeutrons, Theory of nuclear fission and Liquid Drop Model, Barrier Penetration-Theory ofSpontaneous fission, Nuclear Energy Sources, Nuclear Fission as a source of Energy, TheNuclear Chain Reaction, condition of controlled chain Reaction, Nuclear Reactors.

UNIT-III Elementary particles:

Classification of Elementary Particles, Fundamental Interactions, Unified approach (Basic ideas),The conservation Laws, Quarks (Basic ideas), Charmed and color Quarks. Nuclear Fusion: Thesources of stellar Energy.

UNIT-IV Detector and Accelerators:

Particle and Radiation Detectors: Ionization Chamber, Region of Multiplicative Operation,Proportional Counter, Geiger-Muller Counter, Cloud Chamber, BF3 and Scintillation detector.Ion sources, Cock-Craft-Walten High Voltage Generators, Van De-Graff Generators, Drift TubeLinear Accelerators, Wave Guide Accelerator, Magnetic Focussing In cyclotron,Synchrocyclotron, Betatron, The Electromagnetic Induction Accelerator, Electron Synchrotron,Proton Synchrotron.

Learning Outcomes: After complition the course student would able to:

- Discuss the Concept of Nuclear Properties like Quadrupole Moment, Nuclear Spin, Nuclear Energy, Mass spectroscopy and Theory of Nuclear Forces.
- Classify the Concept of Nuclear Fission.
- Identify the Concept of Elementary Particles.
- Applies the Concept of Detector and Accelerator.
- Differentiate drift tube linear accelerator and wave guide accelerator.

Suggested Reading :

1. प्रभा दशोरा, नीलम गुप्ता, उषा परनामी, मीनल बाफना, नाभिकीय भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली, 2015–16

Physics Practical: VI

1. Determination of Planck's constant by photo cell (retarding potential method using optical filters, preferably five wave length)
2. Determination of Planck's constant using solar cell.
3. Determination of Stefan's constant (Black body method)
4. Study of the temperature dependence of resistance of a semiconductor (four probe method).
5. Study of lodine spectrum with the help of grating and spectrometer and ordinary bulb light.
6. Study of characteristics of a GM counter and verification of inverse square law for the same strength of a radioactive source.
7. Study of β-absorption in Al foil using GM counter.
8. To find the magnetic susceptibility of a paramagnetic solution using Qninck's method. Also find the ionic molecular susceptibility of the ion and magnetic moment of the ion in and magnetic moment of the ion in terms of both magnetons.
9. Determination of coefficient of rigidity as a function of tem perature using torsional oscillator (resonance method).
10. Study of polarization by reflection from a glass plate with the help of Nichol's prism and photo cell and verification of Brewster law and law of Malus.
11. e/m measurement of magnetic field using ballistic galvanometers and search coil study of variation of magnetic field of an electromagnet with current.
12. Measurement of electric change by Millikan's oil drop method.

Suggested Reading :

1. प्रो. प्रभा दशोरा, तृतीय वर्ष प्रायोगिकी भौतिकी, आर.बी.डी. पब्लिशिंग हाउस, जयपुर, नई दिल्ली,2015

Semester-VI

Course Code	Course Title	CourseCategory	Credit	C.I.A.	Theory	Practical	Total
BSC 603	Mathematics-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Mathematics-II				**20**		
	Mathematics-III				**20**		

Mathematics- Paper-I :Algebra - II

Objectives:

- To aware the Integral domain and Field.
- To Understand the Ideals and Quotient Ring.
- To develop knowledge the Linear Dependence and Linear Independence of Vectors.
- To know sum of subspaces.

Unit 1 ; Integral domain and field. Characteristics of a Ring and Field.

Unit 2 : Ideals and Quotient Ring. Maximal ideal and Prime ideal. Principal Ideal domain. Field of quotients of an integral domain. Prime fields. Definition, Examples and Simple properties of Vector spaces and Subspaces.

Unit 3 : Linear combination, Linear dependence and Linear independence of vectors. Basis and Dimension.

Unit 4 ; Generation of subspaces. Sum of subspaces. Direct sum and Complement of subspaces. Quotient space and its dimension.

Learning Outcomes: After complition the course student would able to:

- Discuss about integral domain and Field.
- Identify the Ideals and Quotient Ring.
- Classify the Linear Dependence and Linear Independence of Vectors.
- Applies the Sum of Subspace.
- Discuss about quotient space

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली,2015–16
2. जी.सी. गौखरू सैनी, बीजगणित जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics- Paper-II :Complex Analysis -II

Objectives:

- To understand the Power Series.
- To develop knowledge about the Branch Point.
- To develop concept about the Conformal Mapping.
- To give information about cauchy's residue theorem.

Unit 1 ; Power series — Absolute convergence, Able' s theorem, Cauchy-Hadamard theorem, Circle and Radius of convergence, Analyticity of the sum function of a power series.

Unit 2: Singularities of an analytic function, Branch point, Meromorphic and Entire functions, Rouche's theorem, Casorati - Weierstrass theorem.

Unit 3; Residue at a singularity, Cauchy's residue theorem. Argument principle. Rouche's eorem. Fundamental theorem of Algebra.

Unit 4: Conformal mapping. Bilinear transformation and its properties. Elementary mappings: w (z) $=\frac{1}{2}\left(z+\frac{1}{z}\right)$, z2 ,ez,sinz, cosz, and logz.
Evaluation of a real definite integral by contour integration. Analytic continuation. Power series method of analytic continuation.

Learning Outcomes: After complition the course student would able to:

- Discuss on the Power Series.
- Identify the Branch Point.
- Applies Fundamental Theorem of Algebra.
- Analyze the Conformal Mapping.
- Discuss on the circle and radius of convergence

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Mathematics- Paper-III: Statics

Objectives:

- To understand the Resultant and Equilibrium Coplanar Force Acting on a Rigid Body.
- To know the Friction.
- To aware the Virtual Work.
- To develop knowledge about the Common Catenary Force in the 3-D.

Unit 1 Resultant and equilibrium coplanar force acting on a rigid body.
Unit 2 Friction
Unit 3 Virtual work,
Unit 4 commom catenary force in the three dimensions.

Learning Outcomes: After complition the course student would able to:

- Discuss on the Resultant and Equilibrium Coplanar Force Acting on a Rigid Body.
- Classify about the Friction.
- Calculate the Virtual Work.
- Identify the Common Catenary Force in the 3-D.
- Differentiate friction and virtual work.

Suggested Reading :

1. बी.एल. चौरसिया, संजीव त्यागी अनिल शर्मा, बी. एल. जांगीड. जांगीड़, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर–दिल्ली, 2015–16
2. जी.सी. गौखरू सैनी, बीजगणित जयपुर पब्लिशिंग हाउस, जयपुर, 2015

Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 604	Botany-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Botany-II				**20**		
	Botany-III				**20**		

Botany- Paper-I :Reproductive Biology Of Angiosperms

Objectives:

- To know the detailed structure of flower and male gametophyte.
- To understand the mechanism of distribution of pollen grains.
- To learn about the structure of pistil and female gametophyte.
- To get knowledge about the process of pollination and fertilization
- To study the development of embryo and endosperm

UNIT I: Structure of Flower and Male Gametophyte

Ontogeny of Flower parts- development and variations, structure of anther, microsporogensis, microgametogenesis, Teptum Types and Functions, Development of Male Gametophyte, Structure of Pollen Grains.

UNIT II: Structure of Pistil and FemaleGametophyte

Structure and types of ovule, special structures- aril, oburator etc., megasporogenesis, megagametogensis (monosporic, bisporic and tetrasporic types), structure of typical embryo sac, (Polygonum, Allium and Adoxa type).

UNIT III: Pollination and Fertilization

Pollination types, significance adaptations; compatibility and incompatibility; basic concepts. Pollen tube entry, syngamy and triple fusion, double fertilization, development, type and function of endosperm.

UNIT IV: Development Of Embryo and Endosperm

Six types of Embryogeny; General pattern of development of dicot and monocot embryo suspensor structure and function, embryo-endosperm relationship; nutrition of embryo, apomixis, polyembryony, fruit-development and maturation.

Learning Outcomes: After complition the course student would able to:

- Explain the detailed structure of flower and male gametophyte.
- Discuss the mechanism of distribution of pollen grains.
- Interpret the structure of pistil and female gametophyte.
- Describe the process of pollination and fertilization
- Understand the development of embryo and endosperm

Suggested Readings:

1. Bhojwani, S.S. and Bhatnagar, S.P. 2004. The Embryology of Angiosperms**.** Vikas Publishing House, New Delhi.

2. Davis, C.L. 1965. Systematic Embryology of Angiosperms. John Wiley, New York.
3. Johri, B. D. 1984. Embryology of Angiosperms. Springer Verlag, Berlin.
4. Johri, B. M. 1984 .Embryology of Angiosperms. Springer-Verlag, Netherlands.
5. Maheswari, P. 1985. Introduction to Embryology of Angiosperms**.** Mac Graw Hill House(P) Ltd., New York.
6. Raghavan, V. 2000. Developmental Biology of Flowering plants**.** Springer, Netherlands.
7. Trivedi, P.C. Sharma, N. and Sharma, J. L. 2003. Structure, Development and reproduction in Flowering Plants. Ramesh Book Depot., Jaipur.

Botany- Paper-II :Economic Botany And Ethnobotany

Objectives:

- To know the origin of cultivated plants
- To acquire knowledge of food plants, vegetables and fruits.
- To analyze the spices, oil yielding plants and Beverages.
- To understand medicinal plants, fibers and woods.
- To get aware about ethical aspects of Ethnobotany

UNIT I: Food Plants, Vegetables and Fruits

Centre of origin of cultivated plants ,**Food plants** : rice, wheate , maize, potato, **Vegetables** : General account with a note on radish, garlic, cabbage, spinach, cauliflower, cucumber and pea. **Fruits** : General account with a note on apple, banana, mango, watermelon and orange.

UNIT II: Spices ,Oil yeilding Plants, and Beverages

Spices : General account with an emphasis on those cultivated in Rajasthan(Cumin,Capsicum, Coriender). **Beverages :** Characteristics and uses Beverages(Tea and Coffee) , Oil yielding plants (*Brassica* and *Cocus*).

UNIT III: Medional Plants, Fibers and Woods

Medional Plants : General account with an emphasis on those cultivated in Rajasthan(Senna, Isabgol, SAfed musli)

Fibers : General account with a note on Cotten and Jute. **Woods** : General account of sources of fire wood : timbers and bamboos.

UNIT IV: Ethnobotany

Ethnobotany and its concepts and relevance. Ethanobotanical areas of Rajasthan, ethnic groups in India and ethanobotanical study of any tribal area of Rajasthan. Ethical aspect of ethnobotany.

Learning Outcomes: After complition the course student would able to:

- Get knowledge about the cultivated plants
- Interpret different food plants, vegetables and fruits.
- Eenhance knowledge about spices, oil yielding plants and Beverages.
- Comprehend about medicinal plants, fibers and woods.
- Acquire knowledge about ethical aspects of Ethnobotany

Suggested Readings:

1. Gupta, S.K. and Kaushik, M.P. 1973. An Introduction to Economic Botany. K. Nath and Co., Meerut.
2. Hill, A.W. 1952. Economic Botany. McGraw Hill Book Co., New York.
3. Jain, S.K. 1981. Glimpses of Indian Ethnobotany. Oxford and IBH, New Delhi.
4. Jain, S.K .1987. A Manual on Ethnobotany**.** Scientific Publisher, Jodhpur.
5. Prakash, G., Sharma, S. K. 1975. Introductory Economic Botany. Jai Prakash Nath and Cosec, Meerut.
6. Sambamurthy, A.V.V.S. and Subrahmanyan, N.S. 1989. A Text Book of Economic Botany. Wiley Eastern Ltd., New Delhi.
7. Sen, S. 1992. Economic botany. New Central Book Agency, Calcutta.
8. Singh, V., Pandey, P.C. and Jain, D.K. 1998-99. Economic Botany. Rastogi Publications, Meerut.
9. Verma, V. 1974. A Text Book of Economic Botany. Emkay Publications, New Delhi.

Botany- Paper-III :ECOLOGY

Objectives:

- To acquire knowledge of community, ecosystem and phytogeography
- To know about structure, components, food chains, hub, energy flows.
- To understand about vegetation and environmental pollution
- To get aware about environmental management
- To learn about different protocols.

UNIT I: Ecological factors and Population ecology

Environment and plant: Ecological factors; Atmosphere (four distinct zone), light (photosynthetically active radiation, zonation in water bodies, photoperiodism, heliophytes and sciophytes), temperature (Raunkier's classification of plant: megatherm, mesotherm, microtherm, heikistotherm, thermoperiodicity and vernalisation), soil (development, soil profile, properties). Ecological adaptations of hydrophytes, xerophytes, epiphytes and halophytes. Population ecology: growth curve, ecotypes, ecads. Population interaction among organisms (neutralism, amensalism, alleliopathy), competition, predation, parasitism and mutulism.

UNIT II: Community, Ecosystem and phytogeography

Community characteristics, frequency, density, cover, life forms, biological spectrum, ecological succession. Ecosystem: Structure, components, food chain, food web, energy flow, trophic levels and ecological pyramids, primary and secondary productivity, biogeochemical cycle of carbon and phosphorus.

UNIT III: vegetation and Environmental pollution

Biogeographic regions of India, vegetation types of India; forest grassland with special reference to Rajasthan. Environmental pollution- air, water and soil, WWF, chipko movement, green house effect, ozone depletion loss of biodiversity and extinction of species, red data book.

UNIT IV: Environmental management

Concept and principles of environmental management, principle of optimized use and sustainable development, threats to sustainable development, National Environmental Policy, management of forest and degraded lands, concepts and principles of environmental management, efforts to control these effects (Vienna Convention, Montreal Protocol, Earth summit, Kyoto Protocol, World Summit on sustainable development, 2002 Carbon trade); IPCC.

Learning Outcomes: After complition the course student would able to:

- Acquire complete knowledge of community, ecosystem and phytogeography
- Explain the structure, components, food chains and energy flows.
- Understand about vegetation and environmental pollution
- Interpret about environmental management
- Discuss and different protocols.

Suggested Readings:

1. Banerjee, P.K. 2006. Introduction to Biostatistics. S. Chand and Co., New Delhi.
2. Koromondy, E.J.1996. Concepts of Ecology. 4th Edition Prentice-Hall of India Pvt. Ltd., New Delhi.
3. Misra, K.C. 1988. Manuals of Plant Ecology. (3rd Edition) Oxford and IBH Publishing Co., New Delhi.
4. Odum, E.P. 1983. Basic Ecology. 5th Edition Thomson Business International Waldis Pvt. Ltd., Baricahd.

5. Odum, E.P. 2008. Ecology. Oxford and IBH Publisher.
6. Sharma, P.D. 2010. Ecology and Environment, (8th Edition) Rastogi Publications, Meerut.
7. Singh, J.S., Singh, S.P. and Gupta, S. 2006. Ecology Environment and Resource Conservation. Anamaya Publications, New Delhi.

BOTANY PRACTICAL VI

1. Study different types of placentation, ovules and special structures of ovule through permanent slides, specimens or photographs.
2. Study of female gametophyte through permanent slides/ photographs: types and ultra structure of mature embryo sac.
3. Study of pollen grains: fresh and acetolyzed showing ornamentation and aperture, pseudomonads, pollinia (slides/photographs/ fresh materials).
4. Study of the different stages of anther development.
5. Study of pollen morphology of available plants.
6. Study of monocotyledons and dicotyledons embryo of angiosperms through slides/photographs..
7. Submission of economically important plants and plant products (cereals, pulses, spices, fibers, condiments, fat and oils, tea, coffee, wood, dyes, tobacco).
8. Study following specimens with special reference to :
   - Botany of the economically important part.
   - Processing if any involved.
   - Specimens of cereals, pulses, fibres, spices, beverage (tea, coffee), sugar, oil yielding plants and medicinal plants (mentioned in theory).
9. Microchemical test for starch, sugar, oils, proteins, fat, carbohydrate, lignin using wheat, maize, soyabean. Chana, sweet potato, clove, ground nut, mustard and match sticks.
10. Study of starch grains in potato .
11. Field trip to economically important place.
12. Collection, description and submission of at least 5 plants of ethnobotanical importance.
13. Study of adaptive anatomical and morphological features of Hydrophytes, Epiphytes and Xerophytes using plant material.
14. To study different statistical methods: mean, median and mode, standard error, standard deviation.
15. Regression analysis and application of statistical tests in environmental problems.
16. Determine the dissolved oxygen content in polluted and unpolluted water samples.
17. Field trip to a National Park/Biosphere reserve/Wild life Sanctuary (Student should submit a detailed project report based on the field trip. Evaluation of the project will be based on the detailed report and presentation).
18. Project work on a particular ecosystem/Polluted Site/ Level of Pollution in the City or Town/Land use site.

Semester-VI

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 605	Zoology-I	**CE***	**4**	**15**	**20**	**25**	**100**
	Zoology-II				**20**		
	Zoology-III				**20**		

Zoology-Paper-I: Evolution and Biostatistics

Objectives:

- To understand the process of evolution.
- To discuss concept the Lamarkism, Neo-Lamarkism and Darwinism.
- To classify and draws the Geological time scale.
- To understand aware the students for Palaentology Fossils and its significance
- To describe the Biostatistics and Biostatistical Tools.

Unit –I: Evolution

1.1 Basics and origin of life: Definition, pre-darwinian theories of evolution; Oparin-Haldaneconcept of origin of life; Miller- Urey experiment

1.2 Micro-evolution: Lamarckism; Darwinism; Neo-Darwinism

1.3 Evidences of evolution: Various evidences favouring evolution: Homology, analogy, vestigial organs; palaentological, embryological, biogeographical and biochemical evidences

UNIT II: Evolution II

2.1 Macro-evolution: Geological time scale,

2.2 Genetic basis of evolution: Hardy-Weinberg law, genetic drift, , Sewall -Wright effect;

2.3 Variation, Adaptations and Isolation, Mimicry

2.4 Formation of fossils and Important

UNIT III: Biostatistics Concept

3.1 Biostatistics: Definition and Scope

3.2 Census and sampling methods

3.3 Collection and Tabular Presentation of Data: Tabulation of data; Frequency

3.4 Distribution Table; Continuous and Discontinuous Series

3.5 Graphical Presentation of Data: Bar, Histogram, Line graph, Polygon, Pie Diagrams Ogives

UNIT IV: Biostatistical Tools

4.1 Measures of Central tendency: mean, median mode

4.2 Measures of Dispersion, Mean deviation & Standard deviation, and Standard error.

4.3 Probability

Learning Outcomes: After complition the course student would able to:

- Understand the process of evolution.
- Understand the Lamarkism, Darwinism and Neo-Darwinism.

- ❖ Interprete Geological time scale.
- ❖ Explain Palaentology Fossils and its significance
- ❖ Discuss the Biostatistics and Biostatistical Tools

Zoology-Paper-II : Economic Zoology

Objectives:

- To Understand the Various concepts in Sericulture, Lac culture and Apiculture.
- To interprets the various concepts in Chemical Control.
- To Understand aware the students and provides the economical importance of Vermiculture
- To Understand the Various concepts in Vector borne diseases, Animal husbandry.
- To classify the economics of aquaculture.

Unit I: Economic Entomology- Insects of economic importance

1.1 Sericulture: Types of Silkworm. Life cycle and rearing of Bombyx mori,Production of silk , chemical Composition of Silk,

1.2 Apiculture –Habits and Habitat, species of Hony Bees, Types of cates, method of Bee-keeping Honey Bee Product.

1.3 Lac culture – Lac insect, Laccifer lacca - Life cycle, Cultivation of Lac , Lac products and Economic Importance

Unit-II: Economic Entomology

2.1 Chemical control of Insecticides: Pyrethroids, Carbomate and HCN (mode of action, merits and demerits)

2.2 Biological control of Pests: Biological agents (predators and parasites; merits and demerits)

2.3 Animal pest: Life cycle, damage and control of

I. House fly – Musca nebulo

II. Stable fly – Stomoxys calcitrans

Unit III: Economics of aquaculture

3.1 Pisciculture – Steps of Fish culture, Fish Product,

3.2 Prawn culture -Culture techniques of fresh water Prawn,

3.3 Pearl culture: Habit, Habitat, General characters, mentle & Shell,Formation&culture.

Unit IV: Economic importance of other animals

4.1 Vector borne diseases. A brief account of insect vectors affecting the health of man and domestic animals

4.2 Animalhusbandry: Introduction to common dairy animals; Techniques of dairy management

4.3 Vermiculture: Vermitechnology, Bio-Fertilizers

Learning Outcomes: After complition the course student would able to:

- Discuss the various concepts in Sericulture, Lac culture and and Apiculture.
- Understand the various concepts in Chemical Control.
- Provide the economical importance of Apiculture
- Understand the various concepts in Vector borne diseases, and Animal husbandry
- Explain the Economical of aquaculture

Zoology-Paper-III:Ecology and Environmental Biology

Objectives:

- To differentiate current environmental issues based on Atmosphere.
- To understand Gain critical understanding on human influence on environment.
- To understand Positive attitude towards Biodiversity conservation.
- To describe the various concepts in Pollution.
- To know the sources, affect and control measures of water and noise pollution.

Unit I: Atmosphere

1.1 Atmosphere: Major zones and its importance, Composition of air
1.2 Hydrosphere: Global distribution of water, Physico-chemical characteristics of water
1.3 Lithosphere: Soil Layer; formation of soil
1.4 Light: As Abiotic factor; Physico- chemical characteristics of Light; Photoperiodism

Unit II: Ecosystem

2.1 Ecosystem: Definition, Structure and functions; Types of Ecosystem; Food chain, Food web and ecological pyramids
2.2 Ecosystem: Biogeochemical Cycle (O_2, CO_2, N, P, S); Energy flow in an ecosystem,
2.3 Population Introduction: Population characteristics, Population growth patterns: (exponential/Malthusian and sigmoid growth patterns)
2.4 Community Characteristics, Structure and method (Quadrt method Transeet method, plotless method:

Unit III: Biodiversity & Conservation

3.1 Various Aspects of Biodversity, Degree of Deversity,
3.2 Ex situ and In situ Conservation; Alpha, Beta and Gama Diversity, Causes of reduction of Biodiversity
3.3 Conservation measures of Animals.

Unit IV: Pollution

4.1 Sources, effect and control measures of air pollution, Acid rain, green house effect, Ozone depletion and global warming
4.2 Sources, effect and control measures of water pollution
4.3 Sources effect and control measures of noise pollution

Learning Outcomes: After complition the course student would able to:

- Describe the current environmental issues based on ecological principles.
- Gain critical understanding on human influence on environment.
- Aware about the positive attitude towards Biodiversity conservation.
- Understand the various concepts in Pollution.
- Explain the sources, affect and control measures of water and noise pollution.

Semester VI

Zoology Practical

Paper-I: Evolution and Biostatistics

1. Construction of frequency table, histograms, Polygons, Pie Charts
2. Exercise on Mean, Mode, Median, Std. Deviation, Std. error, Probability

Paper-II: Economic Zoology

1. Study of the following prepared slides/specimens: Honey Bee, Silk Worm, Termite, Earthworm types (any two) -(Drawida modesta, Pheretima posthuma ; Fish parasites, Larvivorous fishes (Guppy, Gambusia)
2. Economic importance of commonly occurring insect pests and preparation of life cycle of these pests.
3. Study of Beneficial insects and their life stages.

Paper-III: Ecology & Environmental Biology

1. Determination of population density in a terrestrial community or hypothetical community by quadrate method.
2. Study of life table and fecundity table, plotting of the three types of survivorship curves from the hypothetical data.
3. Estimation of pH, chlorides and water vapour quantity in soil
4. Estimation of Dissolved oxygen, Salinity, pH, free CO_2 in water samples
5. Plankton study in Fresh water
6. Study of natural ecosystem and field report; Visit to a National park and Sanctuary (candidates are required to submit the report of the visit)

Suggested readings:

Evolution

1. Gupta, P.K., A Text Book of Cytology, Genetics and Evolution, Rastogi Publication, Meerut
2. Ridley, M. (2004) Evolution. III Editio. Blackwell Publishing
3. Stricberger, M.W. Evolution. Jones& Bartlett, USA 1996
4. Hall and Hallgrimsson: Strickberger's Evolution (2008, Jones and Bartlett)
5. Moody: Introduction to Evolution (1978, Kalyani).
6. Rastogi: Organic Evolution (2007, Kedarnath & Ramnath
7. Kohli, Ranga, Lori, Bhatia, Animal Diversity and Evolution, RBD Publishing House, Jaipur.

Statistics:

1. Probability and Statistics for Engineers and Scientists by Walpole, Myers, Myers and Ye, 7th Edition, Pearson Education.
2. Mathematical Statistics by Freund, Prentice Hall, India
3. Introduction to Statistical Quality Control by Montgomerry, John Wiley and Sons.
4. Principles of Biostatistics by M. Pagano and K. Gauvrean: Thompson learning (2nd edition)
5. Biostatistics: A Foundation for Analysis in the Health Sciences by W. W. Daniel: John Wiley and Sons Inc (7th edition); Indian Reprint 2006.
6. Biostatistics by Satguru Prasad: Emkay Publication

7. G.S. Shukhla, Upadhyay, Reena Mathur, S.G. Prasad, 2011, Economic Animal Science, Biostatics and Animal Behaviour, Rastogi Publication, Meerut, Delhi

Economic Zoology:

1. Shukla and Upadhyaya : Economic Zoology (Rastogi Publishers, 1999-2000)
2. Shrivastava: Test book of Applied Entomology, Vol. I &II (Kalyani Publishers, 1991)
3. Mani: Insects, NBT, India, 2006.
4. Jabde: Text Book of Applied Zoology: Vermiculture, Apiculture, Sericulture, Lac culture, Agricultural Pests and their Control, 2005 Publisher Vedams eBooks (P) Ltd. New Delhi
5. G.S. Shukhla, Upadhyay, 2015, Economic Animal Science, Rastogi Publication, Meerut, Delhi

Ecology & Environmental Biology

1. Odum, E. P. (1996). Ecology: A bridge between science and society. *Sinauer AssociatesInc*.
2. Chapman, J. L. And Reiss, M. J. (1992). Ecology, principles and applications. *CambridgeUniversity Press*.
3. Verma, P. S. & Agarwal, V. K. (1983). Environmental biology (principles of ecology). *S.Chand & Co*.
4. Singh, J. H. e*t al* (2006). Ecology, environment and resource conservation. *Anamaya Publ.N. Delhi*
5. Kendeigh, S. C. Animal ecology. *Prentice Hall*
6. Kormondy, E. T. Concept of ecology. *Prentice Hal*
7. *Dhirendra, Devershi, Ecology and Environmental Biology, College Book House. Pvt. Ltd., Jaipur*

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
JVB 401	पर्यावरण अध्ययन (Compulsory Paper)	Core Foundation(CF)	4	30	70	100

सेमेस्टर–IV

उद्देश्य–

1. पर्यावरण के बारे में जानकारी देना।
2. पर्यावरण के प्रति जागरूकता बढ़ाना।

इकाई I : पर्यावरण अध्यापन एवं पारिस्थितिक तंत्र

1. पर्यावरण, परिभाषा, क्षेत्र, महत्त्व
2. पर्यावरण अवक्रमण– कारण, प्रभाव, निवारण
3. पारिस्थितिकी तंत्र– अवधारणा, संरचना एवं कार्य
4. उत्पादक, उपभोक्ता एवं अपघटक, ऊर्जा का प्रवाह, आहार श्रृंखला
5. वन, चारागाह, मरु एवं जलीय पारिस्थितिकी

इकाई II : प्राकृतिक संसाधन

1. नवीनीकरण तथा अनवीनीकरण संसाधन
2. वन संसाधन, ऊर्जा संसाधन, खाद्य संसाधन
3. जल संसाधन, खनिज संसाधन, भू संसाधन
4. संसाधनों का विकल्प
5. केस स्टडी

इकाई III : पर्यावरण समस्यायें

1. वायु, जल, मृदा, ध्वनि प्रदूषण
2. अपशिष्ट प्रबंधन–अपशिष्ट प्रकार एवं नियन्त्रण
3. विपदा नियन्त्रण –बाढ़, भूचाल, तूफान, भू–स्खलन एवं आणविक
4. असतत से सतत विकास की ओर
5. मौसम परिवर्तन, वैश्विक तापमान वृद्धि, अम्लीय वर्षा, ओजोन परत क्षीणता

इकाई IV : जैव विभिन्नता तथा उसका संरक्षण

1. जैव विभिन्नता–परिभाषा, अर्थ, जैव विभिन्नता को चुनौतियां
2. जैव विभिन्नता का संरक्षण–जैव विभिन्नता का स्व स्थानीय तथा परस्थानीय संरक्षण
3. पर्यावरण सुरक्षा अधिनियम–वायु, जल, वन्यजीव, वन
4. पर्यावरण एवं मानव स्वास्थ्य हेतु सूचना प्रौद्योगिकी की भूमिका
5. पर्यावरण संरक्षण हेतु सामाजिक आन्दोलनों की भूमिका

उपलब्धियाँ–

1. पर्यावरण के बारे में जानकारी मिलेगी।
2. पर्यावरण के प्रति जागरूकता बढ़ेगी।

प्रायोगिक

पर्यावरण परिसम्पत्ति के प्रलेखन हेतु स्थानीय क्षेत्र का भ्रमण (कोई एक)

- तालाब/वन/ चारागाह/ पहाड़ी/ पहाड़
- स्थानीय प्रदूषित स्थान का भ्रमणशहरी/ग्रामीण/औद्योगिक/ कृषि

पाठ्य पुस्तक/ संदर्भ ग्रन्थः

1. पर्यावरण अध्ययन, प्रो. अनिल धर, जैन विश्व भारती संस्थान, लाडनूं
2. प्रभा कुमारी, जनसंख्या विस्फोट और पर्यावरण प्रदूषण, वाणी प्रकाशन
3. हरि मोहन, मानव अधिकार और पर्यावरण संतुलन, वाणी प्रकाशन
4. दयाशंकर त्रिपाठी, पर्यावरण अध्ययन
5. परिस्थिति एवं पर्यावरण–पंचशील प्रकाशन, चौडा रास्ता, जयपुर
6. व्यास हरिशचन्द्र, पर्यावरण शिक्षा, विद्या विहार, नई दिल्ली
7. Sharma, R.A., Educational Envionment Lall Book Depo, Meerut
8. Duby and S.singh Envirnmentel Management, Geography Department, Allhabad University

Course Code	Course Title	Course Category	Credit	CIA	Theory+ Prcatical	Total
JVB 501	Basics of Computer (Compulsory Paper)	Core Foundation(CF)	4	30	50+20	100

Semester - V

Objective :

To enable students to be aware of using MS Word, MS PowerPoint, Excel and Internet. Students will be able to do daily work using these tools and able to surf internet, download and send emails easily.

Unit I : MS Word

1. An overview of the basics of word processing.
2. How to use spell check, grammar check, and the thesaurus
3. Gain proficiency in editing
4. Formatting a document
5. How to use the undo and redo commands
6. Moving and copying text within a document
7. Typography, paragraph formatting and column formatting
8. How to enhance a document, wizards and templates, and tables

Unit II : MS Excel

1. Creating an excel worksheet
2. Saving an excel worksheet
3. Opening an existing workbook
4. Using formula and functions
5. Printing a worksheet
6. Creating a simple expense worksheet.

Unit III : 1. **MS PowerPoint presentation**

2. Saving a PowerPoint presentation,
3. Working with an existing PowerPoint presentation,

Unit IV : Internet

1. Basics of Internet
2. Site Surfing
3. Search Engines
4. Email Accounts - Receiving Mails, Composing Mails, Spam, Calendar
5. Download
6. Creating blogs
7. Online conversion

Outcome :

1. Students will be able to apply word, excel and powerpoint in their daily work.
2. Students will be able to make use of internet for their study purpose and will be able to create blog to exhibit their talent.

Practical :

1. Create documents using ms word , marksheet using ms excel and presentationsusing power point.
2. Create an email account, blog and download files

Websites/ Refrence Book :

1. http://www.tutorialspoint.com/computer_fundamentals/index.htm
2. http://office.microsoft.com/en-us/training/.
3. http://www.gcflearnfree.org/office2007
4. Rapidex computer course by Pustak Mahal Editorial Board, Unicorn Books,2012
5. Fundamentals of computers (English) Ist Edition by Reema Thareja, Oxford University Press, 2014

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
JVB 502	Psychology(General Psychology-I)	Core Elective(CE)	4	30	70	100

Semester – V

Objectives:

1. To understand the concepts of basic Psychological process.
2. To understand the application of psychological concepts in daily routine problems.

Unit-I: Introduction of Psychology

(i) Meaning and Definition of Psychology

(ii) Goals of Psychology

(iii) Fields of Psychology

(iv) Methods of Psychology

Unit-II: Development of Human Behaviour

(i) Meaning of Heredity and Environment

(ii) Interaction of Heredity and Environment

(iii) Biological Determinants

(iv) Environmental Determinants

Unit-III: Perception

(i) Nature and Definition of Perception

(ii) Major Approaches of perception

(iii) Factors Influencing Perception: Personal & Social

(iv) Illusion and Differences between Illusion and Hallucination

Unit-IV: Learning

(i) Meaning and Nature of Learning

(ii) Role of Motivation in Learning

(iii) Classical and Instrumental Conditioning

(iv) Transfer of Learning

Outcome -

1. Students will be aware of various Psychological approach and environment which will lead to the development of human behaviour.

Practical (Any Three)

(i) Measurement of Illusion

(ii)Measurement of Transfer of Learning

(iii) Measurement of level or Depression

(iv) Measurement of the capacity of Verbal Learning

(v) Assessment of Personality

Note :- The department may change the practical depending on the availability of the apparatus and recent developments.

Books:-

1. Baron, R.A. Psychology: The essential sciences, New York; Allyn & Bacon.
2. Limbardo, P.G. & Weber, A.L.: Psychology, New York, Harper Collins College Publisher.
3. Lefton, L.A., Psychology, Boston; Allyn & Baron.
4. Morgan and King: Introduction to Psychology.
5. Singh, A.K.: Uchatar Samanya Manovigyan.
6. Azimurrahman: Samanya Manovigyan.
7. Suleman : Samanya Manovigyan.
8. Lal Bachan Tripathi : Uchatar Manovigyan.

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
JVB602	**Psychology (General Psychology-II)**	**Core Elective(CE)**	**4**	**30**	**70**	**100**

Semester – VI

Objectives:

- To develop an understanding of general principles of Psychology.
- To understand how we attected by psychological Processes.

Unit-I: Memory

(i) Meaning and Definition of Memory

(ii) Types of Memory

(iii) Meaning and Nature of Forgetting

(iv) Measures of Improving Memory

Unit-II: Thinking and Problem Solving Behaviour

(i) Definition and Nature of Thinking

(ii) Types of Thinking

(iii) Methods of Solving the Problem

(iv) Steps of Problem Solving Behaviour

Unit-III: Motivation

(i) Meaning and Nature of Motivation

(ii) Motivation Cycle

(iii) Biological and Psychological Motivation

(iv) Intrinsic and Extrinsic Motivation

Unit-IV: Human Ability

(i) Definition and Nature of Intelligence

(ii) Mental Age & IQ

(iii) Types of Intelligence Tests

(iv) Nature of Creativity and Relation of Intelligence and Creativity

Outcome- This course will familiarize students with the basic psychological processes and the studies relating to the factors which influence them.

Practical (Any Three)

(i) Measurement of Intelligence

(ii) Measurement of Achievement Motivation

(iii) Measurement of level or Creativity

(iv) Measurement the level of Forgiveness

(v) Measurement the level of Memory

Note :- The department may change the practical depending on the availability of the apparatus and recent developments.

Books:-

1. Baron, R.A. Psychology: The essential sciences, New York; Allyn & Bacon.
2. Limbardo, P.G. & Weber, A.L.: Psychology, New York, Harper Collins College Publisher.
3. Lefton, L.A., Psychology, Boston; Allyn & Baron.
4. Morgan and King: Introduction to Psychology.
5. Singh, A.K.: Uchatar Samanya Manovigyan.
6. Azimurrahman: Samanya Manovigyan.
7. Suleman : Samanya Manovigyan.
8. Lal Bachan Tripathi : Uchatar Manovigyan.

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 102	Business law	**Core Course**	4	30	70	100

Semester-I

Objective:

1. This Course enables the students to know about the laws enforced for proper regulation of Trade & Business.
2. To have deep knowledge of contact act and sole of Goods Act
3. To make aware of their lights & duties as a seller and as a buyer.

Unit-I

Law of contract Act-1872: Nature of contract, classification, offer and acceptance, capacity of parties, free consent, and agreement declared void.

Unit-II

Performance of contract, Discharge of contract, Remedies for breach of contract.

Unit-III

Indemnity-meaning, liabilities indemnity-holder and indemnifier.

Guarantee-meaning, essential liabilities of surety and discharge of surety from liabilities.

Bailment-meaning, rights and duties of bailor and beilee.

Pledge-meaning, rights and duties of pawnor and pawnee.

Agency-definition, who may be agent, creation and termination of agency.

Unit-IV

Sale of Goods Act 1930,Consumer Protection Act-1986

Outcome-

After studying this paper, students will come to know

1. About the basics of the Act running for smooth functioning of business.
2. Complete knowledge of Contract Act
3. Complete Knowledge of Sale of Goods Act.
4. Awareness about their right & duties.

Text Books :

1. Bussiness Law- R.L.Nolka, Ramesh Book Depo., Jaipur.

Suggested Readings :

1. Business Law- Kuchhal M.C., Pragati Parkashan, Merut (UP)
2. Business Law- Kapoor N.D, AJMERA Publication, Jaipur.
3. Business Law- Agrwal, Kothari, Garima Publication, Jaipur.

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 103	Business Economics	**Core Course**	4	30	70	100

Semester-I

Objective-

1. Acquainted the student with information of economics.

2. Aware the students about basic principles of economics.

3. To get knowledge of market and their conditions.

4. To understand micro and macro economics concepts.

Unit- I

Introduction- Definition of business economics, Scope, role in business decisions. Law of Demand, utility analysis and its measurement, Elasticity of Price demand. Law of supply and Determinants of supply. Law of Diminishing Marginal Utility- Exception and Criticism of the law.

Unit – II

Concept of consumer's surplus. Indifference curve-Meaning, map, characteristics, consumer's equilibrium. Production function-Meaning, assumptions, characteristics of production function. Return to Scale.

Unit- III

Cost Analysis-cost concept, short-run and long-run cost total, average and marginal costs. Market-definition and classification. Perfect competition-features and equilibrium, price and output determinationunder perfect competition, kinked demand curve, price determination in firm and Industry.

Unit-IV

Monopoly–price discrimination, ,causes of emergence of monopoly, Price and output determination under monopoly. National Income- Meaning, Concepts, Measurements, National Income and Economic Welfare.

Outcomes -

1. By studying this students know about the primary information of economics.

2. Students know the role of economics in Business decision making.

3. Students know about market condition and price discrimination

Text Books :

1. BusinessEconomics , Agarwal, Agarwal, Ramesh Book Depot, Jaipur (Both in Hindi as well as in English)

Suggested Readings :

1. Business Economics: H.L. Ahuja, S. Chand Publishing, New Delhi

2. Managerial Economics :D.N. Divedi, Vikash Publishing, Pvt. Ltd. New Delhi

3. BusinessEconomics : M.C. Kuchhal, Pragati Prakashan, Merut.

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 201	Business Statistics	**Core Course**	4	30	70	100

Semester-II

Objectives -

1. To give knowledge of data analysis and Interpretation.
2. Knowledge of principles of Statistics.
3. Application of statistics in different situation.
4. Apply differential methods of statistics.

Unit-I

Meaning and Definition of statistics functions, Importance, Limitations and Distrust of statistics, Classification and Tabulation of data. Measure of central tendency mean, Median, Mode, Geometric Mean and Harmonic Mean.

Unit-II

Measures of Dispersion : Absolute and Relative Measures of Dispersion, Range, Quartile Deviation , Mean Deviation, standard Deviation and their Co-efficients; Uses and Interpretation of Measures of Dispersion.

Skewness-Measurer of skewners.

Unit-III

Correlation : Meaning and Significance, Scatter Diagram, Correlation Graph, Karl Pearson's coefficient of Linear correlation, Coefficient of correlation by spearman's Rank, Deviation Method, Regression analysis.

Unit-IV

Index Number : Concept, Utility, Methods, Simple and weighted average of relatives and aggregative Index numbers, Analysis of time series.

Outcome -

1. Fundamental knowledge of Statistics.

2. Apply different method of Economics in Statistics.

3. Application of Statistics in Mathematics.

Text Books :

1. Bussiness Statistics-Yadav , Jain Mital, Malik & Company, Jaipur (Hindi)

Suggested Readings :

1. Fundamentals of statistics Elhance D.N. :, Kitab Mahal Aallahbad (UP)
2. Sankhiki ke mool Tatva Nagar, K.N. (Hindi), Meenakshi Prakshna Meerut
3. Statical methods, Gupta, S.P. : Sultan Chand & Sans, New Delhi
4. Sankhiki ke Mul Adhar, Kelash Nath NagarRamesh Book Depo., Jaipur
5. Statistics Theory , Methods and Application Sancheti D.C. and Kapoor V.C : Sultan Chand & Sons, New Delhi
6. Statistical Mehoed,Patri, Digambar Kalyani Published, Ludiana
7. Statistics for Management, Levin, Richard PHI, New Delhi
8. Statistics for Management, Srovastava, T.N. and Shailaja Rego Tata Mc Graw Hill New Delhi

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 202	Business Management	**Core Course**	4	30	70	100

Semester-II

Objectives:

1. To make students aware of the basics of the management.
2. To make aware of the skills of communication.
3. To have knowledge of various theories like motivation, leadership.
4. To know about stress and time management.

Unit-I

Management- concept Nature, Process Significance and function Planning Nature, Types and Process.

Decision Making – concept and process, Bounded rationality.

Unit-II

Organization – concept, Process, Significance, organization structure. Authority and responsibility, source and Delegation of Authority. Centralization and decentralization. Management by objectives.

Unit-III

Motivation- meaning, Theories of motivation-Maslow, Herzberg, McGregor, Ouchy. Financial and Non-financial incentives. Leadership : Meaning, Nature, Leadership styles, Theories of Leadership – Thanedbaum and Schmidt, Lilkert's system of Leadership. Qualities of a successful Leader.

Unit-IV

Communication-Concept, Nature, Process, Network and Barriers, Effective communication. Modern technique of communication. Time Management, causes of time waste and Remedies, Stress management- causes of stress and coping with stress. Management of change- Concept, Nature and process of Planned changed.

Outcome :

After Studying this paper, students will come to know the following-

1. About Management and its functions.

2. About theories of Motivation & Leadership.

3. To cope up with stress.

4. To Manage time.

Text Books :

1. Principles of Management-R.L. Naulakha, Ramesh Book Depo. , Jaipur. (Hindi & English Edition)

Suggested Readings :

1. Principles of Management - L.M. Prasad, S Chand Publication, New Delhi

2. Organization Behaviour- K.A. Ashvathappa. Himalaya Publishing House, Mumbai

3. Principles of Business Management-Sharma, Gupta Ajmera Publication, Jaipur

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 203	Indian banking system	**Core Course**	4	30	70	100

Semester-II

Objectives-

1. To get knowledge of basic banking

2. Students aware of current changes in Banking System.

3. To aware them about banks type and Negotiable Instrument.

Unit-I

Bank: Definition, Importance and functions , Types of Bank accounts, pass book. Recent trends in Indian Banking – (e-banking-Credit Cards.)

Banker and customer-General and Special relationship, Termination of relationship.

Unit-II

RBI functions, objectives, monetarypolicy-objectives, conflicts in objectives, Indian monitory policy

Unit-III

Co-operative Banks- Introduction the structure of co-operative Banks- Primary Agricultural societies, Central Co-operative Bank, State Co-operative Banks, NABARD

Unit-IV

Negotiable Instruments concepts and elements, types of negotiable Instruments. Cheques, bill of exchange, Promissory note, crossing of cheques. (Elements any Knowledge)

Outcome-

1. Students are aware about banking and recent changes.

2. Students know the recent trends in banking.

3. Know banking act, their sections and current changes.

4. Aware about current banking condition of india students.

Text Books :

1. Indian Banking System (English) - Trivedi, Chaudhary,Kumar, Ramesh Book Depo., Jaipur.

2. भारतीय बैकिंग विधि व व्यवहार– बी.एल. औझा, आर.बी.डी. प्रकाशन, जयपुर

3.बी.एल.ओझा (हिन्दी)–भारत में बैकिंग विधि एवं व्यवहार। रमेश बुक डिपो, जयपुर

Suggested Readings :

1. Indian Banking System- Divedi, Dashora, Nagar, RBD, Jaipur.

2. भारतीय बैंकिग प्रणाली (हिन्दी)–त्रिवेशी, दशोरा, नागर, रमेश बुक डिपो, जयपुर।

3.Indian Banking System- Divedi, Renu Jatana, RBD Publishers.Jaipur

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 302	Company law	**Core Course**	4	30	70	100

Semester-III

Objectives:

1. To make students aware of The New Companies Act, 2013.

2. To have basic Knowledge of company regarding. Its Meaning, types & formation.

3. About Basic Documents of Company.

4. To know about winding up of company.

Unit-I

Company – Meaning, Essential elements of company. Classification of company.

Unit-II

Formation of a company -Promotion of a company, function, Duties and liabilities of promoters.Incorporation of a company- preliminary steps. Delivery of Documents. Scrutiny of documents, Incorporation, Capital subscription stage, Stage of commencements of business.

Unit-III

Memorandum of Association – Contents Alteration . Articles of association- contents & Alteration Prospectus- contents, Statements in lieu of prospectus.

Unit-IV

Directors – Position, Appointment, Removal

Winding up of the company.

Meeting –Provision regarding statuary meetings, AGM

Outcomes -

After studying this paper. Students will come to know about -

1. Basics of the company.

2. Formalities required for opening up of a company.

3. How company can be winded up.

4. Amendments in the Act from time to time.

Text Books :

1.Company Law- R.L. Naulakha (Hindi, English), Ramesh book Depo., Jaipur.

Suggested Readings :

1. Company Law- B.L. Maheshwari, Himalaya Publication, Mumbai

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 303	Financial Management	**Core Course**	4	30	70	100

Semester-III

Objective-

1. To aware the nature and objective of financial management.

2. To aware about different aspects of inventory & dividend management.

3. Aware about cost of capital and different capital budgeting techniques.

4. To aware about different aspect of financial management.

Unit-I

Financial Management-Meaning, Definition, Nature, Objectives of financial Management-Profit Vs Wealth maximization, Financial Function, Capital Budgeting-Investment Evaluation Criteria-Pay Back Method, Accounting Rate of Return, Net Present Value, Internal Rate of Return Comparison between. NPV and IRR.

Unit-II

Cost of capital- Meaning, Calculating Cost of debenture, Preference share, Equity Capital and retained earnings and combined (Weighted) cost of capital, Leverage (Operating and financial).

Unit-III

Divided Policies- Meaning, Types of dividend and divided policy, Advantages of stable dividend policy, Formulation of stable dividend policy, factor affecting dividend policy, Walter's Model, Gordon's Model, M.M. Hypothesis.

Unit-IV

Management of Inventories- Meaning, Objectives, Risks and costs associated with inventory. Techniques of inventory control, Working capital management (forecasting of current asset and current liabilities method and operating cycle method)

Outcomes -

1. Students gets knowledge of financial management Principles.

2. Students know about recent financial of changes.

3. Students know the different concept of Financial management

Text Books :

1. वित्तीय प्रबंधन, एम. आर. अग्रवाल(हिन्दी). गरिमा पब्लिकेशन, जयपुर

2. FINANCIAL MANAGEMENT, M.R. AGARWAL, GARIMA PUBLICATION, JAIPUR

Suggested Readings :

1. Financial Management, Prasanna Chandra-, Tata McGraw Hill (English), New Delhi

2. Financial Management, Pandey I.M.-, Vikash Publication (English), Delhi

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
JVB 302	Social Work (Introduction to Social Work)	Core Elective(CE)	4	30	70	100

Objectives -

1. To Understandabout basic concepts of Social Work.
2. To know about history of Social Work.

Unit - I

Basic Concepts of Social Work.

Introduction of Social Work, Social Service, Social Reform, Social Action, Social Welfare, Social Change, Social Security.

Unit - II

Social Work : Introduction

Social Work : Concept, Meaning, Definition, Principles, Objectives, Nature, Scope and Relationship with other Social Sciences.

Unit - III

Roots of Social Work

Social Work in USA

Social Work in UK

Social Work in India

Unit - IV

Philosophy & Professions.

Social Work : Philosophy, Value, Ethics Approaches.

Social Work Profession: Objective, Methods and Communication Skills

Outcome - Students will understand the basic concepts of social work.

Reference Books-

1. डॉ. सिंह, सुरेन्द्र, मिश्र पी.डी. (2004) समाज कार्य इतिहास, दर्शन प्रणालियाँ
2. पाण्डेय, जेस्कर, पाण्डेय ओजस्कर (2006) समाज कार्य

Semester-IV

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 401	Income Tax	**Core Course**	4	30	70	100

Objectives -

1. To give knowledge of Income tax.

2. To give knowledge of rates of tax individual HUF & Firm.

3. Apply different heads as salary, House property Business & Profession. Capital gain others sources.

Unit-I

Income tax 1961 and Income tax Rules 1962: Basic Concepts of Income, Assesses, Assessment year, previous year, Person and their Residential Status, Incidence of tax on the basis of residence. Exempted Income.

Unit-II

Income from Salary. Income from House Property.

Unit-III

Income from Business and Profession. Income from capital gain.

Unit-IV

Income from Other Sources. Set off and carry Forward of losses. Deduction from in G.T.I. and assessment of individual.

Outcomes -

1. Fundamental Knowledge of Income Tax.

2. Knowledge of direct tax impact on individual.

3. Knowledge of principal of income tax.

Text Books :

1. Income tax- Patel Choudhary , Choudhary Prakshan, Jaipur (Hindi)

Suggested Readings :

1. Income Tax (Hindi/English) – Sharma, Jain, Shah, Agarwal, Mangal, Ramesh Book Depo. Jaipur.

2. Income Tax (Hindi/English) – Choudhary, Bardiya, Mantri, Ramesh Book Depo., Jaipur.

3. Income Tax (Hindi/English) – Goyal, Khatri, Gupta, Ramesh Book Depo., Jaipur.

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 402	Human resource Management	**Core Course**	4	30	70	100

Semester-IV

Objective-

This paper deals with providing knowledge regarding:

1. Human Resource Management, as a part of management.
2. Human Resource Planning, their recruitment, selection process and methods of training and development.
3. How employees are compensated and performance of employees is evaluated.

Unit – I

Human Resource Management: Meaning, Nature & Functions.

HRM & HRD Need & Importance.

Unit – II

Recruitment: Meaning, Sources & Factors Affecting.

Selection: Meaning & Process.

Placement and Induction: Meaning, Objectives and Importance.

Unit – III

Job Analysis: Meaning, Process & Techniques of Job Analysis.

Job Designing: Meaning, Objectives & Techniques.

Training & Development: Meaning and Methods.

Unit – IV

Employee Compensation: Meaning, Objects and Factors affecting employee Compensation

Performance Appraisal: Meaning, Importance and Techniques.

Outcome –

1. Knowledge regarding Personnel Management/HR management will be enhanced.

2. Students as a job seeker will come to know about the barriers.

3. As a manager, this paper will help them to manage & motive people for fulfillment of any task

4. Leadership quality will be inculcated.

Text Books :

1. क्रियात्मक प्रबन्ध– आर.एल. नौलखा, आर.बी.डी. प्रकाशन, जयपुर

2. Human Resource Management: Sharma, Surana, R.B.D Publication, Jaipur

Suggested Readings :

1. मानव संसाधन प्रबंध– सी.बी. मेमोरिया, हिमालय पब्लिशिंग हाउस, मुम्बई

2. Human Resource Management, G.S. Sudha. R.B.D Publication, Jaipur

3. Functional Management, G.S. Sudha – R.B.D Publication, Jaipur

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 403	Business Environment	**Core Course**	4	30	70	100

Semester-IV

Objective-

1. Understanding of Business Environment and Its different components and aspects.
2. To understand about social problem, their removal and Govt. steps taken to remove these.
3. To understand, Liberalization, Privatization and Globalization and their Impact.
4. Aware the students about different Policies. Like (Monetary, fiscal, Export Import etc.)
5. Student came to know about international trading environment.

Unit-I

- Business Environment- Concept , Components. Internal and External Environment.
- Unemployment-Meaning, Types, Causes, Suggestion to solve the unemployment Problems.
- Poverty-Meaning, Poverty line, Causes, measures undertaking by the government for poverty alleviation. Suggestion for Removal of Poverty.
- A Brief study of HDI index.

Unit-II

- Industrial Sickness- Meaning, Causes of Born Sickness Remedial Measures to prevent in India, Industrial sickness in India.
- New Industrial policy (1991) and Recent trends.
- Fiscal policy -Meaning, Technique of fiscal policy, Evaluation of fiscal Policy.

Unit-III

- Privatization- Meaning, Objectives, Advantages, public sector- their role in India and progress.
- NITI AAYOG
- Economic Reforms after liberalization and its impact on trade.
- New export- Import policy (2009-14)

Unit-IV

- Foreign Capital- meaning, Classification contribution of foreign capital in the Economic Development of India, Shortcomings of foreign capital suggestion to overcome shortcoming of foreign capital.
- Indian foreign trade-composition and direction, recent trends, brief study of WTO.

Outcome -

1. Understanding of Business Environment and Its different components, Aspects.
2. To understand about social problem, their removal and Govt. steps token to remove these.
3. To understand, LPG and their impact on Indian economy.
5. Students came to know about international trading environment.

Text Books :

1. व्यवसायिक वातावरण (हिन्दी)(Business Environment)- T.R. Jain, Mukesh Trehan, Ranju Trehan, Global Publication, Delhi
2. Economic Environment In India, Swami and Gupta- (English), Ramesh Book Depo., Jaipur.

Suggested Readings :

1. Planning Commission- Varaous Plan and Reports (Indian Govt.)
2. व्यवसायिक पर्यावरण डॉ. वी.सी. सिन्हा, एसबीपीडी पब्लिकेशन, आगरा
3. The Business Environment (English), Pearson Publication, New Delhi

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
JVB 402	Social Work (Social Work Methods & Interventions)	Core Elective(CE)	4	30	70	100

Semester- IV

Objectives -

1. To Understand Methods of Social Work.
2. To know about fields of Social Work.

Unit - I

Case Work & Group Work.

Social Case Work : Meaning, Principles, Components and Process.

Social Group Work : Meaning, Principles and Skills.

Unit - II

Community Organization & Research

Social Community Organization : Meaning Steps, Principle and Role of Worker

Social Work Research : Meaning and Steps.

Unit - III

Welfare and Action

Social Welfare Admistration : Meaning, Public and Private Agencies Principals

Social Action Meaning, Molds and Strategies

Unit - IV

Intervention

Social Work Intervention : Children, Youth, Aged, Weaker Sections, Women, Livelihoods, Differently Abled person.

Outcome -

Students will know methods of Social work and be able to apply in his society.

Reference Books :

1. समाज कार्य– समाज शास्त्री पं. अंगभूत, न्यू.रावल बुक कम्पनी, 2014
2. समाज कार्य अंत्रा, सिंह सुरेन्द्र, वर्मा आर.बी.ए, न्यू. रावल बुक कम्पनी, 2014
3. समाजशास्त्र मूल भूत अवधारणा, अरूण कुमार सिंह, न्यू. रावल बुक कंपनी, लखनऊ,2014
4. समाज कार्य दर्शन एवं प्रणालियाँ, न्यू रावल बुक कम्पनी, लखनऊ, 2014

Semester-V

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 501	Cost Accounting	**Core Course**	4	30	70	100

Objectives-

1. To give knowledge of Costing.
2. Knowledge of the elements of Cost.
3. Application of Costing in different methods.
4. Apply ABC.

Unit-I

Introduction – Nature and scope of cost accounting, cost concepts and classification, methods and techniques, installation of costing system, Accounting for material; material control, concept and techniques, pricing of material issue, treatment of material losses.

Unit-II

Unit of Single output, cost sheets and cost statement and tender, Job batch and contract cost.

Unit-III

Labour Costing, Process costing – including inter process profit. Joint and byproducts.Equivalent production.

Unit-IV

Marginal costing, cost control account and integrated cost accounting activity based costing.

Outcome -

1. Fundamental Knowledge of Costing.
2. Apply different methods of cost accounting.
3. Budgetary control in Costing.

Text Books :

1. Cost Accounting (Hindi/English) - Jain, Khandelwal, Pareek, Ajmera Book Company, Tripolia Bazar, Jaipur.

Suggested Readings :

1. Cost Accounting (Hindi/English) – Mahaswari, Mittal Mahendra Book Depot.,Delhi.
2. Cost Accounting (Hindi/English) - Ravi M. Kishore, Taxman Publishers, Delhi
3. Cost Accounting (Hindi/English) – Agarwal, Jain, Sharma, Shah Magal, Ramesh Book Depo., Jaipur

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 503	Auditing	**Core Course**	4	30	70	100

Semester-V

Objectives-

1. To make student understand about the auditing & their Importance.

2. Students came to know about the fundamental and types of auditing.

3. Students came to know about different concept like CARO and others.

4. Students came to know concept like Vouching, internal control and check etc.

5. Students aware about Right, Duties and power of an auditor

Unit I

Auditing: Meaning, definition, Importance, Accounting and Auditing, Limitations, Detection and Prevention of Frauds and Errors (SA-4), Basic principles governing an audit (SA-1), Types of audit.

Internal Control, Internal Check and Internal Audit,

Audit Procedure: Audit planning, Audit Programme, Audit working papers, Audit files. Audit Evidence

Unit II

Vouching- Meaning, Importing, Vouching of cash and trading transactions, Routine Checking and Test Checking.

Verification and valuation of Assests and Liabilities

Unit III

Audit of Limited Companies, company Auditor: Appointment, Power, and Duties & Liabilities.

Unit IV

Auditor's Report: Clean and Qualified Audit Report, Audit Certificate, Company Auditor Report Order 03 (CARO-3)

Outcomes -

1. Students acquainted with auditing and their importance.

2. Students know about relevance and current trends of auditing.

3. Different auditing concepts have to be known by students.

Text Books :

1. Auditing Jain Khandelwal & Pareek (Hindi), Ramesh Book Depo, Jaipur.

Suggested Readings :

1 A Hand Book of Practical Auditing, Tandan, B.N. (English) :, S. Chand & Co., Delhi.
2 Ankeshan (Auditing) Rajpurohit, Joshi, Vadera, Purohit & Singh:: RPP, Jodhpur.
3 Contemporary Auditing, Kamal Gupta (English) : Tata McGraw Hill Publishing Co.,Delhi
4 Auditing, Arun kumar, Rachana Sharma, Atlantic Publishers, New Delhi

Semester-VI

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 601	Management Accounting	**Core Course**	4	30	70	100

Objectives -

1. To give knowledge of Management Accounting.

2. Knowledge of Principal of Management.

3. Create Ratio fund flow & Cash flow in Management Accounting.

Unit-I

Management Accounting: meaning nature, Scope and functions of management accounting : role of management accounting in decision making management accounting V/s financial accounting tools ; and techniques of management accounting . Meaning and types of financial statements, Ratio analysis profitability, turnover ratio, liquidity ratio. Solvency ratio. Activity ratio.

Unit-II

Funds flow statement as per Indian accounting standard-3, and cash flow statement.

Unit-III

Budgeting for profit planning and control : meaning of budget and budgetary control : objectives : merits and limitations ; types of budget; fixed and flexible budgeting : cash budget;

Unit-IV

Standard costing and variance analysis; meaning of standard cost and standard costing; advantages and application; variance analysis- material, labour, overhead.

Outcome -

1. Fundamental knowledge of Management A/C.

2. Apply different Methods of Management Accounting.

3. Useful for Managers & Directors of a Company.

Text Books :

1. Management Accounting, MR Agarwal, Garima Publication, Jaipur

Suggested Readings :

1. Jain Khandelwal Pareek - Management Accounting Ajmera Book Company, Tripolia Book, Jaipur

2. Management Accounting (Hindi/English) – Agarwal Agarwal, Ramesh Book Depo., Jaipur.

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 602	Marketing Management	**Core Course**	4	30	70	100

Semester-VI

Objectives-

1. Concept of Marketing and selling.
2. Marketing Mix, Market Segmentation & Marking Environment.
3. Distribution Channels.
4. Product Planning & Development.

Unit I

Marketing- Meaning, Nature, Functions and Importance

Concept of Marketing: Traditional V/s Modern Approach.

Marketing V/s Sales, Service Marketing-CRM, International V/s Domesting

Unit II

Marketing Mix: Meaning, Nature and Elements.

Marketing Environment : Meaning and Factors affecting Marketing Environment.

Marketing Segmentation, Targeting, poisoning.

Unit III

Product : Meaning, Types of Product.

Product concept and Product Life Cycle

Product Planning : Meaning & Importance

Product development : Meaning, Concept and Process.

Unit IV

Distribution Channels: Retailers, Wholesalers and logistics management.

Pricing Decisions: Meaning & Strategies of Price determination.

Outcome-

1. Students will be aware of the current system of marketing going on.
2. Knowledge regarding product (Its quality, value, packaging, branding) will be enhanced.
3. As a customer, they will be able to purchase right product at right time & in a right price.
4. In short, knowledge about current market scenario will enhance.

Text Books-

1. Marketing Management - R.L. Nolakha - R.B.D. Publication, Jaipur
2. Priciples of Marketing - Dr Milan Kothari - R.B.D. Publication, Jaipur

Suggested Readings :

1. Marketing Management - khicha, Saxena, Sharma, R.B.D. Publication, Jaipur
2. विपणन के सिद्धान्त– आर.एल. नौलखा– आर.बी.डी. पब्लिकेशन, जयपुर
3. Marketing Management – Philip kotler, Pearson Publication India

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 603	Fundamental of Entrepreneurship	**Core Course**	4	30	70	100

Semester-VI

Objectives -

1. Role of Entrepreneur & their Importance & Economic development
2. Tell them about different theories of Entrepreneurship.
3. To tell them about EDP
4. To tell about Venture, Legality for establishing a venture.
5. Student interaction with Entrepreneurs.

Unit-A

Introduction – The Entrepreneur; Definition; Emergence of Entrepreneurial Class, Characteristics of an Entrepreneur, Classification of Entrepreneurship

Entrepreneurship and Role of Socio Economic Environment.

Unit-B

Promotion of a venture – Analysis of opportunities, Analysis of External Environment and Competitive factors.

Legal requirements for establishment of a new unit, venture capital – financing and documentation required.

Unit-C

Theories of Entrepreneurship.

Psycho Theories of Entrepreneurship.

Entrepreneur behavior – Innovation and Social responsibility of Entrepreneur.

Unit-D

Role of Entrepreneurs: Role of An Entrepreneurs In Economic Growth As An Innovator

Generation of Employment Opportunities, Role Of Entrepreneur in Export Promotion And Import Substitution. Case study of women Entrepreneurship (special effort of women Entrepreneurs)

Outcome -

1. The acquainted about the role of Entrepreneurship
2. Students understand different Innovation technique adopted by entrepreneur.
3. Understand & implementing these in their lives about different concepts.
4. To be self employed.
5. To Contribute in countries Growth.

Text Books:

1. Fundamentals of Entrepreneurship–G.S. Sudha, Ramesh Book Depo. Jaipur.
2. Fundamentals of Entrepreneurship–R.L. Nolakha, Ramesh Book Depo., Jaipur.

Suggested Readings :

1. Entrepreneurship Revolution : Macmillan Publication.Delhi
2. Fundamentals of Entrepreneurship-Rajeev Roy, Oxford higher education, Delhi

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 101	आगम विद्या एवं प्राकृत साहित्य (प्राकृत व्याकरण एवं साहित्य)	A	Core Course	4	30	70	100

सेमेस्टर –I

उद्देश्य–

1. प्राकृत की परिभाषा, उसके साधारण नियम एवं स्वर परिवर्तन बताना।
2. प्राकृत स्वयं शिक्षक के माध्यम से प्राकृत में वाक्य बनाने का अभ्यास करवाना।
3. दसवेआलियं आगम का अध्ययन करवाना।

इकाई 1 तुलसी मंजरी (सूत्र 01 से 234 तक)

(सूत्र कंठस्थ एवं साधनिका)

(1) सूत्रार्थ

(2) रूप सिद्धि

(3) प्राकृत शब्द से हिन्दी शब्द

(4) हिन्दी शब्द से प्राकृत शब्द

इकाई 2प्राकृत स्वयं शिक्षक (पाठ 01 से 20 तक)

(1) शब्दार्थ

(2) धातु रूप, शब्द रूप

(3) हिन्दी से प्राकृत, प्राकृत से हिन्दी में वाक्य रचना

इकाई 3 दसवेआलियं (1, 2, 3, 4,)

(1) सप्रसंग अनुवाद, व्याख्या

(2) आलोचनात्मक प्रश्न

(3) लघूत्तरात्मक प्रश्न

(4) वस्तुनिष्ठ प्रश्न

(5) शब्दार्थ

इकाई 4दसवेआलियं (7, 9)

उपलब्धियाँ–

1. प्राकृत भाषा सीखने का विकास होगा।
2. दसवेआलियं के द्वारा आगम शैली से अवगत होंगे।

पाठ्य पुस्तक / संदर्भ ग्रन्थ

1 प्राकृत प्रबोध–डॉ. नेमीचन्द्र शास्त्री, चौखम्बा विद्या भवन, वाराणसी 1965

2 प्राकृत प्रवेशिका–(Translation of Introduction to Prakrit) बनारसदास जैन, ओरियण्टल बुक्स रिप्रिंट कॉरपोरेशन, दिल्ली 1968
3 प्राकृत मार्गोपदेशिका–पं. बेचरदास जीवराज दोषी, मो. ला. ब. दास, दिल्ली 1968
4 प्राकृत व्याकरण (सिद्धहेमशब्दानुशासनम्–आचार्य हेमचन्द्रकृत) संस्कृत–हिन्दी व्याख्या सहित, व्याख्याकार–ज्ञानमुनि, प्रकाशन–आचार्यश्री आत्माराम जैन मॉडल स्कूल, दिल्ली 1974
5 प्राकृत व्याकरण (अंग्रेजी)–हेमचन्द्र, प्रकाशक भण्डारकर ओरियण्टल शोध संस्थान, पूना 1980
6 प्राकृत गद्य सोपान–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
7 प्राकृत काव्य मंजरी–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
8 प्राकृत स्वयं शिक्षक–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
9 तुलसी मंजरी–युवाचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं 1983
10 प्राकृत प्रवेशिका–डॉ. कोमलचंद जैन, तारा बुक एजेन्सी, वाराणसी 1989
11 प्राकृत वाक्य रचना बोध–युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं 1991
12 दसवेआलियं–वाचना प्रमुख, आचार्य तुलसी, जैन विश्व भारती, लाडनूं
13 प्राकृत रचना सौरभ–डॉ. के.सी सोगानी, अपभ्रंश अकादमी, जयपुर
14 प्राकृत रचना अभ्यास–डॉ. के.सी सोगानी, अपभ्रंश अकादमी, जयपुर

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 103	हिन्दी साहित्य (प्राचीन एवं मध्यकालीन काव्य)	A	Core Course	4	30	70	100

सेमेस्टर – I

उद्देश्य–

1. प्राचीन एवं भक्तिकालीन काव्य एवं कवियों से परिचित करवाना।
2. साहित्य के विभिन्न रूपों की जानकारी प्रदान करना।
3. विभिन्न साहित्यकारों की काव्यशैलियों से परिचित करवाना।

इकाई I

1. आदिकालः परिस्थितियाँ, नामकरण, कवि, रचनाएँ प्रमुख काव्य धाराएँ उनकी सामान्य प्रवृतियाँ,
2. भक्तिकाल का सामान्य परिचय, प्रेरक परिस्थितियां, प्रमुख काव्य धाराएँ एवं उनकी प्रवृतियाँ

इकाई II

1. ढोला मारू रा दूहा – सामान्य परिचय, काव्यगत विशेषताएँ, संकलित दोहे– 26 से 50 दोहे
2. कबीर के पद – 1, 2, 3, 8, 11, 12, 14 पद
   कबीर के दोहे ''मन को अंग'' से 1–10 दोहे
   कबीर की काव्यगत विशेषताएं।

इकाई III

1. नखशिख खण्ड –जायसी (पद क्रमांक 1–12 पद)
2. विनय के पद – सूरदास (पद क्रमांक 1–4 पद)
   बाललीला – सूरदास (पद क्रमांक 1,3,7 एवं 9 पद)
3. बाललीला वर्णन तुलसीदास (पद क्रमांक 1–4 पद)
   विनय के पद – तुलसीदास (पद क्रमांक 32, 33, 34 एवं 35 पद)
4. जायसी, सूरदास और तुलसीदास का काव्यगत विशेषताएं

इकाई IV

1. मीरा के पद – (पद क्रमांक 3, 4, 8, 9, 10, 15, 19, 22, 26 एवं 34) = 10 पद
2. रसखान के सवैया – (क्रमांक 1–12 एवं 22)
3. मीरा एवं रसखान की काव्यगत विशेषताएँ

उपलब्धियाँ–

1. प्राचीन एवं भक्तिकालीन साहित्य से प्रेरणा प्राप्त कर जीवन में आध्यात्मिक मार्ग पर अग्रसर होंगे।

2. विभिन्न साहित्यकारों की लेखन शैली से परिचित होकर स्वयं की लेखन शैली विकसित कर सकेंगे।
3. प्राचीन एवं भक्तिकालीन साहित्य की जानकारी प्राप्त कर भावी प्रतियोगिता परीक्षाओं के लिये स्वयं को तैयार कर सकेंगे।

पाठ्यपुस्तक

1. प्राचीन काव्य संग्रह, डॉ. कृष्णबीर सिंह, डॉ. विजय कुलश्रेष्ठ, ऑक्सफोर्ड बुक डिस्ट्रीब्यूटर, जयपुर

संदर्भ ग्रंथ

1. हिन्दी साहित्य का इतिहास– संपादक डॉ नगेन्द्र,डॉ हरदयाल मयूर पेपर बैक्स नोएडा।
2. हिन्दी साहित्य का इतिहास–आचार्य रामचंद्र शुक्ल नागरी प्रचारिणी सभा काशी।
3. हिन्दी साहित्य की भूमिका–आचार्य हजारी प्रसाद द्विवेदी, हिन्दी ग्रंथ रत्नाकर मुंबई।
4. कबीर ग्रथावली संपादक श्यामसुंदरदास
5. जायसी –पद्मावत, संपादक, आचार्य रामचन्द्र शुक्ल
6. मीरा ग्रंथावली संपादक कल्याण सिंह शेखावत
7. रसखान ग्रंथावली संपादक विधानिवास मिश्र
8. सूरदास – संपादक – आचार्य रामचन्द्र शुक्ल
9. गोस्वामी तुलसीदास – रामचन्द्र शुक्ल
10. कबीर – हजारी प्रसाद द्विवेदी

Course Code	Course Title	Croup	Course Category	Credit	CIA	Theory	Total
BOA 104	English Literature (Poetry and Drama)	A	Core course (CC)	4	30	70	100

Semester I

Objectives:

1. To enable the students to know about Elizabethan and Romantic Poetry.
2. To make them aware about Indian Poetry.
3. To make them familiar with the dramatic art.
4. To acquaint them with some literary terms and Figures of Speech of these genres.

Unit I: One Act Plays

1. Bishop's Candlesticks- NormanMckinnell
2. The Dear Departed- Stanley Hongton

Unit II: English and Indian-English Poems

1. All the World Is a Stage- William Shakespeare.
2. Death the Leveler- James Shirley.
3. The Solitary Reaper- William Wordsworth.
4. Where the Mind is Without Fear- Rabindranath Tagore.
5. Indian Weavers- Sarojini Naidu.

Unit III: Play- Tughlaq- GirishKarnad.

Unit IV: Literary Terms and Figures of Speech: Alliteration, Simile, Metaphor, Pun, Personification, Paradox, Oxymoron, Antithesis, Heroic Couplet, Transferred Epithet, Sonnet, Lyric, Ballad, And Rhyme.

Outcomes:

1. The students can understand poetry, One-Act Play and Drama.
2. They can learn the difference between the Figures of Speech and Literary Terms.

Suggested Reading :

1. Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.
2. Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3. Paper-I: Poetry and Drama, Jain Vishva Bharti Institute, Ladnun, 2016.
4. Poet's Pen: (Ed.) Homi p Dustoor. Oxford University Press.
5. Tughlaq- GirishKarnad. Oxford University Press. New Delhi.
6. Contemporary Indian poetry in English: (Ed.) Saleem Peerandina. MacMillan, New Delhi.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 105	राजस्थानी(आधुनिक राजस्थानी काव्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर –I

उद्देश्य–

1. विद्यार्थियों को आधुनिक नवीन राजस्थानी काव्य से परिचित करवाना।
2. राजस्थानी काव्य के विभिन्न रुपों की जानकारी प्रदान करना।
3. राजस्थानी के विभिन्न कवियों की काव्य शैलियों से परिचित करवाना।

इकाई–1

1. आधुनिक राजस्थानी काव्य का इतिहासः विकास एवं परम्परा से सम्बन्धित अध्ययन।
2. काव्य शास्त्र : गुण, शब्द शक्तियाँ एवं अलंकार।
3. शब्द बोध : तत्सम एवं तद्भव शब्द।

इकाई–2

1. राजस्थान के कवि (राजस्थानी काव्य संग्रह) सं. रावत सारस्वत, में कन्हैयालाल सेठिया, गणेशीलाल व्यास उस्ताद, चन्द्र सिंह बिरकाळी, डॉ. नारायण सिंह भाटी, रघुराज सिंह हाडा, रामसिंह सौलंकी, रेवतदान चारण, सत्यप्रकाश जोशी, सुमनेश जोशी की काव्यगत विशेषताएं एवं सामान्य परिचय।

ईकाई–3

1. आचार्य तुलसीकृत 'माँ वदनां' (प्रथम पांचगीत)।
2. आचार्य श्री तुलसी के गीतों की काव्यगत विशेषताएँ।

इकाई–4

1. आधुनिक राजस्थानी काव्य के विभिन्न रुपों का अध्ययन।
2. राजस्थानी के विभिन्न कवियों की काव्य शैली।

उपलब्धियां :

1. विद्यार्थी आधुनिक नवीन राजस्थानी काव्य से परिचित होंगे।
2. राजस्थानी काव्य के विभिन्न रुपों की जानकारी प्राप्त करेंगे।
3. राजस्थानी के विभिन्न कवियों की काव्य शैलियों से परिचित परिचित होंगे।

पाठ्य पुस्तक/संदर्भ ग्रंथ :–

1 राजस्थान के कवि/संपादक–रावत सारस्वत प्रकाशक–राजस्थानी भाषा, साहित्य एवं संस्कृति अकादमी, बीकानेर।
2 माँ–वदनां/आचार्य श्री तुलसी, प्रकाशक–आदर्श साहित्य संघ, चूरु।
3 आधुनिक राजस्थानी साहित्य प्रेरणा एवं प्रवृत्तियाँ/डॉ. किरण नाहटा, प्रकाशक–चिन्मय प्रकाशक, जयपुर।
4 राजस्थानी व्याकरण/सीताराम लालस, प्रकाशन–राजस्थानी शोध संस्थान, चौपासनी जोधपुर।
5 अलंकार परिजात/नोरतमदास स्वामी।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 106	संस्कृत(संस्कृत व्याकरण एवं साहित्य) (कालू कौमुदी)	B	Core Course	4	30	70	100

सेमेस्टर–I

उद्देश्य–

1. स्वरों एवं व्यंजनों का सामान्य ज्ञान करवाना।
2. शब्दों की सन्धि एवं सन्धि विच्छेद का अभ्यास करवाना।
3. लघु कथाओं से संस्कृत भाषा का अभ्यास करवाना।

इकाई 1 कालू कौमूदी (पूर्वार्द्ध) –संज्ञा, सन्धि, स्यादि प्रकरण सूत्र (1–269)
(क) संज्ञा, सन्धि –(1) संज्ञा विधायक सूत्र, (2) सूत्रार्थ, (3) संधि विषयक प्रश्न
(ख) स्यादि प्रकरण सूत्र (1–269)–(1) रूपसिद्धि, (2) सूत्रार्थ, (3) शब्द रूपावली

इकाई 2वाक्य रचना बोध (पाठ 1–17)
(1)हिन्दी से संस्कृत अनुवाद, (2)संस्कृत से हिन्दी अनुवाद, (3)शब्दार्थ

इकाई 3 सुप्रभातम्
(1) हिन्दी अनुवाद, (2) कथा सारांश

इकाई 4अभिधान चिंतामणि छठाकाण्ड (श्लोक 01 से 30)
(1) दो श्लोक पूर्ति, (2) पर्यायवाची शब्द, (3) शब्दार्थ

उपलब्धियाँ–

1. स्वरों के ज्ञान से उच्चारण शुद्धि होगी।
2. संस्कृत भाषा को बोलने व समझने का अभ्यास होगा।
3. लेखन कला का विकास होगा।

नोट– कालूकौमुदी और लघु सिद्धांत कौमुदी में से किसी एक पत्र का चयन करें।

पाठ्य पुस्तक/संदर्भ ग्रंथ

1. कालू कौमुदी, मुनि चौथमल आदर्श साहित्य संघ, चूरू।
2. वाक्य रचना बोध, आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं।
3. सुप्रभातम्, आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं।
4. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी।
5 संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 107	संस्कृत (संस्कृत व्याकरण एवं साहित्य) (लघुसिद्धांत कौमुदी)	B	Core Course	4	30	70	100

सेमेस्टर–I

उद्देश्य–

1. स्वरों एवं व्यंजनों का सामान्य ज्ञान करवाना।
2. शब्दों की सन्धि एवं सन्धि विच्छेद का अभ्यास करवाना।
3. लघु कथाओं से संस्कृत भाषा का अभ्यास करवाना।

1. लघुसिद्धांत कौमुदी

संज्ञा, संधि, सुबन्त प्रकरण (अजन्त पुल्लिंग तक) सूत्र (1–215)

2. रचनानुवाद कौमुदी (पाठ 1 से 10)

3. सुप्रभातम्

4. अभिधान चिन्तामणि छठां काण्ड (श्लोक 1 से 30)

उपलब्धियाँ–

1. स्वरों के ज्ञान से उच्चारण शुद्धि होगी।
2. संस्कृत भाषा को बोलने व समझने का अभ्यास होगा।
3. लेखन कला का विकास होगा।

नोट– कालू कौमुदी और लघु सिद्धांत कौमुदी में से किसी एक पत्र का चयन करें।

पाठ्युस्तक / संदर्भ ग्रंथ–

1. लघु सिद्धान्त कौमुदी, श्रीवरदराजकृत, संपादक–महेश सिंह, कुशवाहा, चौखम्बा विद्या भवन, दिल्ली।
2. रचनानुवाद कौमुदी, डॉ. कपिलदेव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी।
3. सुप्रभातम्, आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं।
4. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी।
5 संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory & Practical	Total
BOA 111	**Information Technology (FUNDANMENTALS OF IT & APPLICATION SOFTWARE– I)**	**C**	**Core Course (CC)**	**4**	**30**	**50+20**	**100**

Semester I

Objective:

1. This paper is intended to be the first basic course for the students of Information Technology. The main objectives of this course are;
2. It will expose the students to the fundamentals of the IT
3. Students will be having the introductory knowledge of the MS-Windows
4. Practically students will be able to use MS-PowerPoint and MS-Word.

Course Contents:

Unit I: Introduction to Computers

Introduction

- Application of Computers
- Block diagram of computer
- Types of computers and features
- Mini Computers
- Micro Computers
- Mainframe Computers
- Super Computers

Data Organization

- Drives
- Files
- Directories/Folder

Types of Memory (Primary And Secondary)

- RAM
- ROM
- PROM
- EPROM
- Secondary Storage Devices (FD, CD,DVD, HD,Pen drive)

Unit II

Devices

- Input Devices – Keyboard, Mouse, Joystick, Trackball, Light Pen, Touch Screen, Scanner, Digitizer, OMR, OCR ,MICR, Bar Code Reader
- Output Devices - Monitor, Printers, Plotter

Types of Software- Application & System Software

Language Processors- Assembler, Compiler & Interpreter

Types of Programming Languages

- Machine Languages
- Assembly Languages
- High Level Languages

Operating System

- Functions of Operating System
- Types of Operating System

Unit III

Introduction to MS-Windows

- Features of Windows
- Basic Components of Windows operating system-Start button, Desk Top
- My Computer, Recycle bin, Task Bar, Icons & System Tray
- Control Panel
- File and Folder Management

Concept of Word processor and its application

Ms-Word

- Ms-Word Window Layout
- Creating and Formatting Documents
- Editing Documents
- Creating and Editing Tables
- Mail Merge
- Printing Documents

Unit IV

Introduction & Application of MS-Powerpoint

- Power Point Slide Creation
- Slide Layout
- Views
- Adding content to slide- Text, Graphics, Sound, Video
- Applying Slide Transition
- Custom Animation
- Slide Show

Outcome:

- Students will apply the knowledge of IT practically in their day to day life.
- Students will be able to work on computers comfortably.
- Students will be able to create well formatted documents and attractive presentations.

Reference Books/Website

1. http://www.tutorialspoint.com/computer_fundamentals/index.htm
2. http://www.gcflearnfree.org/office
3. Rapidex computer course by Pustak Mahal Editorial Board, Unicorn Books,2012
4. Fundamentals of computers (English) Ist Edition by Reema Thareja, Oxford University Press, 2014

Practical:

- General use of Windows Operating System
- Creating document in MS-Word like Advertisement, Letter, Tables, Mail Merge etc
- Creating presentations in power point.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 112	PSYCHOLOGY (BASIC PSYCHOLOGICAL PROCESSES)	C	Core Course (CC)	4	30	70	100

Semester– I

Objective:

1. To understand the fundamental principles of Psychology of human behaviour.
2. To understand the functional inter relationship of different concepts of Psychology.

Unit-I : Introduction:

Meaning and definition of Psychology.

Goals of psychology.

Approaches: biological and psychodynamic.

Unit-II : Sensory - Perceptual Processes:

Visual and auditory: structure and functions.

Perceptual organization.

Determinants of perception .

Form, Space and Depth Perception**.**

Unit-III : Learning:

Meaning and definition of learning.

Classical conditioning and operant conditioning.

Transfer of training.

Extinction and spontaneous recovery.

Unit-IV : Memory and Forgetting :

Encoding, storage & retrieval process

Short term and long term memory

Forgetting : Decay and interference.

Out Comes :

1. Understand the fundamental principles of Psychology of human behaviour.
2. Understand the functional inter relationship of different concepts of Psychology.

Note :- The department may change the practical depending on the availability of the apparatus and recent developments.

BOOKS:-

1. Baron, R.A. Psychology: The essential sciences, New York; Allyn & Bacon.
2. Limbardo, P.G. & Weber, A.L.: Psychology, New York, Harper Collins College Publisher.
3. Lefton, L.A., Psychology, Boston; Allyn & Baron.
4. Morgan and King: Introduction to Psychology.
5. Singh, A.K.: Uchatar Samanya Manovigyan.
6. Azimurrahman: Samanya Manovigyan.

PRACTICALS(Any Three)

1. Measuring memory.
2. Measuring intelligence through verbal intelligence test
3. Measuring the level of emotional maturity.
4. Measuring achievement motivation.
5. Assessment of personality.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory+ Practical	Total
BOA 114	**Geography(Physical Geography)**	**C**	**Core Course (CC)**	**4**	**30**	**50+20**	**100**

Semester - I

Objectives-

1. To make aware of physical Geography in Detail.
2. Knowledge about interior layers of Earth.
3. Deep Knowledge about all the layers of Atmosphere.

Unit-I

a. Definition and scope of physical geography.

b. Origin of the earth : Tidal Hypothesis of James Jeans andBig Bang theory.

c. Interior of the earth : Structure, Composition & Zones.

d. Origin of the continent and oceans : Wegner's theory ofContinental drift and Plate tectonics.

Unit- II

a. Theories of mountain building : Geosyncline Origen theory of Kober.

b. Isostasy : Concept and Views of Airy and Pratt.

c. Weathering : Physical, Chemical and Biological

d. Drainage pattern and Cycle of erosion : Davis & Penck.

Unit – III

a. Composition and Structure of the atmosphere.

b. Atmospheric temperature : Insolation and heat budget.

c. Air masses : Source region and classification of air masses.

d. Climate Classification by W. Koppen.

Unit - IV

a. Reliefs of the Ocean basins.

b. Distribution of Temperature and Salinity of oceans.

c. Ocean Currents and Tides.

d. Coral reefs : Coditions of growth, types and origin according to Darwin and Murray.

PRACTICAL

a. Scale : Plain, Diagonal, Comparative.

b. Enlargement, Reduction & Combination of maps.

c. Representation of Relief.

d. Weather Instruments : Thermometer, Barometer, Hygrometers, Rain guage & Wind vane.

e. Weather symbols and interpretation of Indian weather maps.

f. Chain Tape Survey.

Outcome-

1. Knowledge about three branches of physical geography : Geomorpology, Climatology and Oceanography.
2. Get Aware about the reasons of many natural disasters & knowledge to overcome that.
3. Get aware about the atmosphere in which they are living.

Suggested Readings :

1. भौतिक भूगोल, डॉ. एल.एन. उपाध्याय, हिन्दी ग्रंथ अकादमी 2016।
2. सविन्द्रसिंह : भौतिक भूगोल, वसुन्धरा प्रकाशन, गोरखपुर।
3. शर्मा एच.एस. : ''भौतिक भूगोल'' पंचशील प्रकाशन, जयपुर।
4. चतुर्भुज मामोरिया एवं जैन : भौतिक भूगोल एवं जीव मण्डल, साहित्य भवन आगरा।
5. वीरेन्द्र सिंह चौहान : भौतिक भूगोल, रस्तोगी पब्लिकेशन्स, मेरठ।
6. उपाध्याय एल.एन. : भौतिक भूगोल, राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 115	Jainology (जैन इतिहास और संस्कृति)	C	Core Course (CC)	4	30	70	100

सेमेस्टर–I

उद्देश्य–

1. जैन धर्म की संस्कृति, कालक्रम एवं भगवान ऋषभ के चरित्र को समझाना।
2. अरिष्टनेमि, पार्श्वनाथ एवं महावीर के जीवन चरित्र को समझाना।
3. जैन साहित्य पर प्रकाश डालना।
4. जैन चिन्तन का योगदान बताना।

इकाई–1 जैन धर्म और भगवान ऋषभ

1. जैन धर्म और इसकी प्राचीनता
2. कालचक्र और कुलकर व्यवस्था
3. भगवान ऋषभ का जीवन–दर्शन और भरत का अनासक्त योग

इकाई–2भगवान महावीर एवं उनकी उत्तरवर्ती परम्परा

1. भगवान अरिष्टनेमि और भगवान पार्श्वनाथ
2. भगवान महावीर का जीवन और साधना
3. श्वेताम्बर और दिगम्बर आचार्य

इकाई–3जैन संस्कृति और साहित्य

1. आगम वाचना और आगम विभाजन
2. आगमों का व्याख्या साहित्य एवं उत्तरवर्ती साहित्य
3. जैन संस्कृति की विशेषताएँ और जैन पर्व
4. जैन कला, तीर्थस्थल तथा जैन धर्म के प्रचार में राजाओं का योगदान

इकाई–4चिन्तन के विकास में जैन दर्शन का योगदान

1. भगवान महावीर और जनतन्त्र तथा अनेकान्तवाद
2. अनुकम्पा और नैतिकता, साध्य–साधनवाद
3. अनुकम्पा और नैतिकता की अवधारणा

उपलब्धियाँ–

1. जैन संस्कृति एवं तीर्थंकर परम्परा से परिचित होंगे।
2. जैन साहित्य का परिचय प्राप्त होगा।
3. समस्या समाधान के सूत्र प्राप्त होंगे।

पाठ्य पुस्तक / संदर्भ पुस्तकें :

1. जैन इतिहास और संस्कृति, डॉ. समणी ऋजुप्रज्ञा, दूरस्थ शिक्षा निदेशालय, जैन विश्व भारती संस्थान, लाडनूं।
2. जैन परम्परा का इतिहास, आचार्य महाप्रज्ञ, जैन विश्वभारती संस्थान, लाडनूं।
3. जैन दर्शन और संस्कृति का इतिहास, भागचन्द भास्कर, आलोक प्रकाशन, नागपुर।
4. भारतीय संस्कृति में जैन धर्म का योगदान, डॉ. हीरालाल जैन, मध्यप्रदेश, शासन परिषद्, भोपाल।
5. जैन दर्शन, मनन और मीमांसा, आचार्य महाप्रज्ञ, आदर्श साहित्य संघ, चूरू।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 201	आगम विद्या एवं प्राकृत साहित्य (प्राकृत व्याकरण एवं साहित्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर–II

उद्देश्य–

1. व्यंजनों के स्थान पर होने वाले परिवर्तनों को समझाना।
2. प्राकृत के स्वर, व्यंजन का परिचय एवं संधि की प्रक्रिया बताना।
3. व्याकरण के साथ–साथ प्राकृत साहित्य का ज्ञान करवाना।

इकाई–1

1. तुलसी मंजरी (सूत्र 235 से 393)

(1) रूप सिद्धि

(2) संस्कृत शब्द से प्राकृत शब्द

(3) प्राकृत शब्द से संस्कृत शब्द

इकाई–2प्राकृत भाषा प्रबोधनी

(1) स्वर परिचय (2) व्यंजन (3) संधि (4) कारक एवं विभक्ति

(5) अपठित गद्यांश का प्राकृत अथवा हिन्दी अनुवाद

इकाई–3प्राकृत गद्य सोपान (अध्ययन 05–20)

(1) सप्रसंग अनुवाद, व्याख्या

(2) आलोचनात्मक प्रश्न

(3) लघूत्तरात्मक प्रश्न

(4) वस्तुनिष्ठ प्रश्न

(5) शब्दार्थ

इकाई–4प्राकृत गद्य सोपान (अध्ययन 21–32)

(1) सप्रसंग अनुवाद, व्याख्या

(2) आलोचनात्मक प्रश्न

(3) लघूत्तरात्मक प्रश्न
(4) वस्तुनिष्ठ प्रश्न
(5) शब्दार्थ

उपलब्धियाँ–

1. संस्कृत के साथ–साथ प्राकृत के स्वर–व्यंजनों की जानकारी होगी।
2. मूल व्यंजनों के स्थान पर होने वाले अन्य व्यंजनों का ज्ञान होने से शब्द कोश बढ़ेगा।
3. प्राकृत गद्य सोपान के द्वारा पठित व्याकरण का उपयोग सीखेंगे।

पाठ्य पुस्तक / संदर्भ ग्रंथ :

1 प्राकृत प्रबोध–डॉ. नेमीचन्द्र शास्त्री, चौखम्बा विद्या भवन, वाराणसी 1965
2 प्राकृत प्रवेशिका–(Translation of Introduction to Prakrit) बनारसदास जैन, ओरियण्टल बुक्स रिप्रिंट कॉरपोरेशन, दिल्ली 1968
3 प्राकृत मार्गोपदेशिका–पं. बेचरदास जीवराज दोषी, मो. ला. ब. दास, दिल्ली 1968
4 प्राकृत व्याकरण (सिद्धहेमशब्दानुशासनम्–आचार्य हेमचन्द्रकृत) संस्कृत–हिन्दी व्याख्या सहित, व्याख्याकार–ज्ञानमुनि, प्रकाशन–आचार्यश्री आत्माराम जैन मॉडल स्कूल, दिल्ली 1974
5 प्राकृत व्याकरण (अंग्रेजी)–हेमचन्द्र, प्रकाशक भण्डारकर ओरियण्टल शोधसंस्थान, पूना 1980
6 प्राकृत गद्य सोपान–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
7 प्राकृत काव्य मंजरी–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
8 तुलसी मंजरी – युवाचार्य महाप्रज्ञ, जैन विश्व भारती संस्थान, लाडनूं 1983
9 प्राकृत प्रवेशिका–डॉ. कोमलचंद जैन, तारा बुक एजेन्सी, वाराणसी 1989
10 प्राकृत वाक्य रचना बोध–युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं 1991
11 प्राकृत भाषा प्रबोधनी–डॉ. समणी संगीतप्रज्ञा, जैन विश्वभारती संस्थान, लाडनूं 2011
12 प्राकृत गद्य सोपान–डॉ. प्रेमसुमन जैन, राजस्थान प्राकृत भारती अकादमी, जयपुर
13 प्राकृत रचना सौरभ–डॉ. के.सी सोगानी, अपभ्रंश अकादमी, जयपुर
14 प्राकृत रचना अभ्यास–डॉ. के.सी सोगानी, अपभ्रंश अकादमी, जयपुर
15 प्राकृत भाषा एवं साहित्य का आलोचनात्मक इतिहास–डॉ. नेमीचन्द्र शास्त्री, तारा बुक एजेन्सी, वाराणसी

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 202	**अहिंसा एवं शांति (अहिंसा और शांति : भारतीयेतर दृष्टि-I)**	**A**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर –II

उद्देश्य–

1. विभिन्न धर्मों में वर्णित अहिंसा एवं शांति तत्त्व को समझाना।

इकाई–1

यहूदी धर्म में अहिंसा एवं शांति

इकाई–2

ईसाई धर्म में अहिंसा एवं शांति

इकाई–3

इस्लाम धर्म में अहिंसा एवं शांति

इकाई–4

सूफी परम्परा में अहिंसा एवं शांति

उपलब्धियाँ–

1. सभी धर्मों के प्रति सद्भावना बढेगी।

पाठ्य पुस्तक/संदर्भ ग्रन्थ

1. सामान्य धर्म दर्शन– याकूब मसीह

2. जैनधर्म में अहिंसा– वशिष्ट नारायण सिन्हा

3. अहिंसा एवं शांति– भारतीयेतर दृष्टि– प्रो. अनिल धर, दूरस्थ शिक्षा विभाग, जैन विश्वभारती संस्थान, लाडनूं

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 203	हिन्दी साहित्य कथा साहित्य (उपन्यास एवं कहानी)	A	Core Course (CC)	4	30	70	100

सेमेस्टर–II

उद्देश्य–

1. विद्यार्थियों को नवीन गद्य विधा, उपन्यास एवं कहानी से परिचित कराना।
2. विद्यार्थियों में कहानी लेखन कौशल विकसित करना।
3. विद्यार्थियों को गद्य समीक्षा कौशल में निपुण बनाना।

इकाई I

1. हिन्दी गद्य साहित्य का उद्‌भव एवं विकास
2. उपन्यास एवं कहानी विधा का उद्‌भव एवं विकास तथा प्रमुख गद्य विधाओं का सामान्य परिचय
3. प्रमुख उपन्यासकार एवं कहानीकार तथा उनकी प्रमुख रचनाएँ

इकाई II

1. गबन(उपन्यास) प्रेमचन्द–अरिहन्त प्रकाशन सोजतीगेट जोधपुर

इकाई III

निर्धारित कहानियाँ–

परदा– यशपाल

इनाम – जैनेन्द्र कुमार

सेव और देव– अज्ञेय

इकाई IV

निर्धारित कहानियाँ–

परमात्मा का कुत्ता – मोहन राकेश

बिरादरी बाहर – राजेन्द्र यादव

उसने कहा था – पं. चंद्रधर शर्मा गुलेरी

परिन्दे – निर्मल वर्मा

उपलब्धियाँ–

1. विद्यार्थी उपन्यास एवं कहानी साहित्य की विस्तृत जानकारी प्राप्त कर विभिन्न लेखन शैलियों से परिचित होंगे।
2. विद्यार्थी स्वयं कहानी लेखन का अभ्यास कर सकेंगे।

पाठ्यपुस्तक / संदर्भग्रंथ

1 कथा संचय, सं. दुर्गा प्रसाद अग्रवाल, यूनिवर्सिटी बुक हाउस, नई दिल्ली

2 हिन्दी उपन्यासः लक्ष्मीसागर वार्ष्णेय, राधाकृष्ण प्रकाशन नई दिल्ली

3 हिन्दी कहानीः स्वरूप और संवेदना–राजेन्द्र यादव, नेशनल पब्लिशिंग हाउस नई दिल्ली

4 कहानीः नई कहानी–नामवरसिंह, लोकभारती प्रकाशन, इलाहाबाद

5 हिन्दी साहित्य का इतिहास नगेन्द्र मयूर पेपर बैक्स नोएडा

6 हिन्दी कहानीः अन्तरंग पहचान–रामदरश मिश्र नेशनल पब्लिशिंग हाउस नई दिल्ली

7 हिन्दी उपन्यासः एक अंतर्यात्रा–रामदरश मिश्र राजकमल प्रकाशन नई दिल्ली

8 कथाकार वृंदावन लाल वर्मा–शशिभूषण सिंहल, हरियाणा साहित्य अकादमी चंडीगढ़

Course Code	Course Title	Croup	Course Category	Credit	CIA	Theory	Total
BOA 204	English Literature (Prose and Fiction)	A	Core Course (CC)	4	30	70	100

Semester II

Objectives:

1. To enable the students to compose stories.
2. To make them familiar with prose and Narrative art.
3. To acquaint them with some literary terms of these genres.

Unit I: Short Stories

1. The Refugee- Pearl S. Buck.
2. The Luncheon- William Somerset Maugham.
3. The Babus of Nayanjore- Rabindranath Togore.
4. The Axe- R.K. Narayan.

Unit II: English Essays

1. OfStudies- Francis Bacon.
2. Dream Children: A Reverie- Charles Lamb
3. On National Prejudices- Oliver Goldsmith
4. On the Pleasures of No Longer Being Very Young- G.K. Chesterton.

Unit III: Novel- Animal Farm.

Unit IV: Literary Terms and Figures of Speech: Essay, Elements of Short Story, Myth, Legend, Folk Tale, Aphoristic Style,

Outcomes:

1. The students can understand Essay, Short Story and Novel.
2. They can learn the difference between the Figures of Speech and Literary Terms.

Suggested Reading :

1. Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.
2. Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3. A Choice of Short Stories. (Ed.) Shakti Batra. OUP, New Delhi.
4. Forms of English Prose. Oxford University Press, New Delhi.
5. Animal Farm. George Orwell. Orient Longman.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 205	राजस्थानी (आधुनिक राजस्थानी गद्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर –II

उद्देश्य –

1 विद्यार्थियों को राजस्थानी की नवीन गद्य विधा, उपन्यास एवं कहानी से परिचित कराना।
2 विद्यार्थियों में कहानी लेखन कौशल विकसित करना।
3 विद्यार्थियों को गद्य समीक्षा में निपुण बनाना।

इकाई – 1

1 राजस्थानी गद्य साहित्य का उद्भव एवं विकास।
2 राजस्थानी उपन्यास एवं कहानी साहित्य का उद्भव एवं विकास तथा प्रमुख गद्य विधाओं का सामान्य परिचय।
3 राजस्थानी के प्रमुख उपन्यासकार एवं कहानीकार तथा उनकी प्रमुख रचनाएँ।

इकाई – 2

1 राजस्थानी गद्य संकलन :– संपादक–कल्याण सिंह शेखावत (सम्पूर्ण संकलन : पाठ क्रमांक 11,13 व 16 को छोड़कर)

इकाई – 3

1. उकरास (कहानी संग्रह) संपादक – साँवर दइया

- सूरज री मौत – अन्नाराम सुदामा
- थे बारै जावो – करणीदान बारहठ
- हिरणी – बैजनाथ पँवार
- राजीनावो – विजयदान देथा

इकाई – 4

1. कनक सुन्दर (उपन्यास) शिवचन्द भरतिया

पाठ्य पुस्तक/संदर्भ ग्रंथ :–

1 उकरास (कहानी संग्रह) संपादक–साँवर दइया, प्रकाशक–राजस्थानी भाषा, साहित्य एवं संस्कृति अकादमी, बीकानेर (सूरज री मौत, थे बारै जावो, हिरणी, राजी नावो)
2 राजस्थानी गद्य संकलन/संपादक–कल्याण सिंह शेखावत, प्रकाशक–राजस्थानी ग्रन्थागार, जोधपुर।
3 कनक सुंदर (उपन्यास) शिवचन्द भरतिया, प्रकाशक–आचार्य श्री तुलसी राजस्थानी शोध संस्थान, बीकानेर।
4 राजस्थानी भाषा और साहित्य का इतिहास – सीताराम लालस, प्रकाशक–राजस्थानी शोध संस्थान, चौपासनी, जोधपुर।
5 पोथी दर पोथी – डॉ. किरण नाहटा, प्रकाशक– राजस्थानी संस्कृति जनहित प्रन्यास, बीकानेर।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 206	संस्कृत(संस्कृत व्याकरण एवं साहित्य) (कालूकौमुदी)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–II

उद्देश्य–

1. कारक से शब्दरूप की विभक्तियों का ज्ञान कराना।
2. समास के द्वारा शब्दों के निर्माण की विधि को सीखाना।
3. शेमुषी में व्याकरण एवं साहित्य का समन्वयात्मक ज्ञान करवाना।

इकाई–1कालू कौमुदी(पूर्वार्द्ध) युस्मद्–अस्मद्, अव्यय, कारक, समास (सू. 270 से 294 एवं 329 से 513

(1) रूप सिद्धि

(2) सूत्रार्थ

(3) शब्द रूपावली

इकाई–2 वाक्य रचना बोध (18 से 37 पाठ)

(1) हिन्दी से संस्कृत अनुवाद

(2) संस्कृत से हिन्दी अनुवाद

(3) शब्दार्थ

इकाई–3 शेमुषी, छन्द एवं अलंकार

1. अनुवाद
2. लघुत्तरात्मक प्रश्न
3. श्लोक रचना

चयनित छन्द– अनुष्टुप, इन्द्रव्रजा, उपेन्द्रव्रजा, शिखरिणी

चयनित अलंकार– अनुप्रास, यमक, श्लेष, उपमा एवं दृष्टान्त

इकाई–4 अभिधान चिन्तामणिनाममाला (श्लोक 31 से 60)

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. विभक्ति संबंधी ज्ञान में अशुद्धि नहीं रहेगी।
2. श्लोक रचना आदि में समास का कार्यकारी ज्ञान होगा।
3. सरल संस्कृत संभाषण का अभ्यास होगा।

नोट– कालू कौमुदी और लघु सिद्धांत कौमुदी में से किसी एक पत्र का चयन करें।

पाठ्य पुस्तक / संदर्भ ग्रंथ :

1. कालु कौमुदी, आदर्श साहित्य संघ, चूरू
2. वाक्य रचना बोध, आचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं
3. शेमुषी, युवाचार्य महाश्रमण, जैन विश्व भारती, लाडनूं
4. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी
5. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे
6. संस्कृत वाक्य रचना बोध, लेखक–आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
7. सरल वाक्य रचना बोध, मुनि श्री श्रीचंद, जैन विश्व भारती, लाडनूं
8. अनुवाद चन्द्रिका, डॉ. ब्रह्मानंद त्रिपाठी, चौखम्बा प्रकाशन, वाराणसी
9. व्याकरण रचनानुवाद, डॉ. बाबूराम त्रिपाठी, महालक्ष्मी प्रकाशन, आगरा

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 207	संस्कृत(संस्कृत व्याकरण एवं साहित्य) (लघु सिद्धांत कौमुदी)	B	CoreCourse (CC)	4	30	70	100

सेमेस्टर–II

उद्देश्य–

1. शब्दों के स्त्रिलिंगी प्रत्ययों का ज्ञान करवाना।
2. अव्ययों का ज्ञान करवाना।
3. शेमुषी में व्याकरण एवं साहित्य का समन्वयात्मक ज्ञान करवाना।

इकाई–1 **लघु सिद्धांत कौमुदी**

(1) सुबन्त (अजन्त स्त्रीलिंग से सुबन्त तक)

(2) अव्यय प्रकरण (सू. 216–372)

(3) स्त्री प्रकरण (सू. 1244–1272)

इकाई–2 **रचनानुवाद कौमुदी**(पाठ 11 से 20)

इकाई–3 **शेमुषी, छन्द एवं अलंकार**

1. अनुवाद
2. लघुत्तरात्मक प्रश्न
3. श्लोक रचना

चयनित छन्द– अनुष्टुप, इन्द्रव्रजा, उपेन्द्रव्रजा, शिखरिणी

चयनित अलंकार– अनुप्रास, यमक, श्लेष, उपमा एवं दृष्टान्त

इकाई–4 **अभिधान चिन्तामणि**(श्लोक 31 से 60)

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. स्त्रिलिंग शब्दों के निर्माण की प्रक्रिया का ज्ञान होगा।
2. अव्ययों का सामान्य ज्ञान होगा।
3. सरल संस्कृत संभाषण का अभ्यास होगा।

नोट –कालू कौमुदी और लघु सिद्धांत कौमुदी में से किसी एक पत्र का चयन करें।

पाठ्य पुस्तक/संदर्भ ग्रंथ :

1. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
2. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
3. शेमुषी, युवाचार्य महाश्रमण, जैन विश्व भारती, लाडनूं
4. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी
5. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे
6. संस्कृत वाक्य रचना बोध, लेखक–आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
7. सरल वाक्य रचना बोध, मुनि श्री श्रीचंद, जैन विश्व भारती, लाडनूं
8. अनुवाद चन्द्रिका, डॉ. ब्रह्मानंद त्रिपाठी, चौखम्बा प्रकाशन, वाराणसी
9. व्याकरण रचनानुवाद, डॉ. बाबूराम त्रिपाठी, महालक्ष्मी प्रकाशन, आगरा
10. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 209	जीवन विज्ञान (योग एवं प्रेक्षाध्यान)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–II

उद्देश्य–

1. योग के अंगों का परिचय करवाना।
2. योग पद्धतियों का परिचय करवाना।
3. प्रेक्षाध्यान के मुख्य अंगो के आध्यात्मिक और वैज्ञानिक दृष्टिकोण का ज्ञान करवाना।
4. प्रेक्षाध्यान के मुख्य अंगों के प्रयोजन और निष्पत्तियों का ज्ञान करवाना।

इकाई–1

भारतीय परम्परा में योग एवं प्रेक्षाध्यान, योग का अर्थ, परिभाषा एवं योग की विविध शाखाएं, पातंजल योग : अष्टांग योग, प्रेक्षाध्यान उद्‌भव

इकाई–2

प्रेक्षाध्यान : अर्थ, स्वरूप, ध्येय, उपसंपदा चर्यासूत्र, सहायक अंग–आसन, प्राणयाम, ध्वनि, मुद्रा, विशिष्ट अंग–अनिमेष प्रेक्षा, व वर्तमान क्षण की प्रेक्षा, आध्यात्मिक व वैज्ञानिक दृष्टिकोण एवं निष्पत्तियां

इकाई–3

प्रेक्षाध्यान के मुख्य अंग–कायोत्सर्ग–अर्थ, परिभाषा, प्रयोजन निष्पत्तियां, आध्यात्मिक व वैज्ञानिक दृष्टिकोणं। श्वास प्रेक्षा –श्वासप्रेक्षा–प्रकार, आध्यात्मिक व वैज्ञानिक दृष्टिकोण तथा निष्पत्तियां

इकाई–4

चैतन्य केन्द्र प्रेक्षा और लेश्याध्यान–चैतन्य केन्द्र प्रेक्षा–स्थान, प्रक्रिया, आध्यात्मिक व वैज्ञानिक दृष्टिकोण व निष्पत्तियां, लेश्याध्यान का परिचय और प्रयोजन, लेश्याध्यान–आध्यात्मिक व वैज्ञानिक दृष्टिकोण तथा निष्पत्तियां

उपलब्धियाँ–

1. योग की विभिन्न परम्पराओं से परिचित हो सकेंगे।
2. प्रेक्षाध्यान की आध्यात्मिकता एवं वैज्ञानिकता को जान सकेंगे।
3. प्रेक्षाध्यान के मुख्य अंगों के प्रयोजन और निष्पतियों से परिचित हो सकेंगे।

4. तनाव मुक्ति की प्रक्रिया से परिचित हों सकेंगे।

5. शरीर एवं मन की आन्तरिक शक्तियों की जागरण की विधि को जान सकेंगे।

प्रायोगिक

1. मेरूदण्ड की क्रियाएं
2. आसन–भुजंगासन, जानुशिरासन, पश्चिमोत्तानासन त्रिकोणासन
3. प्राणायाम– अनुलोम–विलोम
4. प्रेक्षाध्यान–ध्यान की पूर्व तैयारी, कायोत्सर्ग, अन्तर्यात्रा
5. अनुप्रेक्षा–कर्त्तव्यनिष्ठा एवं अभय

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1. जीवन विज्ञान सिद्धांत समणी श्रेयसप्रज्ञा, जैन विश्वभारती विश्वविद्यालय, लाडनूं
2.. जीवन विज्ञान की रूपरेखा, समाकलन–मुनि धर्मेश, जैन विश्वभारती संस्थान, लाडनूं
3. अहिंसा और अणुव्रत : सिद्धांत और प्रयोग, समाकलन–मुनि सुखलाल,
4. आचार्य महाप्रज्ञ : प्रेक्षा पुष्प, जैन विश्व भारती प्रकाशन, लाडनूं
5. अपना दर्पण अपना बिम्ब– युवाचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
6. जीवन विज्ञान, प्रेक्षाध्यान एवं योग, संम्पादक समणी डॉ. मल्लि प्रज्ञा, जैन विश्व भारती, लाडनूं
7. पातंजल योग दर्शन : आचार्य ब्रह्मलीन, चौखम्बा संस्कृत प्रतिष्ठान, दिल्ली,
8. योग तत्त्वांक, गीताप्रेस, गोरखपुर
9. महावीर की साधना का रहस्य– आचार्य महाप्रज्ञ, तुलसी अध्यात्म नीडम् प्रकाश,
10. श्रीमद्भागवतगीता, गीता प्रेस, गोरखपुर

प्रायोगिक संदर्भ पुस्तकें–

1. यौगिक क्रिया–मुनि किशनलाल
2. प्रेक्षाध्यान प्रयोग पद्धति–आचार्य महाप्रज्ञ
3. आसन–प्राणायाम–मुनि किशनलाल

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory & Practical	Total
BOA 211	Information Technology (FUNDANMENTALS OF IT & APPLICATION SOFTWARE – II)	C	Core Course (CC)	4	30	50+20	100

Semester II

Objective:

This paper is intended to be the first basic course for the students of Information Technology. The main objectives of this course are;

- Students will be exposed to networking concepts including internet.
- Students will be exposed to work on numbers including formulas using MS-Excel.
- Students will be able to create and edit videos using Windows movie maker.

UNIT I

Computer & Communications

Need of data transmission/ communications

Networking Concepts

- Types of Networks – LAN, WAN, MAN & PAN - Need
- Topologies- Star, Ring, Bus, Tree ,Hybrid
- Advantages and Limitations

Internet

- Internet: Introduction
- Server and Client
- Web Browsers-Its functions
- Concept of Search Engines,
- Search engines types
- Websites – Types (Dynamic & Static)
- Internet Vs Intranet

Unit II

Types of Internet Services

- World Wide Web
- Telnet
- Electronic Mail
- Chat
- Newsgroups

E-Mail:

- Concepts
- Basics of Sending & Receiving

Unit III

Windows Movie Maker 7

- Introduction and Features of Windows Movie Maker 7
- Design, create and edit a movie using Movie Maker
- Video Editing skills - adjust sound, clip out parts & music to your video.
- Add still photos, animations, title and transitions

Unit IV

MS-Excel

- Introduction to MS-Excel
- Applications of MS- Excel
- Concept of workbook and worksheet
- Layout of Worksheets
- Various Data Types
- Inserting, Removing & Resizing of Columns & Rows;
- Working with Data & Ranges;
- Different Views of Worksheets;
- Column Freezing, Labels, Hiding, Splitting, Merging
- Formula
- Functions

- o Mathematical & Statistical(Abs, Int, Mod, Power, Round, Sqrt, Sum, Sumif, Trunc, Average, Count ,CountA, Countblank, Countif, Max, Min,)
- o Date & Time (Date, Day, Hour, Minute, Now, Second, Time, Today, WeekdayYear)
- o Logical(And,Or,Not,True,False,If)
- o Text(Char,Concatenate,Left,Len,Lower,Mid, Rept,Right,Trim,Upper)

• Auto fill Facilities

- o Filling numbers, month names, days of week

• Sorting data in a spreadsheet

• Filtering Data

- o Auto Filter
- o Advanced Filter

• Charts –Creating line ,Column and Pie Chart

Outcome:

1. Students will use the Internet in their day to day life,
2. Use MS-Excel to create spreadsheets and learn to create the dynamic videos using movie maker.

Reference Books/Website

1. http://www.gcflearnfree.org/office
2. http://www.lynda.com/Windows-Live-Movie-Maker-training-tutorials/259-0.html
3. http://www.tutorialspoint.com/computer_fundamentals/index.htm
4. Rapidex computer course by Pustak Mahal Editorial Board, Unicorn Books,2012
5. Fundamentals of computers (English) Ist Edition by Reema Thareja, Oxford University Press, 2014

Practical:

- Creation of Simple Worksheet like Mark sheet , Pay slip using MS-Excel
- Craating movies in movie maker.
- General use of internet

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 212	PSYCHOLOGY (SOCIAL PSYCHOLOGY)	C	Core Course (CC)	4	30	70	100

Semester – II

Objective :

1. To enable students to appreciate how individual behavior is influenced by social and cultural contexts.
2. To enable students to develop an understanding of functioning of organizations.
3. To understand how social problems can be analyzed in terms of various social psychological theories.

Unit-I :

Introduction :

Meaning & nature of social psychology

Goals and scope of social psychology

Methods of social psychology: Experimental and participant observation.

Unit-II :

Attitudes :

Nature and function of attitudes

Formation of attitude

Change and measurement of attitudes.

Unit-III :

Groups Behavior:

Meaning & definition of group

Distinction between Primary and Secondary group

Methods of studying group structure.

Unit-IV :

Leadership :

Meaning and nature of leadership

Types or styles of leader

Theories of leadership: trait theory, situational theory and

fiedler's contingency theory.

Objective :

1. Students develop an understanding of functioning of organizations.
2. Student understand about the problem of various social psychological theories.

Note :- The department may change the practical depending on the availability of the apparatus and recent developments.

BOOKS

1. Baron, R.A. & Byrne, D. (1998). Social Psychology : Theories, research and application. New York : Mc Graw Hill.
2. Semin, G.R. & Fiedler, K. (Eds.) (1996). Applied Social Psychology, London: Sage.
3. Suleiman, M., Adhunik Samaj Merovingian.
4. Tripathi, L.B., Samaj Manovigyan.
5. Rastogi, G.D., Samaj Manovigyan.

PRACTICALS (Any Three)

1. Measuring the level of cooperation and competition.
2. Measuring transfer of training.
3. Measuring illusion.
4. Measuring self confidence.
5. Measuring the level of emotional intelligence.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory+ Practical	Total
BOA 214	**Geography (Geography of Rajasthan)**	**C**	**Core Course (CC)**	**4**	**30**	**50+20**	**100**

Semester II

Objectives-

1. Giving Deep Knowledge about climate conditions of Rajasthan.
2. Knowledge about human resources of Rajasthan.
3. Knowledge regarding industries of Rajasthan.

Unit-I

a. Physiographic division of rajasthan.

b. Climate

c. Drainage System

d. Natural vegetation

Unit-II

a. Soils of Rajasthan

b. Agriculture : Type and Distribution of major crops

c. Irrigation : Indira Gandhi Canal Project, Chambal valley project, Mahi Bajaj Sagar Project.

d. Tourism in Rajasthan.

Unit- III

a. Drought and Desertification

b. Industries : Textile, Sugar, Cement, Marble and Granite, Fertitizer, Zinc and Copper Smelting.

c. Power & Energy resource

d. Trade & Transport Development of Tourism.

Unit- IV

a. Population - number, growth, rural and urban male and female population, literacy status, occupational structure.

b. Schedule tribes- Bhils, Meena and Garasias

c. Settlement Pattern - Type and Building Materials.

d. Rural/Urban Settlement Patterns.

Practical

Representation of Statistical data through diagrams : Multiple Bardiagram, Simple pyramid diagrams : Rectangular diagram, Wheel or pie-diagram, Spherical diagrams, Poly lineargraph, climograph,

Measures of central tendency : Arithmetic mean, mode & median (Direct Method)

Outcomes -

1. The students after getting aware about climate conditions, can adapt themselves as per climate.

2. Proper utilisation of available resources (Physiccal & Human) can be made possible.

3. Will be aware about various industries of Rajasthan.

Suggested Reading :

1 डॉ एच.एम. सक्सेना, राजस्थान का भूगोल, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर 2015

2 टी.एस. चौहान, राजस्थान का भूगोल, श्री उदयराम चौहान, विज्ञान प्रकाशन, नागौरियों का बास, गली नं. 01, जोधपुर

3 आर.एस. भल्ला,राजस्थान का भूगोल, कुलदीप पब्लिकेशन, जयपुर।

4 आर.के. गुर्जर , इन्दिरा गांधी नहर क्षेत्र का भूगोल, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 215	Jainology (जैन तत्त्व विद्या)	C	Core Course (CC)	4	30	70	100

सेमेस्टर–II

उद्देश्य–

1. जैन तत्त्व मीमांसा का परिचय देना।
2. पुद्गल, परमाणु की अवधारणा समझाना।
3. प्राण, पर्याप्ति, लेश्या और इन्द्रिय तत्त्व का विवेचन करना।

इकाई–1

तत्त्व का स्वरूप, तत्त्व के प्रकार, तत्त्व चिंतन का लक्ष्य, द्रव्य, गुण पर्याय का स्वरूप, भेद एवं सम्बन्ध।

इकाई–2

जीव स्वरूप, जीव सिद्धि, जीव के प्रकार, विभिन्न दृष्टि से जैन दर्शन में जीव

इकाई–3

पुद्गल का स्वरूप, भेद, अवस्थाएं जीव और पुद्गल का सम्बन्ध, परमाणु स्वरूप

इकाई–4

प्राण, पर्याप्ति, लेश्या और इन्द्रिय

उपलब्धियाँ–

1. जैन तत्त्वों की जानकारी होगी।
2. पुद्गल, परमाणु की अवधारणा का ज्ञान होगा।
3. जीवनोपयोगी तत्त्वों की जानकारी प्राप्त होगी।

पाठ्यपुस्तक / सन्दर्भ ग्रन्थ :

1. जैन तत्त्व विद्या, डॉ. आनन्दप्रकाश त्रिपाठी, दूरस्थ शिक्षा निदेशालय, जैन विश्व भारती संस्थान, लाडनूं
2. उत्तरज्झयणाणि, सं. आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
3. तत्त्वार्थसूत्र, आचार्य उमास्वाति
4. जैन दर्शन : मनन और मीमांसा, आचार्य महाप्रज्ञ, आदर्श साहित्य संघ, चूरू
5. जीव–अजीव, आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
6. जैन सिद्धान्त दीपिका, आचार्य तुलसी, जैन विश्व भारती, लाडनूं
7. जैन तत्त्व विद्या, आचार्य तुलसी, जैन विश्व भारती, लाडनूं

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 301	आगम विद्या एवं प्राकृत साहित्य (प्राकृत व्याकरण एवं साहित्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर –III

उद्देश्य–

1. शब्द रूप प्रक्रिया, कारक एवं स्त्री प्रत्यय प्रकरण समझाना।
2. वाक्य बनाने का अभ्यास करवाना।
3. पाइयगज्जसंगहो पढ़ाना।
4. उत्तराध्ययन (3,4,8) आगम का अध्ययन करवाना।

इकाई–1 : तुलसी मंजरी (सूत्र 394 से 577)

(1) रूप सिद्धि

(2) सूत्र तथा पंक्ति व्याख्या

(3) शब्द रूप (संदर्भित सूत्रों के आधार पर)

(4) धातु रूप (संदर्भित सूत्रों के आधार पर)

(5) धात्वादेश

इकाई–2 प्राकृत स्वयं शिक्षक (पाठ 21–50)

(1) हिन्दी से प्राकृत और प्राकृत से हिन्दी अनुवाद करना

इकाई–3 पाइयगज्जसंगहो (सम्पूर्ण)

(1) सप्रसंग अनुवाद

(2) आलोचनात्मक प्रश्न

(3) व्याकरणात्मक टिप्पणियां

(4) शब्दार्थ

(5) लघुत्तरात्मक प्रश्न (प्राकृत में उत्तर दिये जायें)

इकाई–4उत्तराध्ययन (3, 4, 8)

(1) सप्रसंग व्याख्या

(2) आलोचनात्मक प्रश्न

(3) शब्दार्थ

उपलब्धियाँ–

1. शब्द रूप, कारक, स्त्री प्रत्यय को समझकर इनका सम्यक् प्रयोग करेंगे।
2. वाक्य प्रयोग से प्राकृत में रचना धर्मिता का विकास होगा।
3. कथा के माध्यम से शब्द प्रयोग, प्राकृत संभाषण का अभ्यास होगा एवं सांस्कृतिक मूल्यों से परिचय होगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थ :

1 प्राकृत प्रबोध–डॉ. नेमीचन्द्र शास्त्री, चौखम्बा विद्या भवन, वाराणसी 1965
2 प्राकृत प्रवेशिका–(Translation of Introduction to Prakrit) बनारसदास जैन, ओरियण्टल बुक्स रिप्रिंट कॉरपोरेशन, दिल्ली 1968
3 प्राकृत मार्गोपदेशिका–पं. बेचरदास जीवराज दोषी, मोती लाल बनारसी दास, दिल्ली 1968
4 प्राकृत व्याकरण (सिद्धहेमशब्दानुशासनम्–आचार्य हेमचन्द्रकृत) संस्कृत–हिन्दी व्याख्या सहित, व्याख्याकार–ज्ञानमुनि, प्रकाशन–आचार्यश्री आत्माराम जैन मॉडल स्कूल, दिल्ली 1974
5 प्राकृत व्याकरण (अंग्रेजी)–हेमचन्द्र, प्रकाशक भण्डारकर ओरियण्टल शोध संस्थान, पूना 1980
6 प्राकृत गद्य सोपान–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
7 प्राकृत काव्य मंजरी–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
8 प्राकृत स्वयं शिक्षक–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
9 तुलसी मंजरी–युवाचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं 1983
10 पाइयगज्जसंगहो–संपादक –डॉ. राजाराम जैन, प्राच्य भारती प्रकाशन, आरा 1987
11 भाग–1, उत्तरज्झयणाणि जैन विश्वभारती, लाडनूं
12 प्राकृत प्रवेशिका–डॉ. कोमलचंद जैन, तारा बुक एजेन्सी, वाराणसी 1989
13 प्राकृत वाक्य रचना बोध–युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं 1991
14 प्राकृत कथा साहित्य परिशीलन–डॉ. प्रेमसुमन जैन, संधी प्रकाशन, जयपुर 1992
15 प्राकृत साहित्य का इतिहास–डॉ. जगदीशचन्द्र जैन, चौखम्बा विद्या भवन, वाराणसी 1995
16 प्राकृत रचना सौरभ–डॉ. के.सी सोगानी, अपभ्रंश अकादमी, जयपुर
17 प्राकृत रचना अभ्यास–डॉ. के.सी सोगानी, अपभ्रंश अकादमी, जयपुर
18 प्राकृत भाषा एवं साहित्य का आलोचनात्मक इतिहास–डॉ. नेमीचन्द शास्त्री, तारा बुक एजेन्सी, वाराणसी
19 प्राकृत कथा साहित्य–डॉ. जगदीशचन्द्र जैन
20 उत्तराध्ययनसूत्र एक समीक्षात्मक अध्ययन–युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं
21 उत्तराध्ययनसूत्र एक परिशीलन–डॉ. सुदर्शनलाल जैन, प्रकाशक पार्श्वनाथ विद्याश्रम, वाराणसी

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 302	**अहिंसा और शांति (अहिंसा और शांति–भारतीयेतर दृष्टि - II)**	**A**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–III

उद्देश्य–

1. विभिन्न विचारकों के अहिंसा और शांति के चिन्तन को समझाना।

इकाई I

यहूदी धर्म ग्रन्थ में अहिंसा एवं शांति

इकाई II

मार्क्स, हेनरी डेविड थोरो, मार्टिन लूथर किंग

इकाई III

महात्मा गांधी एवं विनोबा का अहिंसा दर्शन

इकाई IV

आचार्य भिक्षु एवं आचार्य महाप्रज्ञ का अहिंसा दर्शन

उपलब्धियाँ–

1. भारतीय एवं पाश्चात्य चिंतकों की विचारधारा को जानने से तुलनात्मक दृष्टि का विकास होगा।

पाठ्य पुस्तकें–

2. अहिंसा एवं शांति : भारतीयतर दृष्टि– प्रो. अनिल धर, दूरस्थ शिक्षा निदेशालय, जैन विश्वभारती संस्थान, लाडनूं
3. मानवाधिकार, शांति एवं गांधी दर्शन– डॉ. अनिल धर एवं पूजा शर्मा,जैन विश्वभारती संस्थान, लाडनूं

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 303	हिन्दी साहित्य (रीतिकालीन काव्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर–III

उद्देश्य–

1. विद्यार्थियों को रीतिकालीन काव्य से परिचित करवाना।
2. विद्यार्थियों को विभिन्न कवियों की काव्यशैली की जानकारी देना।
3. विद्यार्थियों को विभिन्न कवियों की भाषाशैली से परिचित करवाना।

इकाई I

1. रीतिकालः परिस्थितियाँ नामकरण, रीतिकालीन साहित्य का वर्गीकरण, प्रमुख प्रवृत्तियां, प्रमुख रचनाकार एवं उनकी रचनाएं

इकाई II

- रीतिरस तरंगिणीः ऑक्सफोर्ड बुक डिस्ट्रीब्यूटर्स, जयपुर निर्धारित कवि एवं काव्यांश

1. क. केशवदास–1. सरस्वती वंदना 2. रामवंदना 3. पंचवटी वर्णन 4. हनुमान लंका गमन 5. सीतादर्शन 6. सीता हनुमान संवाद 7. हनुमान रावण संवाद 8. हनुमान रामचर्चा 9. रामरावण युद्ध 10. रावण वध

ख. बिहारी –(1,3,10,11,14,16,22,27,29,32)

2. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई III

- रीतिरस तरंगिणीः ऑक्सफोर्ड बुक डिस्ट्रीब्यूटर्स, जयपुर निर्धारित कवि एवं काव्यांश

1.क. घनानंद – सुजान प्रेम

ख. देव– जीवन सार सुधा

ग. सेनापति–रामवंदना, ऋतुवर्णन, श्लेषवर्णन, शृगांर वर्णन

2. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई IV

- रीतिरस तरंगिणीः ऑक्सफोर्ड बुक डिस्ट्रीब्यूटर्स, जयपुर निर्धारित कवि एवं काव्यांश

1. क. भूषण–शिवाजी का शौर्य,छत्रसाल प्रताप

   ख. मतिराम–दानवीर महिमा, भक्तिभाव,प्रकृतिवर्णन

   ग. वृंद–सतसई

2. निर्धारित कवियों की काव्यगत विशेषताएं

उपलब्धियाँ–

1. विद्यार्थी विभिन्न कवियों की लेखनशैली से परिचित होकर अपना मत प्रस्तुत कर सकेंगे।
2. विद्यार्थी रीतिकालीन काव्य का परिचय प्राप्त कर स्वयं काव्य रचना का प्रयास कर सकेंगे।

पाठ्यपुस्तक / संदर्भ ग्रंथः–

1. रीतिरस तरंगिणी, ऑक्सफोर्ड बुक डिस्ट्रीब्यूटर्स, जयपुर
2 रीतिकाव्य की भूमिका–नगेन्द्र नेशनल पब्लिशिंग हाउस, नई दिल्ली
3 हिन्दी साहित्य का वृहद इतिहास (16 खण्ड) संपादक डॉ नगेन्द्र प्रचारिणी सभा काशी
4 हिन्दी साहित्य की भूमिका–आचार्य हजारी प्रसाद द्विवेदी हिन्दी ग्रंथ रत्नाकर, मुंबई
5 हिन्दी साहित्य का अतीत(भाग 2) –आचार्य विश्वनाथ प्रसाद मिश्र वाणी प्रकाशन नई दिल्ली
6 हिन्दी साहित्य का इतिहास;रीतिकाल–आचार्य रामचन्द्र शुक्ल नागरी प्रचारिणी सभा काशी

Course Code	Course Title	Croup	Course Category	Credit	CIA	Theory	Total
BOA 304	English Literature (Poetry and Drama)	A	Core Course (CC)	4	30	70	100

Semester III

Objectives:

1- To enable the students to compose poems.

2- To make them familiar with Romantic and Victorian Poetry, Indian Poetry and Drama.

3- To acquaint them with some literary terms of these genres.

Unit I: Indian Poetry

A- Night of the Scorpion: Nissim Ezekiel.
B- Servants: Gieve Patel.
C- A Bomb Site: AdilJussawala.
D- The Queen's Rival: Sarojini Naidu.

Unit II: English Poetry

A- Elegy Written in a Country Churchyard: Thomas Gray.
B- The World is too Much With Us: William Wordsworth.
C- Dover Beach: Matthew Arnold.
D- Prospice: Robert Browning.
E- Crossing the Bar: Alfred Lord Tennyson.

Unit III: Drama: As you Like It- William Shakespeare.

Unit IV: Literary Terms: Elegy, Sonnet, Ode, Epic, Dramatic Monologue, Comedy, Soliloquy, Aside.

A Social and Literary Background to the Writers Prescribed.

Outcomes:

1- The students can understand the changing nature of Literature through ages.
2- They will become familiar with various forms of verse and dramatic art.

Suggested Reading:

1. Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.
2. Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3. Poet's Pen. Homi p. Dustoor. Oxford University Press, New Delhi.
4. Paper I (Poetry) Jain Vishva Bharti University, Ladnun.
5. As You Like It. William Shakespeare.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 305	राजस्थानी (मध्यकालीन राजस्थानी काव्य)	A	Core Course(CC)	4	30	70	100

सेमेस्टर –III

उद्देश्य –

1 मध्यकालीन राजस्थानी काव्य एवं कवियों से परिचित करवाना।
2 राजस्थानी काव्य के विभिन्न रुपों की जानकारी करवाना।
3 विभिन्न राजस्थानी कवियों की काव्य शैली से परिचित करवाना।

इकाई – 1

1 राजिया रा सौरठा–रचयिता किरपाराम/संपादक–नरोतमदास स्वामी।
राजस्थानी लोक नीति काव्य की विशेषताएँ।

इकाई – 2

1. भिक्षु वाड्.मय–प्रथम/अनुकम्पा री चौपई/प्रधान सम्पादक– आचार्य महाश्रमण।
आचार्य भिक्षु की काव्यगत विशेषताएँ।

इकाई – 3

1. मीरां पदावली (प्रथम बीस पद)
मीरां की काव्यगत विशेषताएँ

इकाई – 4

1. विरुद छिहतरी/दुरसाआढा व मध्यकालीन राजस्थानी काव्य की राष्ट्रीय चेतना।

उपलब्धि –

1 विद्यार्थी राजस्थानी काव्य एवं कवियों से परिचित होंगे।
2 विद्यार्थी राजस्थानी काव्य के विभिन्न रुपों की जानकारी प्राप्त करेंगे।

पाठ्य पुस्तक/संदर्भ ग्रंथ :–

1 राजिया रा दूहा (सौरठा), संपादक–नरोतमदास स्वामी, प्रकाशक–राजस्थानी ग्रन्थागार, जोधपुर।
2 भिक्षु वाड्.मय–प्रथम, अनुकम्पा री चौपई, प्रधान संपादक–आचार्य श्री महाश्रमण। प्रकाशक–जैन विश्व भारती प्रकाशक, लाडनूँ।
3 मीरां पदावली, संपादक–पुरोहित हरिनारायण। प्रकाशक–काशी नगरी प्रचारणी सभा, बनारस।
4 दुरसा आढा ग्रन्थावली, सम्पादक–सौभाग्य सिंह शेखावत। प्रकाशक–राजस्थानी शोध संस्थान, चौपासनी, जोधपुर।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 306	संस्कृत (संस्कृत व्याकरण एवं साहित्य)(कालू कौमुदी)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–III

उद्देश्य–

1. शब्दों के स्त्रिलिंगी प्रत्ययों का ज्ञान करवाना।
2. तद्धित शब्दों की विधि सीखाना।
3. नाटक एवं महाकाव्य की शैली का अवबोध करवाना।

इकाई 1. कालू कौमुदी पूर्वार्द्ध–स्त्रीप्रत्यय, तद्धित(सू. 295 से 328 एवं 514 से 681)

(क) स्त्रीप्रत्यय

(ख) तद्धित प्रकरण

सूत्रार्थ

रूपसिद्धि

प्रकृति प्रत्यय

इकाई 2. वाक्य रचना बोध(38 से 52 पाठ)

(क) संस्कृत से हिन्दी अनुवाद

(ख) हिन्दी से संस्कृत अनुवाद

(ग) शब्दार्थ

इकाई 3. रघुवंशम्(द्वितीय सर्ग)

1. सप्रसंग व्याख्या
2. आलोचनात्मक प्रश्न

स्वप्नवासदत्तम्

1. सप्रसंग व्याख्या
2. आलोचनात्मक प्रश्न

इकाई 5. अभिधान चिन्तामणि (छठा काण्ड, श्लोक 61 से 90)

उपलब्धियाँ–

1. शब्दों के विभिन्न रूपों की जानकारी होगी।
2. नाटक पठन से संभाषण कला का ज्ञान होगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थ :

1. स्वप्नवासदत्तम्, महाकवि भास, व्याख्याकार डॉ. रूपनारायण त्रिपाठी, हंसा प्रकाशन, जयपुर, 2006
2. रघुवंशम् द्वितीय सर्ग–महाकवि कालिदास संपादक–डॉ. रविकान्तमणि, हंसा प्रकाशन, जयपुर, 2007
3. कालू कौमुदी, आदर्श साहित्य संघ, चूरू
4. वाक्य रचना बोध, आचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं
5. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी
6. संस्कृत वाक्य रचना बोध, लेखक–आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
7. सरल वाक्य रचना बोध, मुनि श्री श्रीचंद, जैन विश्व भारती, लाडनूं
8. अनुवाद चन्द्रिका, डॉ. ब्रह्मानंद त्रिपाठी, चौखम्बा प्रकाशन, वाराणसी
9. व्याकरण रचनानुवाद, डॉ. बाबूराम त्रिपाठी, महालक्ष्मी प्रकाशन, आगरा
10. संस्कृत रचनानुवाद कौमुदी – बी.एस. आप्टे

नोट– विद्यार्थी कालुकौमुदी और लघुसिद्धान्त कौमुदी दोनों में से एक एक पत्र का चयन करें।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 307	संस्कृत(संस्कृत व्याकरण एवं साहित्य)(लघुसिद्धान्त कौमुदी)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–III

उद्देश्य–

1. नाटक एवं महाकाव्य की शैली का अवबोध करवाना।
2. कारक से शब्दरूप की विभक्तियों का ज्ञान करवाना।
3. समास के द्वारा शब्दों के निर्माण की विधि सीखाना।

इकाई 1. लघुसिद्धांतकौमुदी

क. कारक प्रकरण (सूत्र 888 से 903 तक)

ख. समास प्रकरण (सूत्र 904 से 993 तक)

ग. तद्धित प्रकरण (चातुरर्थिका तक) (सूत्र 994 –1064 तक)

इकाई 2. रचनानुवाद कौमुदी (पाठ 21 से 30)

इकाई 3. रघुवंशम् (द्वितीय सर्ग) एवं स्वप्नवासदत्तम्

रघुवंशम्

1. चरित्र चित्रण
2. श्लोकार्थ

स्वप्नवासदत्तम्

1. चरित्र चित्रण
2. अनुवाद
3. कथा सारांश

इकाई–4. अभिधान चिन्तामणि (छठा काण्ड, श्लोक 61 से 90)

उपलब्धियाँ–

1. नाटक पठन से संभाषण कला का ज्ञान होगा।
2. विभक्ति संबंधी ज्ञान में अशुद्धि नहीं रहेगी।
3. श्लोक रचना आदि में समास का कार्यकारी ज्ञान होगा।

पाठ्य पुस्तक/संदर्भ ग्रन्थः

1. स्वप्नवासदत्तम्, महाकवि भास, व्याख्याकार डॉ. रूपनारायण त्रिपाठी, हंसा प्रकाशन, जयपुर, 2006
2. रघुवंशम् द्वितीय सर्ग–महाकवि कालिदास संपादक–डॉ. रविकान्तमणि, हंसा प्रकाशन, जयपुर, 2007
3. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
4. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
5. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी
6. लघु सिद्धान्त कौमुदी, महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
7. लघु सिद्धान्त कौमुदी, टीकाकार–राजेन्द्र चौधरी, रामनारायण वेणीप्रसाद, इलाहाबाद
8. लघु सिद्धान्त कौमुदी, भैमी व्याख्या, आचार्य भीमसेन शास्त्री
9. रचनानुवाद कौमुदी, डॉ. कपिलदेव द्विवेदी आचार्य, विश्वविद्यालय प्रकाशन, वाराणसी
10. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे
11. कालू कौमुदी, मुनि चौथमल, जैन विश्व भारती, लाडनूं

नोट– विद्यार्थी कालुकौमुदी और लघुसिद्धान्त कौमुदी दोनों में से किसी एक पत्र का चयन करें।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 309	**जीवन–विज्ञान (मूल्यपरक प्रशिक्षण)**	**B**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–III

उद्देश्य–

1. वर्तमान शिक्षा पद्धति में मूल्यपरक शिक्षा की आवश्यकता को समझना।
2. स्वस्थ समाज संरचना एवं मूल्यों के उत्थान में जीवन विज्ञान की महत्ता को समझना।
3. जीवन विज्ञान शिक्षा द्वारा मूल्यों के विकास की प्रक्रिया को समझना और अभ्यास करना।

इकाई I – मूल्य परिचय और मूल्यपरक शिक्षा

मूल्य –अर्थ, परिभाषाएं, प्रकृति

मूल्यों के लक्षण और वर्गीकरण

वर्तमान में मूल्यों की स्थिति

मूल्यपरक शिक्षा–मूल्य शिक्षा की आवश्यकता

मूल्य विकास में परिवार और समाज की भूमिका

इकाई–II–प्रसिद्ध शिक्षाशास्त्री : जीवन परिचय और शिक्षा दर्शन

महात्मा गंधी, स्वामी विवेकानन्द

आचार्य तुलसी

आचार्य महाप्रज्ञ के संदर्भ में शिक्षा और मुक्ति की अवधारणा

इकाई–III–जीवन विज्ञान और शिक्षा की उपादेयता

वर्तमान शिक्षा प्रणाली की समस्याएं, जीवन विज्ञान शिक्षा की आवश्यकता

जीवन–विज्ञान शिक्षा का स्वरूप, प्रकृति और आधार

शिक्षा और नैतिकता, शिक्षा और भावनात्मक परिवर्तन, शिक्षा स्वस्थ समाज संरचना का आधार

इकाई–IV–व्यक्तित्व विकास और मूल्य प्रशिक्षण

स्वतंत्र व्यक्तित्व का निर्माण, संवेग नियंत्रण की पद्धति, मस्तिष्क नियन्त्रण की पद्धति

सामाजिक और नैतिक मूल्य, बौद्धिक और मानसिक मूल्य

उपलब्धियाँ–

1. वर्तमान में मूल्यों की आवश्यकता को समझ सकेंगे।
2. विभिन्न शिक्षा शास्त्रीयों के जीवन एवं शिक्षा दर्शन से परिचित हो सकेंगे।
3. शिक्षा के क्षेत्र में जीवन विज्ञान की उपयोगिता को जान सकेंगे।
4. व्यक्तित्व विकास एवं संवेगों पर नियन्त्रण की पद्धति को जान सकेंगे।

प्रायोगिक :

1 यौगिक क्रियाएं– पेट एवं श्वास की क्रियाएं
2 आसन– सर्वांगासन, हलासन, उत्तानपादासन, पवनमुक्तासन, पूर्व के सभी आसन
3 प्राणायाम–नाडी शोधन
4 प्रेक्षाध्यान–श्वासप्रेक्षा (दीर्घ, समवर्ती)
5 अनुप्रेक्षा–मानवीय एकता, मानसिक संतुलन

पाठ्य पुस्तक / संदर्भ ग्रन्थः

1. तुम स्वस्थ रह सकते हो–आचार्य महाप्रज्ञ, 2005, जैन विश्वभारती, लाडनूं
2. जीवन विज्ञान : मूल्यपरक शिक्षा, डॉ. समणी मल्लि प्रज्ञा, डॉ हेमलता जोशी, जैन विश्वभारती संस्थान लाडनूं– 341306 (राजस्थान) संस्करण 2010
3. प्रेक्षाध्यान स्वास्थ्य विज्ञान–मुनि महेन्द्र कुमार जैन विश्वभारती, लाडनूं
4. जीवन विज्ञान और स्वास्थ्य–डॉ. जेपीएन मिश्रा, जैन विश्व भारती विश्वविद्यालय, लाडनूं
5. शरीर रचना एवं क्रिया विज्ञान–प्रमिला वर्मा एवं कांति पाण्डेय, बिहार हिन्दी ग्रंथ अकादमी, पटना
6. जीवन विज्ञान एवं स्वास्थ्य–डॉ. संजीव कुमार गुप्ता, जैन विश्वभारती, लाडनूं
7. यौगिक क्रिया–मुनि किशनलाल, जैन विश्व भारती, लाडनूं
8. प्रेक्षाध्यान प्रयोग पद्धति–आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
9. आसन–प्राणायाम–मुनि किशनलाल, जैन विश्व भारती, लाडनूं
10. जीवन–विज्ञान प्रायोगिक– डॉ. अशोक भास्कर, जैन विश्वभारती, लाडनूं
11. जीवन विज्ञान की रूपरेखा– मुनि धर्मेश, जैन विश्व भारती संस्थान, लाडनूं
12. शिक्षा दर्शन : डॉ. रामशक्ल पाण्डेय, अग्रवाल पब्लिकेशन्स, आगरा

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 310	Social Work (Society, Culture and Contemporary Concerns)	B	Core Course (CC)	4	30	70	100

Semester – III

Objectives:

1. To give awareness about reciprocal relationship between women & men in society
2. To understand key concepts, issues in gender and development
3. To create awareness about the magnitude of gender disparities in the present context

Unit-1: Society, Values and Institutions

Society: Concept, Meaning & Characteristics, Man & Society, Social Values, Norms & Philosophy, Culture: Concept & Relevance, Culture & Civilization, Social System: Concept & Theories. Basic Social Institutions: Marriage & Family Groups: Primary & Secondary

Unit-2: Basic Sociological Concepts

Basic Sociological Concepts: Community & Association, Social Process: Socialization, Concept & Process, Social Stratification: Concept & Theories, Social Disorganization, Social Change: Theories & Factors.

Unit-3: Contemporary Indian Social Problems

Contemporary Indian Social Problems: Alcoholism, Drug Addiction, Prostitution, HIV/AIDS, Casteism, Communalism, Corruption, Poverty and Unemployment, Violence and Terrorism.

Unit-4: Gender: Concept and Women Empowerment

Gender – Definition and related concepts: Sex and Gender, Gender Stereotypes, Gender Bias, Women empowerment, Single women, Girl child, Working women, Female infanticide.

Outcome:

1. Student will be aware about reciprocal relationship between women & men in society
2. Student will understand key concepts, issues in gender and development
3. Student will create awareness about the magnitude of gender disparities in the present context

Suggeted Reading:

1. Dube, S.C. Indian Village, London: Routledge & Kengan Paul. (1955).
2. 02.Kapadia, K.M. (Ed.). Marriage and Family in India, Mumbai: OUP. 1959.
3. 03.Bottomore, T.B. Sociology – A guide to problems and Literature, London: Allen and Unwin. 1962
4. 04.Srinivas, M.N. Social Change in Modern India, Mumbai: AlliedPub. 1966
5. 05.Govt. of India. Towards Equality – a report of the committee on status of women in India, Delhi: Author. 1974
6. 06.Harlambos, M. and Heard, R.M. Sociology – Themes and Perspectives, Oxford Publications.1980.
7. 07.Furer Halmendarf, C.V. Tribes in India: The Struggle for Survival, Delhi: OUP. 1982.
8. 08.Macgver, R.M. and Page, C.H. Society – An Introductory Analysis, Chennai: Macmillan India Ltd. 1985.
9. 09. Day, P.R. Sociology in Social Work Practice, London, Macmillan Education. 1987.
10. Jeffrey, W. Dyer and Raymond, T. Coward Gender, Families and Elder Care, Delhi: Sage Publications.1992
11. Uma Shankar Jha and Premalatha Pujari. Indian Women Today, Vol.I & II, Kanishka Publications. 1996.
12. 12. डॉ. गोयल, प्रीति प्रभा, भारतीय संस्कृति, राजस्थानी ग्रंथाकार, सोजतीगेट, जोधपुर, 2000।
13. 13.सिंह, योगेन्द्र, समाजशास्त्र, श्रीमति प्रेमरावत, रावत पब्लिकेशन, जवाहर नगर, जयपुर, 2005।
14. समाजशास्त्र की मूलभूत अवधारणाएं, न्यू रॉयल बुक, कम्पनी, लालबाग लखनाऊ, 2009।
15. शर्मा, अनुराग, भारतीय समाज, इशिका पब्लिशिंग हाऊस, जयपुर, 2010।
16. डॉ. तिवारी, एन., समाजशास्त्र, मिश्रा पब्लिसर एण्ड डिस्ट्रीब्यूटर, 2010।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory+ Practical	Total
BOA 311	Information Technology(Web Technologies)	C	Core Course (CC)	4	30	50+20	100

Semester III

Objective:

1. To make the students aware of various tags of HTML and CSS.
2. To give the hands on experience on Adobe Dreamweaver.

Unit I

- Introduction to Web Designing & HTML
- HTML Element/Tags
- HTML Attributes
- HTML Heading
- HTML Paragraph
- HTML Formatting

Unit II

- HTML Links
- HTML Images
- HTML Marquee
- HTML Lists
- HTML Tables

Unit III

- HTML Forms
- HTML CSS Styles
- Style sheet basics
- Inline, Internal and External

Unit IV

- Introducing Dreamweaver
- Learning the interface
- Creating a website

Outcome:

After completing the course, the students will be able to create website using HTML tags and Adobe DreamWeaver

Reference Books

1. http://www.w3schools.com/html/

2. http://www.tutorialspoint.com/html/

3. http://www.adobe.com/devnet/dreamweaver.html

4. HTML 5 : The Missing Manual, II Edition, Mathew Donald, O' Reilly Media, December, 2013

5. Learn HTML & CSS with W3 Schools, Wiley Publishing Inc, 2010

Practical:

- Create webpage using HTML/Adobe Dreamweaver

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 312	PSYCHOLOGY (BASIC PRINCIPLES OF PSYCHOLOGICAL ASSESSMENT)	C	Core Course (CC)	4	30	70	100

Semester– III

Objective :

1. To train students in various psychological assessment techniques.
2. To impart skills necessary for selecting and applying different tests for different purposes.

Unit-I: **Introduction**

Meaning and definition of psychological test

Scope of psychological tests

Characteristics of psychological tests

Unit-II: **Reliability, Validity and Norms**

Meaning and methods of reliability

Meaning and methods of validity

Developments of norms

Unit-III: **Types of Psychological Tests**

Individual and group

Performance, verbal and non-verbal

Speed and power

Unit-IV: **Assessment of Personality**

Case Study of person

Projective tests : TAT, Sentence Completion Tests(SCT)

Non-projective tests : 16 Personality Factor (16PF),

Minnesota Multi-phasic Personality Inventory (MMPI)

Note :- The department may change the practical depending on the availability of the apparatus and recent developments.

Out Comes :

1. Students know about psychological assessment techniques.
2. To know different skills for different tests for different purposes.

BOOKS:-

1. Anastasi, A. (1997) Psychological Testing, New York : MacMilan Co.
2. Ciminero, A.R. (Eds) (1986). Handbook of behavioral assessment, New York: John Wiley.
3. Kaplan and Saccuzzo : Psychological Testing.
4. Freeman : Psychological Testing.
5. Bhargava : Psychological Testing and Measurement.
6. Asthana : Psychological Testing.

PRACTICALS (Any Three)

1. Measuring social maturity
2. Measuring attitude
3. Assessment of human values
4. Methods of sociometry
5. Assessment of vocational interest

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory +Practical	Total
BOA 314	Geography(Human Geography)	C	Core Course (CC)	4	30	50+20	100

Semester - III

Objectives-

1. To make students aware about human Geography.
2. To make aware about Population Distribution & Human Development.
3. To make students aware about schools & principles of Human Geography.

Unit-I

a) Definition and scope of Human Geography.

b) Its relation with other Subjects.

c) Schools of Human Geography : determinism, possibilism and neo- determinism.

d) Fundamental principles of Human geography: Principle of activity, Principle of terrestrial unity.

Unit-II

a) Races of man kind :- Criteria of classification and distribution according to G. Taylor

b) Migration zone theory by Griffith Taylor

c) Factors of evolution of human races

d) Tribes in the world, Habitat, Occupation & Social Organization : Pigmies, Bushmen, Eskimos and Khirgiz.

Unit-III

a) Distribution of Tribes in India. Habitat, Economic Activities and Social Organization of Bhil, Naga, Toda and Santhal.

b) Early economic activities of mankind : Food gathering, Hunting, Fishing & Shifting cultivation.

c) World distribution, Concept of over population, optimum population and zero population growth.

d) Migration-Internal and International, General Laws of Migration

Unit-IV

a) Concept of human development and population problems and policy of India.

b) Rural, Urban settlement-origin of towns, patterns of cities.

c) Functional classification of cities, zoning of cities, Christaller's theory.

d) Urbanization and Problems : slums, town planning, concept and principles.

Practical :

a. Methods of Relief Representation: Hachure', Contours, layer tint, BM, Spot height, Trachograhic Method.

b. Drawing of Profiles: Serial, Composites and Superimposed.

c. Prismatic Compass Survey: Instrument required for prismatic compass survey

d. Prismatic Compass Survey: Radiation and intersection method.

e. Correction of closing error with Bowditch rule.

Outcomes-

1. Having Knowledge of human geography & its principles, students can adjust & adapt themselves with different cultures prevailing.
2. Comes to know about problems regarding overpopulation, migration& steps to solve them.
3. Deep knowledge about people residing in urban & rural areas, theirproblems & solutions.

*** Note - Stencils are to be permitted in the examination.**

Suggested Readings :

1. ब्लाचे विदाल दे ला :मानव भूगोल के सिद्धांत
2. मानव भूगोल, डॉ एम.एल. सोनी, 2015, हिन्दी ग्रंथ अकादमी, जयपुर
3. कौशिक, एस.डी. : मानव भूगोल के सरल सिद्धान्त, रस्तोगी पब्लिकेशन्स, मेरठ
4. हूसैन, माजिद : मानव भूगोल, रावत पब्लिकेशन्स,

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 315	Jainology (जैन आचारमीमांसा)	C	Core Course (CC)	4	30	70	100

सेमेस्टर–III

उद्देश्य–

1. जैन–आचार मीमांसा की जानकारी देना।
2. जैन ध्यान पद्धति को समझाना।
3. अहिंसा और अणुव्रत की जानकारी देना।

इकाई–I जैन–आचार मीमांसा

जैन–आचार का आधार और स्वरूप

पंचाचार

नव तत्त्व

दस धर्म

इकाई–II श्रमणाचार और श्रावकाचार

श्रमणाचार– महाव्रत, समिति, गुप्ति

षडावश्यक

गुणस्थान

लेश्या

श्रावकाचार– अणुव्रत, गुणव्रत, शिक्षाव्रत

जैन– जीवनशैली

इकाई–III ध्यानयोग

ध्यान का स्वरूप

सालम्बन–निरालम्बन ध्यान

अनुप्रेक्षा

प्रेक्षाध्यान : स्वरूप और ध्येय

प्रेक्षाध्यान की उपसंपदा

प्रेक्षाध्यान के अंग

इकाई–IV अहिंसा और अणुव्रत

1. अहिंसा का स्वरूप
2. अहिंसा– प्रशिक्षण
3. अपरिग्रह (परिग्रह–परिमाण)
4. अणुव्रत–आन्दोलन
5. अणुव्रत : आचार–संहिता
6. स्वस्थ समाज संरचना का आधार

उपलब्धियाँ–

1. जैन–आचार विधि से परिचय होगा।
2. जैन–ध्यान प्रणाली की जानकारी मिलेगी।
3. अहिंसा और अणुव्रत की चेतना का विकास होगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थः

1. जैन–आचार–मीमांसा, लेखक–डॉ. समणी ऋजुप्रज्ञा, जैन विश्व भारती संस्थान, लाडनूं
2. उत्तरज्झयणाणि, सं. आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
3. तत्त्वार्थसूत्र, आचार्य उमास्वाति
4. जैन दर्शन : मनन और मीमांसा, आचार्य महाप्रज्ञ, आदर्श साहित्य संघ, चूरू
5. जीव–अजीव, आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
6. जैन सिद्धान्त दीपिका, आचार्य तुलसी, जैन विश्व भारती, लाडनूं
7. जैन तत्त्व विद्या, आचार्य तुलसी, जैन विश्व भारती, लाडनूं
8. जैन आचार–मीमांसा, आचार्य देवेन्द्र मुनि, श्री तारक गुरु जैन ग्रंथालय, उदयपुर
9. जैन दर्शन : स्वरूप और विश्लेषण, आचार्य देवेन्द्र मुनि, श्री तारक गुरु जैनग्रंथालय, उदयपुर
10. अणु से पूर्ण की यात्रा, आचार्य देवेन्द्र मुनि, श्री तारक गुरु जैन ग्रंथालय, उदयपुर
11. नव पदार्थ, आचार्य भिक्षु सं. श्रीचन्द रामपुरिया, जैन विश्व भारती, लाडनूं

Semester - III

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
JVB 302	**Indian Culture**	**Core Elective(CE)**	**4**	**30**	**70**	**100**

उद्देश्य :

1. प्राचीन भारतीय संस्कृति की जानकारी प्रदान करना।
2. प्राचीन गौरवशाली विश्वविद्यालयों के बारे में जानकारी प्रदान करना।
3. प्राचीन महाकाव्यों और भारतीय जीवन मूल्यों के बारे में जानकारी प्रदान करना।

इकाई – 1

भारतीय संस्कृति – परिभाषा, पृष्ठभूमि एवं विशेषताएं,
वर्णाश्रम व्यवस्था – परिभाषा एवं महत्व
पुरूषार्थ एवं ऋण – अर्थ, प्रकार एवं महत्व
प्राचीन सामाजिक संगठन – पारिवारिक जीवन

इकाई – 2

प्राचीन भारत में नारी की स्थिति
प्राचीन भारत की न्याय व्यवस्था
शिक्षा एवं शिक्षण संस्थाएं,
धर्म – शैव, वैष्णव, जैन, बौद्ध
सम्प्रदाय – विट्ठल, नाथ

इकाई – 3

भारतीय कला एवं अवशेष – भारतीय वास्तुकला, मूर्तिकला एवं चित्रकला
महाकाव्य युगीन संस्कृति – रामायण एवं महाभारत
भारतीय अभिलेख एवं सिक्के
कालिदास एवं तुलसीदास – जीवन परिचय एवं सांस्कृतिक व साहित्यिक योगदान

इकाई – 4

भारतीय पर्व एवं त्यौहार – हिन्दू, मुस्लिम, सिक्ख एवं इसाई पर्व
रविन्द्रनाथ टैगोर – सामाजिक एवं सांस्कृतिक महत्व
भारतीय संस्कृति का विदेशों में प्रचार–प्रसार
भारतीय संस्कृति का मानव–कल्याण में योगदान

उपलब्धियां

1. विद्यार्थी प्राचीन भारतीय संस्कृति की जानकारी प्राप्त कर सकेंगे।
2. विद्यार्थी प्राचीन गौरवशाली विश्वविद्यालयों के बारे में ज्ञान प्राप्त कर सकेंगे।
3. विद्यार्थी प्राचीन महाकाव्यों और भारतीय जीवन मूल्यों के बारे में जानकारी प्राप्त कर सकेंगे।

Reference Books :

1. भारतीय संस्कृति, रूपनारायण त्रिपाठी, रामदेव साहू, श्याम पब्लिकेशन, जयपुर
2. भारतीय संस्कृति के 21 अध्याय, एस.एल. नागौरी, युनिवर्सिटी बुक हाउस, जयपुर
3. भारतीय संस्कृति का विकास, सत्यकेतु विद्यालंकार, श्री सरस्वती सदन, नई दिल्ली
4- भारतीय संस्कृति के मूल तत्व, सुखबीर सिंह, बिजेन्द्र कुमार, साहित्य भण्डार पब्लिकेशन, मैरठ

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA401	**आगम विद्या एवं प्राकृत साहित्य(प्राकृत व्याकरण एवं साहित्य)**	**A**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–IV

उद्देश्य–

1. तद्धित, लिंगानुशासन एवं गण प्रकरण पर प्रकाश डालना।
2. स्वयं वाक्यों का प्राकृत से हिन्दी एवं हिन्दी से प्राकृत अनुवाद करना।
3. अगडदत्तचरियं का अध्ययन करवाना।
4. उत्तराध्ययन के नवम एवं दशम अध्याय के श्लोकार्थ एवं विषय–वस्तु समझाना।

इकाई 1. तुलसी मंजरी (सूत्र 578 से 802)

(1) रूप सिद्धि

(2) सूत्र तथा पंक्ति व्याख्या

(3) शब्द–रूप (संदर्भित सूत्रों के आधार पर)

(4) धातु रूप (संदर्भित सूत्रों के आधार पर)

(5) धात्वादेश

इकाई 2. प्राकृत स्वयं शिक्षक (पाठ 51–90)

(1) हिन्दी से प्राकृत और प्राकृत से हिन्दी अनुवाद करना

(2) प्राकृत में कहानी रचना (लगभग 100 शब्द)

इकाई 3. अगड़दत्तचरियं (सम्पूर्ण)

(1) सप्रसंग अनुवाद

(2) आलोचनात्मक प्रश्न

(3) व्याकरणात्मक टिप्पणियां

(5) लघूत्तरात्मक प्रश्न (प्राकृत में उत्तर दिये जायें)

इकाई 4. उत्तराध्ययन (9–10)

(1) सप्रसंग व्याख्या

(2) आलोचनात्मक प्रश्न

उपलब्धियाँ–

1. तद्धित प्रत्यय, धातु रूप एवं लिंगानुशासनम् प्रक्रिया समझकर उसका यथोचित प्रयोग करेंगे।
2. प्राकृत लेखन शैली का और अधिक विकास होगा।
3. प्राकृत चरित्र काव्य की विशेषताएं एवं उसके स्वरूप का ज्ञान होगा।
4. उत्तराध्ययन के दो अध्ययन की विषय वस्तु को समग्रता से जान सकेंगे।

पाठ्य पुस्तक / संदर्भ ग्रन्थ

1 प्राकृत प्रबोध–डॉ. नेमीचन्द्र शास्त्री, चौखम्बा विद्या भवन, वाराणसी 1965
2 प्राकृत मार्गोपदेशिका–पं. बेचरदास जीवराज दोषी, मोती लाल बनारसी दास, दिल्ली 1968.
3 प्राकृत प्रवेशिका–(Translation of Introduction to Prakrit) बनारसदास जैन, ओरियण्टल बुक्स रिप्रिंट कॉरपोरेशन, दिल्ली 1968
4 प्रकाशन–आचार्यश्री आत्माराम जैन मॉडल स्कूल, दिल्ली 1974
5 प्राकृत व्याकरण (अंग्रेजी)–हेमचन्द्र, प्रकाशक भण्डारकर ओरियण्टल शोध संस्थान, पूना 1980
6 प्राकृत स्वयं शिक्षक–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
7 प्राकृत गद्य सोपान–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
8 प्राकृत काव्य मंजरी–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर 1982
9 तुलसी मंजरी–युवाचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं 1983
10 प्राकृत प्रवेशिका–डॉ. कोमलचंद जैन, तारा बुक एजेन्सी, वाराणसी 1989
11 अगड़दत्तचरियं–संपादक –डॉ. राजाराम जैन, पंकज प्रकाशन, आरा 1991
12 प्राकृत वाक्य रचना बोध–युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं 1991
13 प्राकृत कथा साहित्य परिशीलन–डॉ. प्रेमसुमन जैन, संधी प्रकाशन, जयपुर 1992
14 प्राकृत साहित्य का इतिहास–डॉ. जगदीशचन्द्र जैन, चौखम्बा विद्या भवन, वाराणसी 1995
15 प्राकृत व्याकरण (सिद्धहेमशब्दानुशासनम्–आचार्य हेमचन्द्रकृत) संस्कृत–हिन्दी व्याख्या सहित, व्याख्याकार–ज्ञानमुनि,
16 उत्तरज्झयणाणि–(भाग–1) जैन विश्वभारती, लाडनूं
17 प्राकृत रचना सौरभ–डॉ. के.सी सोगानी, अपभ्रंश अकादमी, जयपुर
18 प्राकृत रचना अभ्यास–डॉ. के.सी सोगानी, अपभ्रंश अकादमी, जयपुर
19 प्राकृत भाषा एवं साहित्य का आलोचनात्मक इतिहास–डॉ. नेमीचन्द शास्त्री, तारा बुक एजेन्सी, वाराणसी
20 उत्तराध्ययनसूत्र एक समीक्षात्मक अध्ययन–युवाचार्य महाप्रज्ञ, जैन विश्वभारती,लाडनूं
21 उत्तराध्ययनसूत्र एक परिशीलन–डॉ. सुदर्शनलाल जैन, प्रकाशक पार्श्वनाथ विद्याश्रम, वाराणसी

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA402	**अहिंसा एवं शांति (अहिंसा का व्यवहार)**	**A**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–IV

उद्देश्य–

1. जीवन के विभिन्न क्षेत्रों में अहिंसा के अनुप्रयोगों की जानकारी देना।

इकाई–1

अहिंसा की शक्ति एवं अहिंसात्मक प्रतिरोध, अहिंसा में असीम शक्ति, अहिंसा का प्रभाव, अहिंसात्मक प्रतिरोध की विशेषता, अहिंसक प्रतिरोधी के गुण, अहिंसात्मक प्रतिरोध के उदाहरण।

इकाई 2

आर्थिक, राजनैतिक, सामाजिक, धार्मिक एवं पर्यावरणीय क्षेत्र में अहिंसा का व्यवहार

इकाई 3

अहिंसा और जीवन शैली, अहिंसा और आहार, वस्त्र, चिकित्सा आदि, अहिंसा और उद्योग धन्धे, व्यापार एवं विज्ञान, अहिंसा और शिक्षा

इकाई 4

पशु– पक्षियों के प्रति क्रूरता एवं विधिक जागरूकता

उपलब्धियाँ–

1. अहिंसा के व्यावहारिक कार्य क्षेत्रों से परिचित होंगे।

पाठ्य पुस्तक / संदर्भ ग्रन्थः

1. अहिंसा का व्यवहार– डॉ. बच्छराज दूगड़, जैन विश्वभारती संस्थान, लाडनूं
2. अहिंसा प्रशिक्षण एवं विश्व शांति– प्रो. बच्छराज दूगड़, जैन विश्वभारती संस्थान, लाडनूं
3. अहिंसा की शक्ति– रिचर्ड बी. ग्रेग
4. अहिंसा और शांति– आचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं
5. जीवन धर्म अहिंसा– भगवानदास केला

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA403	**हिन्दी साहित्य गद्य साहित्य (निबन्ध नाटक एवं एकांकी)**	**A**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर –IV

उद्देश्य–

1. विद्यार्थियों को नाटक, एकांकी एवं निबंध साहित्य की सामान्य जानकारी देना।
2. हिन्दी के प्रमुख गद्य साहित्यकारों का परिचय देना।
3. हिन्दी की प्रमुख गद्य शैलियों का ज्ञान प्रदान करना।
4. विद्यार्थियों में गद्य लेखन क्षमता का विकास करना।

इकाई–I

1. गद्य विधाः निबन्ध,नाटक एवं एकांकी का स्वरूप एवं तात्विक विवेचन
2. निबन्धः उद्भव एवं विकास, प्रमुख रचनाकार एवं उनकी रचनायें।
3. नाटकः उद्भव एवं विकास, प्रमुख रचनाकार एवं उनकी रचनायें।
4. एकांकीः उद्भव एवं विकास, प्रमुख रचनाकार एवं उनकी रचनायें।

इकाई–II

निम्नलिखित निबंधकारों के चयनित निबंध

- चेतना का संस्कार–संपादक विश्वनाथ तिवारी, वाणी प्रकाशन, नई दिल्लीःनिर्धारित निबंध एवं निबंधकार
  - क. होली है–प्रतापनारायण मिश्र
  - ख. बनाम लॉड कर्जन– बाल मुकुन्द गुप्त
  - ग. श्रद्धा–भक्ति – रामचन्द्र शुक्ल
  - घ. अशोक के फूल– आचार्य हजारीप्रसाद द्विवेदी
  - ङ. मेरे राम का मुकुट भीग रहा है– डॉ विद्यानिवास मिश्र

इकाई–III

- धुव्रस्वामिनी (नाटक) जयशंकर प्रसाद, मलिक एण्ड कम्पनी, जयपुर

इकाई–IV

- धरोहर–संपादक डॉ रामचरण महेन्द्र, बुक लैण्ड पब्लिशर्स, लाल जी सांड का रास्ता जयपुर

निर्धारित एकांकी एवं उनके रचनकार

क. डॉ रामकुमार वर्मा	–	दीपदान
ख. सेठ गोविन्ददास	–	धरोहर
ग. हमीदुल्ला	–	हरितगन्धा
घ. देवीलाल सामर	–	वीर बल्लू

उपलब्धियाँ–

1. विद्यार्थी प्रमुख साहित्यकारों की रचनाओं से प्रेरणा पाकर अपने लेखन कौशल का अभ्यास कर सकेंगे।
2. विद्यार्थी गद्य की विभिन्न शैलियों का ज्ञान प्राप्त कर स्वयं की लेखनशैली का विकास कर सकेंगे।
3. विद्यार्थी स्वयं गद्य लेखन की ओर अग्रसर हो सकेंगे।

पाठ्यपुस्तक/संदर्भ ग्रंथ

1. हिन्दी साहित्य का इतिहास– डॉ नगेन्द्र, मयूर पेपर बैक्स नोएडा
2. हिन्दी नाटक–डॉ. बच्चन सिंह, राधाकृष्ण, प्रकाशन नई दिल्ली
3. प्रसाद के नाटक– डॉ. सिद्धनाथ कुमार, अनुपम प्रकाशन, पटना
4. हिन्दी का गद्य साहित्य– डॉ. रामचन्द्र तिवारी, विश्वविद्यालय प्रकाशन, वाराणसी

Course Code	Course Title	Croup	Course Category	Credit	CIA	Unit End Test	Total
BOA 404	English Literature (Prose and Fiction)	A	Core Course (CC)	4	30	70	100

Semester IV

Objective

1- To enable the students to compose Stories.

2- To make them familiar with English Essay, Short Stories and Partition Fiction.

3- To acquaint them with some literary terms of these genres.

Unit I: Short Stories

A- A Cup of Tea: Katherine Mansfield.

B-The Open Window: Saki.

C- The Gift of Magi: O' Henry.

D-How Much Land Does A Man Need: Leo Tolstoy.

Unit II: English Essay

A- A Bachelor's Complaint of the Behavior of Married People: Charles Lamb.

B- On the Rule of the Road: A.G. Gardiner.

C- From Religion to Vocation: AcharyaMahapragya.

D- The Civilization of Today- C.E.M. Joad.

Unit III: Novel: Train to Pakistan- Khushwant Singh.

Unit IV: Literary Terms: Novel, Novella, Partition Novel, Science Fiction, Satire.

Outcomes:

1- The students can understand the changing nature of Literature through ages.

2- They will become familiar with various forms of prose and narrative art.

Objective

1- Student acquainted with English Essay, Short Stories and Partition Fiction.

3- Student know with some literary terms of these genres.

Suggested Reading:

1- Abrams, M.H. Glossary of Literary Terms. India, Macmillan Publishers, 2000.

2- Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
3- Popular Short Stories. Oxford University Press, New Delhi.
4- Forms of English Prose. Oxford University Press, New Delhi.
5- Train to Pakistan. Khushwant Singh. Orient Longman.
6- Oxford Dictionary of Literary Terms.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 405	राजस्थानी (मध्यकालीन राजस्थानी गद्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर –IV

उद्देश्य –

1 मध्यकालीन राजस्थानी गद्य के विविध स्वरुपों का ज्ञान करना।
2 राजस्थानी की प्रमुख बातों का परिचय देना।
3 विद्यार्थियों में 'बात' लेखन एवं वाचन क्षमता का विकास करना।

इकाई – 1

1. राजस्थानी बात संग्रह सं. डॉ. मनोहर शर्मा

- पाबूजी राठौड़ री बात
- जगदेव पंवार री बात
- सयणी चारणी री बात
- जसमां ओडण री बात

इकाई – 2

1 राजा भोज, माघ पिंडत अर डोकरी री बात।
2 नाहरी हरणी घरमेकै री बात।
3 सांखलै कंवरसी नै भरमल री बात।
4 अकल री बात।

इकाई – 3

1. कहवाट विलास, संपादक–सौभाग्यसिंह शेखावत और डॉ. देव कोठारी।

इकाई – 4

1. उपदेश रतन कथाकोष–पैलो खण्ड, जयाचार्य।

उपलब्धियां –

1 मध्यकालीन राजस्थानी गद्य के विविध स्वरुपों का ज्ञान करना।
2 राजस्थानी की प्रमुख बातों का परिचय देना।
3 विद्यार्थियों में 'बात' लेखन एवं वाचन क्षमता का विकास करना।

पाठ्य पुस्तक/संदर्भ ग्रंथ :–

1 राजस्थानी बात संग्रह, संपादक–मनोहर शर्मा, प्रकाशक–साहित्य अकादमी, नई दिल्ली।
2 कहवाट विलास, संपादक–सौभाग्य सिंह शेखावत और डॉ. देव कोठारी। प्रकाशक–राजस्थानी विश्वविद्यापीठ, उदयपुर।
3 उपदेश रतन कथाकोष–पैलो खण्ड, जयाचार्य, संपादक–डॉ. किरण नाहटा। प्रकाशक–राजस्थानी संस्कृति जनहित प्रन्यास, बीकानेर।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 406	संस्कृत संस्कृत व्याकरण एवं साहित्य (कालूकौमुदी)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–IV

उद्देश्य–

1. धातुरूप से संस्कृत भाषा की क्रिया संबंधी जानकारी देना।
2. वाक्य निर्माण का अभ्यास कराना।
3. अर्थ करने की शैली सिखाना।

इकाई–1 कालकौमुदी (उत्तरार्द्ध) भ्वादि गण (सूत्र 01 से 199)

1. सूत्रार्थ
2. रूपसिद्धि
3. धातु रूपावली

इकाई–2 वाक्य रचना बोध (53 से 68 पाठ)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

इकाई–3 अभिज्ञान शाकुन्तलम् (सम्पूर्ण)

1. दो श्लोकों की सप्रसंग व्याख्या
2. चरित्र चित्रण
3. एक समीक्षात्मक प्रश्न
4. दो सूक्तियों की व्याख्या

इकाई–4 सिन्दूरप्रकर (1 से 50)

1. दो श्लोको की सप्रसंग व्याख्या
2. प्रकरण का सारांश

अभिधान चिन्तामणि

1. दो श्लोक पूर्ति
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. विभिन्न धातुओं के अर्थ आदि की जानकारी देना।

2. शब्द कोश का ज्ञान बढ़ेगा।

नोट– विद्यार्थी कालुकौमुदी और लघुसिद्धान्त कौमुदी दोनों में से किसी एक पत्र का चयन करें।

पाठ्य पुस्तक/ संदर्भ ग्रन्थः

1. अभिज्ञान शाकुन्तलम्, महाकवि कालिदास, व्याख्याकार यनदुन्दन मिश्र, चौखम्बा पब्लिशर्स, वाराणसी, 1999
2. कालु कौमुदी, आदर्श साहित्य संघ, चूरू
3. वाक्य रचना बोध, लेखक–आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
4. सिन्दूरप्रकर, आचार्य सोमप्रभ, संपादक–मुनि राजेन्द्र कुमार, जैन विश्वभारती, लाडनूं
5. अभिधान चिन्तामणि–चौखम्बा विद्या भवन

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA407	संस्कृत संस्कृत व्याकरण एवं साहित्य (लघुसिद्धांतकौमुदी)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–IV

उद्देश्य–

1. वाक्य निर्माण का अभ्यास कराना।
2. अनुवाद की विधा का प्रशिक्षण देना
3. तद्धित शब्दों की विधि समझाना।

इकाई–1 तद्धित प्रकरण (शैषिका अधिकार से स्वार्थिका तक) (सूत्र 1065 से 1243 तक)

इकाई–2 रचनानुवाद कौमुदी (पाठ 31 से 40)

इकाई–3 अभिज्ञान शाकुन्तलम्

1. दो श्लोकों की सप्रसंग व्याख्या
2. चरित्र चित्रण
3. एक समीक्षात्मक प्रश्न
4. दो सूक्तियों की व्याख्या

इकाई–4 सिन्दूरप्रकर (1 से 50) एवं अभिधान चिन्तामणि (छठा काण्ड, श्लोक 91 से 120)

1. दो श्लोको की सप्रसंग व्याख्या
2. प्रकरण का सारांश

अभिधान चिन्तामणि

1. दो श्लोक पूर्ति
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. वाक्य निर्माण की प्रक्रिया का ज्ञात होगा।
2. शब्द कोश का ज्ञान बढ़ेगा।

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1. अभिज्ञान शाकुन्तलम्, महाकवि कालिदास, व्याख्याकार यनदुन्दन मिश्र, चौखम्बा पब्लिशर्स, वाराणसी, 1999
2. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
3. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
4. सिन्दूरप्रकर, आचार्य सोमप्रभ, संपादक–मुनि राजेन्द्र कुमार, जैन विश्वभारती, लाडनूं
5. अभिधान चिन्तामणि–चौखम्बा विद्या भवन
6. लघु सिद्धान्त कौमुदी, महेशसिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
7. लघु सिद्धान्त कौमुदी, टीकाकार–राजेन्द्र चौधरी, रामनारायण वेणीप्रसाद,इलाहाबाद
8. लघु सिद्धान्त कौमुदी, भैमी व्याख्या, आचार्य भीमसेन शास्त्री
9. अभिधान चिन्तामणि–चौखम्बा विद्या भवन
10. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA409	**जीवन–विज्ञान (जीवन–विज्ञान एवं स्वास्थ्य)**	**B**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–IV

उद्देश्य–

1. स्वास्थ्य की जानकारी देना।
2. शारीरिक रचना को समझना।
3. शरीर में होने वाले विचारों का अध्ययन।
4. भोजन, उपवास व शाकाहार को जानना।

इकाई–I

स्वास्थ्य परीक्षा एवं जीवन विज्ञान

स्वास्थ्य शिक्षा और जीवन विज्ञान

स्वास्थ्य की अवधारणा एवं परिभाषाएं निर्धारक तत्व,

स्वास्थ्य शिक्षा : अर्थ एवं परिभाषाएं, स्वास्थ्य शिक्षा का महत्त्व, विज्ञान द्वारा स्वास्थ्य संवर्धन

जीवन का रासायनिक स्वरूप : वर्धन, वार्धक्य, आधि, व्याधि एवं उपाधि

इकाई–II

शरीर रचना का परिचय

शरीर का रचनात्मक संगठन

कोशिका का संगठनात्मक परिचय, शरीर का विभिन्न तंत्रों का संक्षिप्त परिचय

शारीरिक तंत्रों का रचनात्मक– कार्यात्मक परिचय, अस्थि तंत्र का परिचय, अस्थि तंत्र के विकार–गठिया, गर्दन का दर्द एवं जीवन–विज्ञान द्वारा प्रबंधन

इकाई–III

शारीरित तंत्र एवं प्रेक्षाध्यान

शारीरिक तंत्रों का रचनात्मक परिचय

श्वसन तंत्र का परिचय

श्वसन तंत्र के विकार– दमा, ब्रोंकाइटिस और जीवन–विज्ञान द्वारा प्रबंधन। पाचन तंत्र का परिचय

पाचन तंत्र के विकार– मधुमेह, पेप्टिक, अल्सर और जीवन–विज्ञान द्वारा प्रबंधन

इकाई–IV

आहार और स्वास्थ्य

आहार एवं स्वास्थ्य

आहार के पोषक तत्व, संतुलित आहार की अवधारणा

उपवास, शाकाहार

उपलब्धियाँ–

1. जीवन में स्वास्थ्य का महत्त्व एवं स्वास्थ्य संवर्धन के उपायों को जान सकेंगे।
2. शरीर के विभिन्न तंत्रों एवं अंगों से परिचित हो सकेंगे।
3. विभिन्न शारीरिक बीमारियों का योग द्वारा प्रबन्धन को समझ सकेंगे।
4. संतुलित आहार, उपवास एवं शाकाहार के महत्त्व को जान सकेंगे।

प्रायोगिक भाग–

1. आसन– मत्स्यासन, हृदयस्तम्भासन, धनुरासन, शलभासन और अर्द्धमत्स्येन्द्रासन
2. प्राणायाम– शीतली और शीतकारी
3. प्रेक्षाध्यान–शरीर प्रेक्षा
4. अनुप्रेक्षा– धैर्य, सह–अस्तित्व

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1. तुम स्वस्थ रह सकते हो– आचार्य महाप्रज्ञ, 2004, जैन विश्वभारती, लाडनूं
2. शरीर रचना एवं क्रिया विज्ञान– प्रमिला वर्मा एवं कांति पाण्डेय, बिहार हिन्दी ग्रंथ अकादमी, पटना
3. प्रेक्षाध्यान स्वास्थ्य विज्ञान– मुनि महेन्द्र कुमार, जैन विश्वभारती, लाडनूं
4. जीवन–विज्ञान और स्वास्थ्य– डॉ. जेपीएन मिश्रा, जैन विश्वभारती विश्वविद्यालय, लाडनूं
5. जीवन–विज्ञान एवं स्वास्थ्य– डॉ. संजीव कुमार गुप्ता, जैन विश्वभारती विश्वविद्यालय, लाडनूं
6. प्रेक्षाध्यान प्रयोग पद्धति– आचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA410	**Social Work (Social Change and Development)**	**B**	**Core Course (CC)**	**4**	**30**	**70**	**100**

Semester – IV

Objectives:

1. To develop a meaningful understanding about past & present social change
2. To equip students to examine social realities from different perspectives
3. To familiarize with the contemporary discourse on social movements & social development

Unit-1: Social Change

Social Change: Concept and Theories, Indian Constitution and Social Change Role of Civil Society, Elite and Professional Social Work in Social Change.

Unit-2: Social Change and Social Problems

Social Change and Social Problems, Social Movement and Social Change, Social Work and Social Change, Factors of Social Change: Economic, Educational, Technological, Demographic and Cultural.

Unit-3: Development Concept and Types

Concept of Development, Social and Economic Development, Social Work and Socio-Economic Development, Sustainable Development, Concept of Social Policy, Social and Economic Policy, Social Policy and Social Legislation, Social Policy and Planning in India

Unit-4: Social Work and Social Justice

Social Work and Social Justice in India, Poverty Alleviation Programmes in India, Social Work and Gandhian and Sarvodaya Perspectives on Social Development

Outcome -

1. Student will develop a meaningful understanding about past & present social change
2. To equip students to examine social realities from different perspectives

3. To familiarize with the contemporary discourse on social movements & social development

Suggeted Reading:

1 Moorthy, M.V. Social Action. 1951
2 Kulkarni, P.D. Social Policy in India, Madras: ASSWI. 1965.
3 Srinivas, M.N. Social Change in Modern India, Mumbai: Allied Pub. 1966. .
4 Paulo Friere, S. Pedagogy of the Oppressed. 1971
5 Gore, M.S. Some Aspects of Social Development, Mumbai: TISS. 1975.
6 Siddique, H.Y. Social Wok and Social Action. 1985
7 Macgver, R.M. and Page, C.H. Society – An Introductory Analysis, Chennai: Macmillan India Ltd. 1985.
8 Govt. of India. Encyclopaedia of Social Work in India, 4 volumes, New Delhi: Planning Commission. 1987
9 Midgley, J. Social Development: The Developmental Perspectives in Social Welfare, New Delhi: Sage. 1998.
10 Netting, F.E.Kettner, P.M. and McMurtry, S.L. Social Work Macro Practice, NY:Longman. 1993
11 Maurianne et.al. Readings for Diversity and Social Justice. New York: Routledge publication, 2000
12 सिंह, रावराम मेहर, विकास का समाजशास्त्र, अर्जुन पब्लिशिंग हाऊस, नई दिल्ली, प्रथम संस्करण 2009।
13 डॉ. मुकर्जी, रविन्द्रनाथ, भारत में सामाजिक परिवर्तन, विवेक प्रकाशन, 7–यू.ए. जवाहर नगर, दिल्ली–110007, 2003।
14 प्रो0 पाण्डेय बालेश्वर डॉ सिंह , डी.के., समाजकार्य एवं मानव विकास,
15 प्रो. सिंह, सुरेन्द्र, प्रो. वर्मा, आर. बी. एस., भारत में समाज कार्य का क्षेत्र

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory+ practical	Total
BOA411	Information Technology (Advanced Web Technologies)	C	Core Course (CC)	4	30	50+20	100

Semester IV

Objective:

This paper will familiarize the students with client side scripting language and will expose the students to create dynamic WebPages.

Unit I

- Introduction to JavaScript
- Data Types
- Java Script Variables
- Java Script Operator
- Java script Statements
- Java Script Comments

Unit II

- JavaScript Decision making Statements-
  - o If… Else,
  - o Switch
- Java Script Loops
  - o For Loop
  - o While
  - o Do..While

Unit III

- Java Script Array
- Java Script Functions
- Javascript - HTML DOM
- Event handling

Unit IV

- Introduction to Javascript - Objects
- Javascript - Number
- Javascript - Boolean
- Javascript - Strings
- Javascript - Arrays
- Javascript - Date
- Javascript - Math
- Cookies

Outcome:

Students will be able to create dynamic WebPages using JavaScript.

Reference Books

1. Learn Java Script and Ajax with W3 Schools, Wiley Publishing Inc, December, 2010
2. The Complete Refernce Java Script III Edition, 2013, Thomas A. Powell Fraitz Sehneider, Mc Graw Hill
3. http://www.w3schools.com/js/default.asp

Practical:

Writing program using Java script

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA412	PSYCHOLOGY(PSYCHOPATHOLOGY)	C	Core Course (CC)	4	30	70	100

SEMESTER – IV

Objective :

1. The impart knowledge about the normality and abnormality.
2. To make students understand the nature and course of various abnormal conditions.
3. To impart knowledge and skills needed for psychological assessment of different abnormal conditions.

Unit-I: **Introduction of Psychopathology**

The concept of normality & abnormality

sign and symptoms of abnormal behavior

Difference between Neurosis & Psychosis.

Unit-II: **Causes of Abnormal Behavior**

Biological Cause

Psycho-Social Cause

Socio-Cultural Cause

Unit-III: **Anxiety Disorder's**

Nature and types of anxiety

Depression and phobia

Obsessive compulsive disorder

Unit-IV: **Stress Disorder**

Meaning & Characteristics of Stress

Reactions to stress

Causes of stress

Out comes :

1. Student know about the normality and abnormality.
2. Students understand the nature and course of various abnormal conditions.

BOOKS

1. Coleman, J.C. : Abnormal Psychology and Modern Life.
2. Mohanty, G. : Abnormal Psychology.
3. Labh Singh : Asamanya Manovigyan.
4. Kapil, H.K. : Asamanya Manovigyan.

PRACTICALS (Any Three)

1. Measuring the level of anxiety
2. Measuring the level of depression
3. Measuring the level of mental health
4. Measuring the level of neurosis
5. Assessment of personality

Note :- The department may change the practical depending on the availability of the apparatus and recent developments.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory +Practical	Total
BOA414	**Geography (Economic Geography)**	**C**	**Core Course (CC)**	**4**	**30**	**50+20**	**100**

Semester - IV

Objectives-

1. To make students aware about concept of economic geography, economic activities & their impact on the enviroment.
2. Knowledge about various resources : Natural, Soil, Mineral & Energy.
3. Knowledge about agencies (WTO, GATT) engaged in promoting trade & services.

Unit - I

a) Definition and Scope of Economic geography.

b) Development of Economic geography. Its relation with other subjects.

c) Economic Activities : Primary, Secondary and Tertiary.

d) Impact of economic activities on the environment.

Unit - II

a) Natural Resources : Meaning and classification of resources, Water & Forest.

b) Soil Resources : Structure of soil, and soil erosion.

c) Mineral Resource : Type, Distribution & Production of iron ore. Lead & Zinc

d) Energy Resources : Types, Distribution and Production of coal and Petroleum.

Unit- III

a) Agriculture : Physical and socio - cultural environment influencing crop production.

b) Agriculture classification : D.Whittleseys Classification.

c) Spatial distribution, production and international trade of rice & wheat, cotton and rubber, tea & coffee

d) Water Transport : Suez canal, panama canal, North Atlantic routes.

Unit – IV

a) Manufacturing Industry : Meaning & Types.

b) Industrial location Theory : A Weber's and smith.

c) Distribution & production of Iron and Steel & cotton textile industry.

d) Agencies : GATT, WTO, OPEAK AND EROPEAN UNION.

Practical

a) Basic Statistical Methods.

i) Frequency distribution and its Presentation.

ii) Measures of Central tendency: - Arithmetic Mean, Mode & Median (Direct Method)

iii) Standard deviation method & Coefficient of variation.

b) Representation of statistical data through Diagrams : - One Dismensional, Two Dimensional, Three Dimensional.

c) Representation of statistical data through graphs: Poly linear graph, Climogarph and Hythergraph.

Outcomes -

1. Students can know how their activities of trade & services will affect the environment. This may lead to the path of Green Environment.
2. After knowing availability of various resources availble, their proper utilisation is possible.
3. Students can contribute their efforts towards promoting trade in which our country is having self-sufficiency.

Suggested Reading:

1. प्रमीला कुमार एवं श्री कमल शर्मा : कृषि भूगोल, म. प्र. हिन्दी ग्रंथ अकादमी, भोपाल, 2000
2. श्रीवास्तव वी.के. आर्थिक भूगोल के मूलतत्त्व, वसुन्धरा प्रकाशन, गोरखपुर, 2001
3. सिंह जगदीश, आर्थिक भूगोल के मूलतत्त्व ज्ञानोदय प्रकाशन, गोरखपुर 2002
4. डॉ. एच.एम. सक्सेना, डॉ. एल.सी. अग्रवाल, आर्थिक भूगोल, 2015

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA415	**Jainology (जैन दर्शन के मौलिक तत्व)**	**C**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–IV

उद्देश्य–

1. जैन सृष्टिवाद को समझाना।
2. कर्म–सिद्धान्त की जानकारी देना।
3. अनेकान्त को समझाना।
4. आत्मवाद और कारणवाद को समझाना।

इकाई–I

लोकवाद, सृष्टिवाद, जगत् और ईश्वर, त्रिरत्न– सम्यग्दर्शन, सम्यक्ज्ञान, सम्यक् चरित्र

इकाई–II

कर्म का स्वरुप, भेद, कर्म हेतु एवं प्रकार, कर्म की अवस्थाएं, कर्म और कर्मफल से मुक्ति कैसे

इकाई–III

अनेकान्त, स्याद्वाद, सप्तभंगी

इकाई–IV

आत्मवाद– पुनर्जन्म, नयवाद, कारण– कार्य सिद्धान्त, पंच समवाय

उपलब्धियाँ–

1. जैन सृष्टिवाद से परिचय होगा।
2. कर्म जानने से जागरूकता बढ़ेगी।
3. अनेकान्त पूर्ण चिंतन शैली का विकास होगा।
4. कारणवाद से परिचय होगा।

पाठ्य पुस्तक/ संदर्भ ग्रन्थः

1. जैन दर्शन के मौलिक तत्त्व, लेखक–डॉ. समणी चैतन्य प्रज्ञा, जैन विश्व भारतीसंस्थान, लाडनूं

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA501	**आगम विद्या एवं प्राकृत साहित्य (प्राकृत भाषा व्याकरण एवं साहित्य)**	**A**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–V

उद्देश्य–

1. धात्वादेश, ञिन्नत प्रक्रिया, भाव कर्म प्रक्रिया एवं कृदन्त प्रकरण समझाना।
2. कुमारपालचरियं का अध्ययन करवाना।
3. कुर्मापुत्र के जीवन के बारे में बताना।
4. प्राकृत में कथा रचना का अभ्यास कराना।

इकाई 1. तुलसी मंजरी (सूत्र 803 से 927)

(1) रूप सिद्धि

(2) सूत्र तथा पंक्ति व्याख्या

(3) शब्द रूप (संदर्भित सूत्रों के आधार पर)

(4) धातु रूप (संदर्भित सूत्रों के आधार पर)

(5) धात्वादेश

इकाई 2. कुमारपालचरितम् (प्रथम व द्वितीय सर्ग)

(1) सप्रसंग व्याख्या

(2) व्याख्यात्मक टिप्पणी

(3) आलोचनात्मक प्रश्न

इकाई 3. सिरिकुम्मापुत्तचरियं (सम्पूर्ण)

(1) सप्रसंग व्याख्या

(2) आलोचनात्मक प्रश्न

इकाई 4. प्राकृत (भाषा में) कथा रचना

उपलब्धियाँ–

1. धातु को होने वाले आदेश जानकर एवं भाव कर्म प्रक्रिया और कृदन्त प्रक्रिया समझकर यथास्थान प्रयोग करेंगे।
2. कुमारपाल एवं कुर्मापुत्रचरित्र की जानकारी मिलेगी।
3. प्राकृत में रचनाधर्मिता का अभ्यास बढ़ता रहेगा।

पाठ्यपुस्तक / संदर्भ ग्रन्थ :

1 प्राकृत मार्गोपदेशिका–पं. बेचरदास जीवराज दोषी, मो. ला. ब. दास, दिल्ली 1968
2 प्रकाशन–आचार्यश्री आत्माराम जैन मॉडल स्कूल, दिल्ली 1974
3 प्राकृत व्याकरण (अंग्रेजी)–हेमचन्द्र, प्रकाशक भण्डारकर ओरियण्टल शोध संस्थान, पूना 1980
4 तुलसी मंजरी, युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं 1983.
5 प्राकृत वाक्य रचना बोध–युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं 1991
6 प्राकृत व्याकरण (सिद्धहेमशब्दानुशासनम्–आचार्य हेमचन्द्रकृत) संस्कृत–हिन्दी व्याख्या सहित, व्याख्याकार–ज्ञानमुनि
7 सिरिकुम्मापुत्तचरियं, अनंतहंसकृत, अनुवाद डॉ. जिनेन्द्र जैन, जैन अध्ययन एवं सिद्धांत शोध संस्थान, (जबलपुर, म.प्र.)
8 कुमारपालचरितम् (प्राकृत इयाश्रयकाव्यम्) हेमचन्द्रसूरिकृत श्री जिनशासन आराधना ट्रस्ट मुंबई
9 प्राकृत भाषा एवं साहित्य का आलोचनात्मक इतिहास–डॉ. नेमीचन्द्र शास्त्री, ताराबुक एजेन्सी, वाराणसी

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA502	**अहिंसा एवं शांति (शांति आंदोलन एवं संगठन)**	**A**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–V

उद्देश्य–

1. शांति आंदोलनों एवं संगठनों की जानकारी देना।

इकाई–1

संयुक्त राष्ट्र एवं उसके अभिकरण

इकाई 2

नोबल शांति पुरस्कार संस्था, स्टॉकहोम अर्न्राष्ट्रीय शांति शोध संस्थान, अणुव्रत विश्व भारती

इकाई 3

पगवाश आंदोलन, बस आंदोलन, ग्रीनपीस आंदोलन

इकाई 4

भूदान, सम्पूर्ण क्रांति एवं चिपको आन्दोलन

उपलब्धियाँ–

1. अहिंसक आंदोलनों की जानकारी प्राप्त कर उनमें सक्रिय सहभागिता का मनोभाव विकसित होगा।

पाठ्य पुस्तकें/ संदर्भ ग्रन्थः

1. Stride towards Freedon - Martin Luthar King
2. Encyclopaedia of Peace
3. मानवाधिकार, शांति एवं गांधी दर्शन– डॉ. अनिल धर एवं पूजा शर्मा, जैन विश्वभारती संस्थान, लाडनूं
4. शांति आन्दोलन एवं संगठन– डॉ. अनिल धर, जैन विश्वभारती संस्थान, लाडनूं

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA503	**हिन्दी साहित्य (आधुनिक काव्य एवं काव्यशास्त्र)**	**A**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–V

उद्देश्य–

1. विद्यार्थियों को आधुनिक काव्य से परिचित करवाना।
2. विद्यार्थियों को विभिन्न कवियों की काव्यशैली की जानकारी देना।
3. विद्यार्थियों को विभिन्न कवियों की भाषाशैली से परिचित करवाना।
4. विद्यार्थियों को काव्यशास्त्र की सामान्य जानकारी देना।

इकाई–I

1. आधुनिक काव्य की सामान्य प्रवृत्तियां, प्रमुख काव्य धाराएँ– भारतेन्दु युग, द्विवेदी युग, छायावाद, प्रगतिवाद, प्रयोगवाद, नई कविता, समकालीन कविताकी प्रमुख प्रवृत्तियां, रचनाकार एवं उनकी रचनाएँ।
2. वीर सतसई–सूर्यमल्लमीसण संपादक कन्हैयालाल सहल, ईश्वरदान आसिया, पतराम गौड– राजस्थानी ग्रंथागार, जोधपुर से निर्धारित काव्यांश

   (क) सूर्यमल्ल मीसण–वीर सतसई (प्रथम 20 दोहे)
3. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई–II

हिन्दी काव्य संग्रह–संपादक हेमराज मीणा, मीरा सरीन केन्द्रीय हिन्दी संस्थान, आगरा से निर्धारित कवि एवं काव्यांश

1. (क) मैथिलीशरण गुप्त– 1. सखी बसंत से कहां गये वे 2. भारत भारती

(ख) जयशंकर प्रसाद– 1. चिंता

(ग) सूर्यकांत त्रिपाठी निराला– 1. जूही की कली 2. बादल राग

2. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई–III

हिन्दी काव्य संग्रह–संपादक हेमराज मीणा, मीरा सरीन केन्द्रीय हिन्दी संस्थान, आगरा से निर्धारित कवि एवं काव्यांश

1. (क) महादेवी वर्मा– (1) मैं नीर भरी दुख की बदली (2) पंथ होने दो अपरिचित (3) मधुर–मधुर मेरे दीपक जल

(ख) अज्ञेय– (1) हिरोशिमा (2) कलगी बाजरे की (3) यह दीप अकेला

2. रश्मिरथी –रामधारीसिंह दिनकर, लोकभारती प्रकाशन, इलाहाबाद से निर्धारित काव्यांश
(क) रामधारीसिंह दिनकर, रश्मिरथी (पंचम सर्ग)
3. निर्धारित कवियों की काव्यगत विशेषताएं

इकाई–IV

1. काव्य लक्षण, काव्य हेतु, काव्य प्रयोजन,काव्य भेद
2. रस का स्वरूप, रस के अवयव, रस के भेद
3. अलंकार– सामान्य परिचय, निर्धारित अलंकार–अनुप्रास, यमक, श्लेष, वक्रोक्ति, उपमा, रूपक, भ्रांतिमान, संदेह , उत्प्रेक्षा, विरोधाभास
4. छंद–सामान्य परिचय,निर्धारित छंद–दोहा, सोरठा, चौपाई, रोला, इन्द्रवज्रा, मंदाक्रान्ता, उपेन्द्रवज्रा, मदिरासवैया,मत्तगयन्त सवैया, दुर्मिल सवैया, मन हरण, देव घनाक्षरी
5. काव्य गुण एवं काव्य दोष : निर्धारित काव्य दोष–श्रुति कटुत्व, च्युत संस्कृति, ग्राम्यत्व, अश्लीलत्व, अप्रतीत्व, क्लिष्टत्व, न्यूनपदत्व, अधिकपदत्व, पुनरूक्तव, अक्रमत्व, दुष्क्रमत्व
6. शब्द शक्तियां

उपलब्धियाँ–

1. विद्यार्थी विभिन्न कवियों की लेखनशैली से परिचित होकर अपना मत प्रस्तुत कर सकेंगे।
2. विद्यार्थी आधुनिक काव्य का परिचय प्राप्त कर स्वयं काव्य रचना का प्रयास कर सकेंगे।
3. विद्यार्थी स्वयं को भावी प्रतियोगिता परीक्षाओं के लिये तैयार कर सकेंगे।
4. विद्यार्थी काव्यशास्त्र का ज्ञान प्राप्त करेगें।

पाठ्यपुस्तक/संदर्भ ग्रंथ

1. जयशंकर प्रसाद, आचार्य नंद दुलारे वाजपेयी, भारती भंडार, इलाहाबाद
2. निराला की साहित्य साधना (भाग 1,2,3) डॉ रामविलास शर्मा, राजकमल प्रकाशन, नई दिल्ली
3. छायावाद : पुनर्मूल्यांकन सुमित्रानदंन पंत, लोकभारती प्रकाशन, इलाहाबाद
4. कविता के नये प्रतिमान–डॉ नामवरसिंह राजकमल प्रकाशन, नई दिल्ली
5. अज्ञेय और आधुनिक रचना समस्या, डॉ रामस्वरूप चतुर्वेदी, लोक भारती प्रकाशन, इलाहाबाद
6. हिन्दी साहित्य का इतिहास–संपादक डॉ नगेन्द्र मयूर पेपर बैक्स, नोयडा
7. हिन्दी साहित्य का इतिहास–आचार्य रामचन्द्र शुक्ल नागरी प्रचारिणी सभा, काशी
8. आधुनिक साहित्य की प्रवृतियाँ– डॉ नामवरसिंह, लोकभारती प्रकाशन, इलाहाबाद
9. काव्यशास्त्र– भागीरथ मिश्र, विश्वविद्यालय प्रकाशन, वाराणसी
10. हिन्दी काव्य सिद्धान्त– रामबाबू ज्योति, राजस्थान प्रकाशन, जयपुर
11. काव्यशास्त्र– डॉ. भागीरथ मिश्र, विश्वविद्यालय प्रकाशन, वाराणसी
12. काव्य प्रदीप– रामबहोरी शुक्ल, हिन्दी भवन प्रकाशन, दिल्ली
13. भारतीय काव्यशास्त्र– निशा अग्रवाल, लोक भारती प्रकाशन, नई दिल्ली
14. साहित्य शास्त्र– डॉ. ओमप्रकाश गुप्त, डॉ. गौवर्धन बंजारा, पार्श्व प्रकाशन, अहमदाबाद

Course Code	Course Title	Croup	Course Category	Credit	CIA	Theory	Total
BOA 504	English Literature (Poetry and Drama)	A	Core Course (CC)	4	30	70	100

Semester V

Objectives:

1- To enable the students to compose poems.

2- To familiarize them with Modern Poetry and Problem Play.

3- To acquaint them with the literary terms related to the genres.

Unit I: Indian Poetry in English.

A: Enterprise: Nissim Ezekiel

B: A River: A.K. Ramanujan

C: Railroad Reveries: K.N. Daruwala

D:Lakshman: Toru Dutt

Unit II: English Poetry

A: My last Duchess: Browning

B: Pied Beauty: G.M. Hopkins

C: The Second Coming: W.B. Yeats

D: The journey of the Magi: T.S. Eliot

Unit III: One Act Plays

A: Refund: KritzKarinthy

B: The Never-Never Nest: Cedric Mount.

Unit IV: Drama - A Doll's House: Henrik Ibsen.

Outcome:

1- The students can understand the changing nature of Literature through ages.
2- They will become familiar with various forms of verse and dramatic art.
3- They will be highly motivated to read other compositions and related genres.

Suggested Reading:

1. Prasad, B. A Background to the Study of English Literature.Macmillan, 2004.

2.A Doll's House- Henrick Ibsen. MacMillan India Press, Madras.

3: Poet's Pen: (Ed.) Homi P.Dustoor. Oxford University Press.

4: Contemporary Indian poetry in English: (Ed.) SaleemPeerandina. MacMillan, New Delhi.

5: Forms of English Prose. Oxford University Press, New Delhi.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 505	राजस्थानी (राजस्थानी गद्य विधाएँ)	A	Core Course (CC)	4	30	70	100

सेमेस्टर –V

उद्देश्य –

1 विद्यार्थियों को राजस्थानी नाटक, एकांकी एवं निबन्ध साहित्य की सामान्य जानकारी देना।
2 विद्यार्थियों को राजस्थानी की गद्य शैलियों का ज्ञान करवाना।
3 विद्यार्थियों में राजस्थानी गद्य लेखन क्षमता का विकास करना।

इकाई – 1

1 राजस्थानी गद्य विधाओं निबन्ध, नाटक व एकांकी का स्वरुप एवं तात्त्विक विवेचन।
2 निबन्ध का उद्‌भव एवं विकास प्रमुख निबन्धकार एवं उनकी रचनाएँ।

इकाई – 2

1. नाटक का उद्‌भव एवं विकास प्रमुख नाटककार एवं उनकी रचनाएँ।
2. एकांकी का उद्‌भव और विकास प्रमुख एकांकीकार एवं उनकी रचनाएँ।

इकाई – 3

1. राजस्थानी निबन्ध संग्रह, संपादक– डॉ. किरण नाहटा (प्रथम तीन निबन्ध)

इकाई – 4

1. बलिदान (नाटक) डॉ. अर्जुनदेव चारण

उपलब्धियां –

1 विद्यार्थी राजस्थानी नाटक, एकांकी एवं निबन्ध साहित्य की सामान्य जानकारी प्राप्त करेंगे।
2 विद्यार्थी को राजस्थानी की गद्य शैलियों का ज्ञान प्राप्त कर सकेंगे।
3 विद्यार्थी में राजस्थानी गद्य लेखन क्षमता में दक्ष होंगे।

पाठ्य पुस्तक/संदर्भ ग्रंथ :–

1 राजस्थानी निबन्ध संग्रह, संपादक–डॉ. किरण नाहटा, प्रकाशक–राजस्थानी भाषा साहित्य एवं संस्कृति अकादमी, बीकानेर।
2 बलिदान (नाटक), डॉ. अर्जुन देव चारण, प्रकाशक–रम्मत संस्थान, जोधपुर।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA506	संस्कृत संस्कृत व्याकरण एवं साहित्य (कालूकौमुदी)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–V

उद्देश्य–

1. धातुओं के विभिन्न रूपों की जानकारी देना।
2. खण्डकाव्य की विधि से अवगत करवाना।
3. संस्कृत के प्राचीन व अर्वाचीन इतिहास का ज्ञान करवाना।

इकाई–1 अदादिगण–कालू कौमुदी (उत्तरार्द्ध) आदि गण, (सूत्र 200 से 338)

1. सूत्रार्थ
2. रूपसिद्धि
3. धातु रूपावली

इकाई–2 वाक्य रचना बोध(69 से 74)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

इकाई–3 संस्कृत साहित्य का इतिहास

(क) वैदिक साहित्य– वेदांग, उपनिषद् साहित्य

(ख) महाकाव्य– रामायण (वाल्मिकी) महाभारत वेदव्यास, अश्वघोष, कालिदास, माघ, भारवि, प्रमुख जैन महाकाव्य– वरांगचरित, वर्द्धमानचरित, पार्श्वनाथ

(ग) गद्य काव्य– कादम्बरी, तिलक मंजरी, गद्य चिन्तामणि, शिवराजविजय

(घ) नाटक साहित्य– भास, कालिदास, शूद्रक, भवभूति

(च) स्तोत्र साहित्य– वैदिक, जैन एवं बौद्ध परम्परा के प्रमुख स्तोत्र,

इकाई–4 अश्रुवीणा (50 श्लोक)

1. दो श्लोकों की सप्रसंग व्याख्या
2. एक सामान्य प्रश्न

अभिधान चिन्तामणि छठा काण्ड (121 से 150)

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. संस्कृत साहित्य के इतिहास की जानकारी देना।
2. काव्य रचना की नवीन विद्या का ज्ञान होगा।
3. अलंकार आदि को जानने का अवसर मिलेगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थ :

1. कालु कौमुदी, आदर्श साहित्य संघ, चूरू
2. वाक्य रचना बोध, लेखक–आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
3. अश्रुवीणा, सम्पादक डॉ. हरिशंकर पाण्डेय, जैन विश्वभारती, लाडनूं
4. अभिधान चिन्तामणि, चौखम्बा प्रकाशन, वाराणसी
5. संस्कृत साहित्य का इतिहास, आचार्य बलदेव उपाध्याय, शारदा निकेतन, वाराणसी
6. संस्कृत साहित्य का संक्षिप्त इतिहास, वाचस्पति गरोला, वाराणसी
7. संस्कृत साहित्य का नवीन इतिहास, कृष्ण चैतन्य, चौखम्बा प्रकाशन, वाराणसी
8. संस्कृत वाङ्मय कोश–श्रीधर भास्कर वर्णेकर
9. संस्कृत के विकास मे जैन कवियों का योगदान–डॉ. नेमीचन्द्र शास्त्री

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 507	संस्कृत संस्कृत व्याकरण एवं साहित्य (लघुसिद्धांत कौमुदी)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–V

उद्देश्य–

1. धातुरूप से संस्कृत भाषा की क्रिया संबंधी जानकारी देना।
2. धातुओं के विभिन्न रूपों की जानकारी देना।
3. खण्डकाव्य की विधि से अवगत करवाना।

इकाई–1 लघुसिद्धान्त कौमुदी को भ्वादि गण से जुहोत्यादि गणतक (सूत्र 373 से 628 तक)

1. सूत्रार्थ
2. रूपसिद्धि
3. धातु रूपावली

इकाई–2 रचनानुवाद कौमुदी(पाठ 41 से 50)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

इकाई–3 संस्कृत साहित्य का इतिहास

(क) वैदिक साहित्य– वेदांग, उपनिषद् साहित्य

(ख) महाकाव्य– रामायण (वाल्मिकी) महाभारत (वेदव्यास), अश्वघोष, कालिदास, माघ, भारवि, प्रमुख जैन महाकाव्य– वरांगचरित, वर्द्धमानचरित, पार्श्वनाथ

(ग) गद्य काव्य– कादम्बरी, तिलक मंजरी, गद्य चिन्तामणि, शिवराजविजय

(घ) नाटक साहित्य– भास, कालिदास, शूद्रक, भवभूति

(च) स्तोत्र साहित्य– वैदिक, जैन एवं बौद्ध परम्परा के प्रमुख स्तोत्र

1. दो प्रश्न/दो टिप्पणी

इकाई–4 अश्रुवीणा (50 श्लोक) एवं अभिधान चिन्तामणि नाममाला (121 से 150)

अश्रुवीणा

1. दो श्लोकों की सप्रसंग व्याख्या
2. एक सामान्य प्रश्न

अभिधान चिन्तामणि

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. विभिन्न धातुओं के अर्थ आदि की जानकारी प्राप्त होगी।
2. संस्कृत की ऐतिहासिकता की जानकारी प्राप्त होगी।
3. काव्य रचना की नवीन विद्या का ज्ञान होगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थ :

1. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
2. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
3. अश्रुवीणा, आचार्य महाप्रज्ञ, सम्पादक डॉ. हरिशंकर पाण्डेय, जैन विश्वभारती, लाडनूं
4. अभिधान चिन्तामणि, चौखम्बा प्रकाशन, वाराणसी
5. संस्कृत साहित्य का इतिहास, आचार्य बलदेव उपाध्याय, शारदा निकेतन, वाराणसी
6. संस्कृत साहित्य का संक्षिप्त इतिहास, वाचस्पति गरोला, वाराणसी
7. संस्कृत साहित्य का नवीन इतिहास, कृष्ण चैतन्य, चौखम्बा प्रकाशन, वाराणसी
8. संस्कृत वाङ्मय कोश–श्रीधर भास्कर वर्णेकर
9. संस्कृत के विकास मे जैन कवियों का योगदान–डॉ. नेमीचन्द्र शास्त्री

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA509	जीवन–विज्ञान (जीवन विज्ञान के मनोवैज्ञानिक सिद्धान्त)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–V

उद्देश्य–

1. मनोविज्ञान का अध्ययन करना।
2. बुद्धि एवं इसकी अभिवृद्धि को समझना।
3. भाव, संवेग एवं अभिप्रेरणा को जानना।
4. व्यक्तित्व विकास एवं जीवन–विज्ञान के सम्बन्ध को जानना।

इकाई– 1 शरीर, मन और श्वासः मनोवैज्ञानिक एवं आध्यात्मिक आधार

- मनोविज्ञान : स्वरूप
- शरीर का मनोवैज्ञानिक एवं आध्यात्मिक आधार
- मन : मनोवैज्ञानिक एवं आध्यात्मिक स्वरूप, मन असन्तुलन के कारण, मानसिक स्वास्थ्य के सूत्र
- श्वास : मनोवैज्ञानिक आधार, आध्यात्मिक स्वरूप, प्रकार

इकाई– 2 बुद्धि और अवधान : मनोवैज्ञानिक एवं आध्यात्मिक आधार

- बुद्धि : मनोवैज्ञानिक आधार
- बुद्धि : सिद्धांत, बुद्धि–लब्धि, बुद्धि–अभिवृद्धि
- बुद्धि : आध्यात्मिक स्वरूप, प्रकार, बुद्धि अभिवृद्धि में जीवन–विज्ञान की भूमिका

इकाई– 3 भाव, संवेग और अभिप्रेरणा : मनोवैज्ञानिक एवं आध्यात्मिक आधार

- भाव एवं संवेग : मनोवैज्ञानिक दृष्टिकोण
- संवेग : षारीरिक परिवर्तन
- भाव : आध्यात्मिक आधार
- अभिप्रेरणा : मनोवैज्ञानिक आधार

इकाई– 4 व्यक्तित्व विकास : मनोवैज्ञानिक एवं आध्यात्मिक आधार

- व्यक्तित्व विकास का मनोवैज्ञानिक आधार
- व्यक्तित्व विकास का आध्यात्मिक आधार
- प्राण का स्वरूप

उपलब्धियाँ–

1. जीवन के विभिन्न पहलुओं की मनोवैज्ञानिक व्याख्या के परिचित हो सकेंगे।
2. बुद्धि अभिवृद्धि में ध्यान की भूमिका के परिचित हो सकेंगे।
3. जीवन में सफलता के लिये अभिप्रेरणा की महत्ता को जान सकेंगे।
4. प्राण शक्ति को बढ़ाने की प्रक्रिया को जान सकेंगे।

प्रायोगिक –

1 आसन– नौकासन, मार्जारि आसन, सेतुबन्ध आसन, गरूड़ासन
2 प्राणायाम– भस्त्रिका, कपालभाति
3 बन्ध–मूल बन्ध, जालंधर बन्ध, उड्डीयान बन्ध
4 अनुप्रेक्षा– स्वावलम्बन, आत्मानुशासन
5 चैतन्य केन्द्र

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1. तुम स्वस्थ रह सकते हो– आचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं, 2004
2. व्यक्तित्व विकास और योग– डॉ. समणी ऋजुप्रज्ञा, जैन विश्वभारती संस्थान, लाडनूं
3. जीवन विज्ञान की रूपरेखा– संपादक मुनि धर्मेश कुमार, जैन विश्वभारती, लाडनूं
4. जीवन–विज्ञान प्रायोगिक– डॉ. अशोक भास्कर, जैन विश्वभारती, लाडनूं
5. सामान्य मनोविज्ञान–अरूण कुमार सिंह, मोतीलाल बनारसीदास, दिल्ली

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA510	**Social Work (Social Work Research and Statistics)**	**B**	**Core Course (CC)**	**4**	**30**	**70**	**100**

Semester – V

Objectives:

1. To develop a scientific approach for systematic procedure in social work research
2. Acquire understanding about the nature and steps in the research process.
3. Develop theoretical knowledge about the different methods and tools in social work research.
4. Acquire skills and knowledge in the use of appropriate statistical methods in research.

Unit-1: Social Work Research: Concept and Methods

Social Work Research: Concept, Definition, Nature, Scope & Purpose, Steps in Social Work Research, Methods of Social Work Research: Induction, Deduction, Qualitative, and Quantitative, Historical, Comparative and Evaluative Methods and Techniques, Formulation and Selection of the Research Problem, Participatory Research.

Unit-2: Hypothesis

Hypothesis: Concept, Types & Significance, Research Design: Concept, Types & Significance, Sampling: Concept, Types & Significance

Unit-3: Data Collection

Source of Data Collection: Field & Documentary, Tools of Data Collection: Interview Guide, Interview Schedule, Observation Guide & Questionnaire, Methods of Data Collection: Interview, Questionnaire, Observation & Case Study

Unit-4: Measurement and Statistics

Measurement & Scaling, Processing of Data: Editing, Coding, Tabulation, Graphical & diagrammatic Representation, Analysis & Interpretation of Data and Report writing. Importance of Statistics in social work research, Measures of central tendency, Measures of dispersion, Measures of correlation.

Outcome-

1. Student will develop a scientific approach for systematic procedure in social work research
2. Student will understand about the nature and steps in the research process.
3. Student will Develop theoretical knowledge about the different methods and tools in social work research.
4. Student will acquire skills and knowledge in the use of appropriate statistical methods in research.

Suggeted Reading :

1 Goode, W. J. and Hatt, P.K. Methods in Social Research. New York: MacGraw Hill 1952
2 Polansky, Norman A. Social Work Research: Methods for the Helping Professions. Chicago: University of Chicago Press 1975.
3 Mukherjee, Ramkrishna Classification in Social Research. Albany: State University of New York Press. 1983.
4 Ramachandran, P.; Naik, R. D. Research in Social Work, In Encyclopedia of Social Work in India (Vol. 2, pp. 386-394), New Delhi: Ministry of Social Welfare, Government of India 1987.
5 Kerlinger, F. N. Foundation of Behavioural Research. Bombay: Himalayan Publication 1988.
6 Siegel, Sidney; Castellan, N. John. Nonparametric Statistics for the Behavioural Sciences. New York: McGraw Hill 1988.
7 Foster, J.J. Data Analysis Using SPSS for Windows: A Beginners Guide. New Delhi: Sage Publications. 1998.
8 Kirk, Stuart A Social Work Research Methods: Building Knowledge for Practice. Washington, D.C.: NASW Press. 1999.
9 Coolidge, Frederick L. Statistics: A Gentle Introduction. New Delhi: Sage Publications. 2000.
10 Hinton, Perry R. Statistics Explained: A Guide for Social Science Students, London: Routledge. 2004.
11 Grinnel, Richard M.; Unrau, Yvonne A. Social Work Research and Evaluation: Quantitative and Qualitative Approaches. New Delhi: Oxford University Press 2005.
12 Gupta, S. P. Statistical Methods. New Delhi: Sultan Chand & Sons 2006.
13 Hugh, Mc Laughlin Understanding Social Work Research. New Delhi: Sage Publications 2007.
14 Rubin, Allen; Babbie, Earl R. Belmont: Brooks/Cole Cengage 2011.
15 डॉ. सिंह, सुरेन्द्र, सामाजिक अनुसंधान, उत्तरप्रदेश हिन्दी ग्रंथ अकादमी, लखनऊ 1975
16 प्रो. सिन्हा, सच्चिदानन्द, भारत में समाज मनोविज्ञान के क्षेत्र में शोध कार्य की स्थिति, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर 1983
17 डॉ. सिंह, श्यामधर, वैज्ञानिक सामाजिक अनुसंधान एवं सर्वेक्षण के मूल तत्व, कमल प्रकाशन, इंदौर 1995
18 नाटाणी, प्रकाश नारायण,, सामाजिक अनुसंधान एवं सर्वेक्षण, पोइन्टर पब्लिशर्स, जयपुर 2000
19 डॉ. मुकर्जी, रविन्द्रनाथ, आठवां संस्करण, सामाजिक शोध एवं सांख्यिकी, विवेक प्रकाशन, जवाहर नगर, दिल्ली–7 (2003)
20 सामाजिक सर्वेक्षण एवं अनुसंधान, हरीकिशन, एटलांटिक पब्लिशर्स, नई दिल्ली 2009
21 डॉ. कपिल एच.ए. अनुसंधान विविधा, एच.पी. भार्गव बुक हाऊस, 1/230, कचहरी घाट, आगरा–282004 (2009)
22 डॉ. त्रिवेदी, आर.एन., एवं डॉ. शुक्ला, डी.पी., रिसर्च मैथोडोलोजी, कॉलेज बुक डिपो।
23 डॉ. लवानिया, एम.एम., एवं जैन शशी के., समाजशास्त्रीय अनुसंधान की तर्क और विधियां, रिसर्च पब्लिकेशन, नई दिल्ली, जयपुर।
24 डॉ. सिन्हा, सावित्री एवं डॉ. स्नातक विजेन्द्र, अनुसंधान की प्रक्रिया, नेशनल पब्लिशिंग हाऊस, दिल्ली।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory+ Practical	Total
BOA 511	Information Technology (Business Data Processing& Programming in Visual Basic- I)	C	Core Course (CC)	4	30	50+20	100

Semester V

Objective:

- Students will be exposed to the concepts of DBMS design.
- Students will be introduced to the GUI based programming using Visual Basic 6.0.

UNIT I

- Introduction to database
- Need of Database
- Characteristics of Database
- Need of Relational Database
- View of Data
- Data Abstraction
- Instances and Schemas
- Data Independence
- Data Models
- Data Definition Language
- Data Manipulation Language

UNIT II

- Overview of database design
- Data Normalization(Determining tables, Determining Fields, Determining Relationships)
- Integrity Rules(Primary/Foreign Key, One-to-Many, Many-to-Many, One-to-One)
- Introduction to MS Access
- Create a Table in MS Access
- Data Types, Field Properties , Fields: names, types, properties—default values, format, caption, validation rules
- Data Entry
    - Add/Delete records
- Sort, find/replace, filter/select, re-arrange columns, freeze columns
- Edit a Tables- copy, delete, import, modify table structure

UNIT III

- Setting up Relationships
- Define relationships
- add a relationship
- set a rule for Referential Integrity,
- change the join type, delete a relationship
- Queries & Filter

- Difference between queries and filter ,
- Filter using multiple fields AND, OR & NOT
- Advance filter
- Create Query with one table
- Find record with select query
- Find duplicate record with query
- Find unmatched record with query,
- Run query
- Save and change query.

UNIT IV

- Introduction to Visual Basic
- Introduction Graphical User Interface (GUI)
- The Visual Basic Environment, How to use VB complier to compile / debug and run the programs.
- VB Controls & and it's properties : Label, Text Box, Frame, Command Button, Image, Option Button & Check Box
- Data type, Variables and Constants
- Operators (Arithmetical, Relational and Logical)
- Decision Making Statements : If Statement, If then-else Statement, Nested If & Case Structure
- Displaying Message in Message Box
- Menus, Sub-Procedures and Sub-functions
- Defining / Creating and Modifying a Menu
- Creating a new sub-procedure, Passing Variables to Procedures, Passing Argument ByVal or ByRef, Writing a Function Procedure

Outcome:

- Students will be able to create, edit database using MS-Access including filtering and query of records.
- Students will be able to create small applications using Visual Basic.

Practical:

Database Using MS-Access &Programming in Visual Basic

Reference Books

1. Bipin C.Desai,Introduction to Database Concepts,Galgotia, Publications, 1990
2. RameshBangia,Learning MS Accsss,Khanna Publications,Delhi, 2008
3. Introduction to Database System by C.J. Date, Wiley Publication. 2002
4. Database Concept System by Henery F.Korth, Mc Grawhill Publication, 2009
5. Visual Basic 6 Programming new black book, Steven Holzner, Wiley publication 2000
6. Visual Basic 6 Complete, Steve Brown, Sybex Publication 1999

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA512	Psychology (PERSONALITY PSYCHOLOGY)	C	Core Course (CC)	4	30	70	100

SEMESTER – V

Objective :

1. To understand the concept of personality
2. To understand the determinants of Personality

Unit-I: Introduction

Concept of personality

Role of heredity and learning in personality development.

Elements of personality Pattern : The concept of self and the concept of trait

The concept of personality syndrome

Unit-II: Biological Determinants of Personality :

Genetic influence on personality

Mendel's genetic laws

The law of dominant and recessive traits

The chromosomes and heredity

Prenatal development

Unit-III: Familial Determinants of Personality :

Early Familial Life and Personality

Influence of Parental Behavior

Parental Deprivation

Effect of broken Home

Dynamics of Parent Child Relationship

Unit-IV: Social Determinants of Personality :

Personality and Social Behavior

Dependency and Aggression

Moral development and its stages

Out comes :

1. Student know the concept of personality

2. Student know different determinants of Personality

Books :

1. Corsini & Marsella : Personality Theories, Researcha an Assessment.

2. Ewen : An Introduction to Theories of Personality (2nd ed.).

3. Aradhna Shukla : Vyaktitwa :Sampratyay, Nirdharak aur Siddhant

4 Hurlock : Development of Personality.

5 Stagner : Determinants of Personality.

PRACTICALS (Any Three)

(1) Measuring the level of frustration

(2) Measuring self concept

(3) Measuring the level of well being

(4) Assessment of mood states

(5) Measuring the level of locus of control

Note :- The department may change the practical depending on the Availability of the apparatus and recent developments.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory +Practical	Total
BOA514	Geography (Geography of India)	C	Core Course (CC)	4	30	50+20	100

Semester-V

Objectives -

1. To make students aware about the geography of their country.
2. To make aware about the soil, climate, vegetation, agricuture, minerals, drainage system of India.
3. To give knowledge regarding population, Transport, Tourism and religion of India.

Unit - I

a) Introduction : Location ; Neighboring countries and frontiers.

b) India : A land of diversities ; Unity within diversities.

c) Physiographic division ; Himalayan region.

d) The Great plains of India; Peninsular plateau.

Unit – II

a) Coastal plains and Islands.

b) Drainage systems of India.

c) Climate : Summer and winter Season.

d) Soil : Type, distribution & characteristics.

Unit – III

a) Vegetation : Type and their distribution.

b) Agriculture : Major crops and their distribution (Wheat, Rice & Tea).

c) Minerals : Distribution of minerals & mineral belts – Iron ore & coal.

d) Industrial regions of India.

Unit – IV

a) Transport & Trade : Ports and foreign Trade.

b) Population : Distribution & Density of population, Sex Ratio & Literacy rate.

c). Tourism - Component of Tourism, Types & Tourism Resources.

d). Resources Region of India

Practical

a) Distribution map : General rules and method of drawing map.

b) Presentation Socio – economic data, Qualitative methods : Chorochromatic method, Pictrorial method, Choroschematic method.

c) Quantitative method : Choropleth, Isopleth, Dot method.

d) Plain table survey : Instruments required for plain table survey.

e) Plain Table survey : Radiation & intersection method.

Outcomes-

1. Students after having knowledge of overall climate conditions, can adapt themselves at various parts of country.
2. Can contribute to the economic growth of the country.
3. Steps may be taken for proper utilisation of resources and controlling population, a major problem.

Suggested Books :

1. भारत का भूगोल, डॉ. एल.एन. सक्सेना, हिन्दी ग्रंथ अकादमी, जयपुर 2016
2. गौड कृपाशंकर : भारत की भौगोलिक समीक्षा, हिन्दी प्रचार पुस्तकालय, वाराणसी
3. मामोरिया चतुर्भुज : भारत का आर्थिक भूगोल, आगरा बुक स्टोर, आगरा
4. तिवारी विश्वनाथ : भारत का वृहद् भूगोल, रामप्रसाद एण्ड सन्स, आगरा
5. चौहान, वीरेन्द्रसिंह : विषाल भारत, रस्तोगी एण्ड कम्पनी, मेरठ
6. चौहान, तेजसिंह : भारत का भूगोल, विज्ञान प्रकाशन, जयपुर

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA515	**Jainology (ज्ञानमीमांसा एवं प्रमाणमीमांसा)**	**C**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर– V

उद्देश्य–

1. ज्ञान सिद्धान्त को समझाना।
2. न्याय प्रणाली को समझाना।

इकाई – 1 : परोक्ष ज्ञान

ज्ञान का स्वरूप

मतिज्ञान

श्रुतज्ञान

इकाई – 2 : प्रत्यक्ष ज्ञान

अवधिज्ञान

मनः पर्यवज्ञान

केवलज्ञान

इकाई – 3 :

न्याय के अंग

न्याय का स्वरूप

लक्षण–लक्षणाभास

न्याय के अंग

प्रमाण का स्वरूप

प्रमेय का स्वरूप

प्रमिति का स्वरूप

प्रमाता का स्वरूप

इकाई – 4 : प्रत्यक्ष प्रमाण के भेद–प्रत्यक्ष और परोक्ष

प्रत्यक्ष प्रमाण

इन्द्रिय

मन

परोक्ष प्रमाण

स्मृति

प्रत्यभिज्ञा

तर्क

अनुमान

आगम

उपलब्धियाँ–

1. ज्ञानमीमांसा से परिचय होगा।
2. यौक्तिक परीक्षा की क्षमता का विकास होगा।

पाठ्यपुस्तक/संदर्भ ग्रन्थः

1. जैन ज्ञान एवं प्रमाण मीमांसा– डॉ. समणी ऋजुप्रज्ञा, दूरस्थ शिक्षा निदेशालय, जैन विश्वभारती संस्थान, लाडनूं
2. जैन दर्शन मनन और मीमांसा, आचार्य महाप्रज्ञ, आदर्श साहित्य संघ, चूरू
3. जैन दर्शन– पं. महेन्द्र कुमार जैन न्यायाचार्य, गणेशवर्ण शोध संस्थान, वाराणसी
4. जैन न्याय– पं. कैलाशचन्द शास्त्री, भारतीय ज्ञानपीठ, दिल्ली

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA601	आगम विद्या एवं प्राकृत साहित्य (प्राकृत भाषा व्याकरण एवं साहित्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर–VI

उद्देश्य–

1. शौरसेनी, मागधी, पैशाची, चूलिका पैशाची एवं अपभ्रंश प्राकृत पढ़ाना।
2. पाइयसंगहो पढ़ाना।
3. निबंध रचना का अभ्यास कराना।

इकाई 1. तुलसी मंजरी (सूत्र 928 से 1116)

(1) रूप सिद्धि

(2) सूत्र तथा पंक्ति व्याख्या

(3) शब्द रूप (संदर्भित सूत्रों के आधार पर)

(4) धातु रूप (संदर्भित सूत्रों के आधार पर)

(5) धात्वादेश

इकाई 2. पाइयसंगहो (पाठ–1 से 14)

(1) सप्रसंग अनुवाद

(2) सप्रसंग व्याख्या

(3) आलोचनात्मक प्रश्न

(4) टिप्पणियां

(5) लघुत्तरात्मक प्रश्न (प्राकृत में उत्तर दिया जाए)

इकाई 3. पाइयसंगहो (15 से 27)

(1) सप्रसंग अनुवाद

(2) सप्रसंग व्याख्या

(3) आलोचनात्मक प्रश्न

(4) टिप्पणियां

(5) लघुत्तरात्मक प्रश्न (प्राकृत में उत्तर दिया जाए)

इकाई 4. निबंध रचना (प्राकृत भाषा में)

उपलब्धियाँ–

1. महाराष्ट्री प्राकृत के साथ–साथ अन्य प्राकृत की भी जानकारी होगी।
2. आगम की शैली के साथ–साथ आगम में वर्णित कथाओं की जानकारी मिलेगी।
3. प्राकृत में लेखन शैली का विकास होगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थः

1. प्राकृत मार्गोपदेशिका–पं. बेचरदास जीवराज दोषी, मो. ला. ब. दास, दिल्ली 1968
2. प्राकृत व्याकरण (सिद्धहेमशब्दानुशासनम्–आचार्य हेमचन्द्रकृत) संस्कृत–हिन्दी व्याख्या सहित, व्याख्याकार–ज्ञानमुनि, प्रकाशन–आचार्यश्री 3. आत्माराम जैन मॉडल स्कूल, दिल्ली 1974
3. प्राकृत व्याकरण (अंग्रेजी)–हेमचन्द्र, प्रकाशक भण्डारकर ओरियण्टल शोध संस्थान, पूना 1980
4. प्राकृत स्वयं शिक्षक–डॉ. प्रेमसुमन जैन, राज. प्राकृत भारती अकादमी, जयपुर, 1982
5. तुलसी मंजरी, युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं 1983
6. पाइयसंगहो, संपादक–मुनि विमलकुमार, जैन विश्वभारती, लाडनूं 1983
7. प्राकृत वाक्य रचना बोध–युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं 1991
8. प्राकृत भाषा एवं साहित्य का आलोचनात्मक इतिहास–डॉ. नेमीचन्द शास्त्री, तारा बुक एजेन्सी, वाराणसी
9. आयारो–आचार्य तुलसी, जैन विश्वभारती, लाडनूं
10. अंगसुत्ताणि (भाग 1–3), जैन विश्वभारती, लाडनूं

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA602	अहिंसा एवं शांति (अहिंसा प्रशिक्षण)	A	Core Course (CC)	4	30	70	100

सेमेस्टर–VI

उद्देश्य–

1. अहिंसा– प्रशिक्षण एवं उसके प्रयोग क्षेत्रों की जानकारी देना।

इकाई–1 : अहिंसा : शिक्षण– प्रशिक्षण का स्वरूप

1. अहिंसा– शिक्षण– प्रशिक्षण का लक्ष्य
2. अहिंसा– शिक्षण– प्रशिक्षण की आवश्यकता एवं उद्देश्य
3. अहिंसा– शिक्षण– प्रशिक्षण का सैद्धान्तिक स्वरूप
4. अहिंसा– शिक्षण– प्रशिक्षण का प्रायोगिक स्वरूप
5. हिंसा के कारण और अहिंसा प्रशिक्षण

इकाई 2 : अहिंसा प्रशिक्षण : पृष्ठभूमि

1. अहिंसा सार्वभौम क्यो?
2. अहिंसा सार्वभौम की परिकल्पना
3. अहिंसा सार्वभौम का तात्पर्य
4. अहिंसा प्रशिक्षण केन्द्र
5. अहिंसा प्रशिक्षण की प्रविधि
6. अहिंसा प्रशिक्षण परिसंवाद
7. अहिंसा का सामाजिक चिन्तन– एक परिचर्चा

इकाई 3 : अहिंसा प्रशिक्षण

आवश्यकता, स्वरूप, अहिंसा प्रशिक्षण के घटक, हृदय परिवर्तन, दृष्टिकोण परिवर्तन, जीवन शैली परिवर्तन, व्यवस्था परिवर्तन

इकाई 4 : अहिंसा प्रशिक्षण : प्रयोगभूमि

1. पारिवारिक जीवन और अहिंसा
2. सामाजिक जीवन और अहिंसा
3. अन्तर्राष्ट्रीय जीवन और अहिंसा
4. अहिंसा प्रशिक्षण और शिक्षा जगत्

उपलब्धियाँ–

1. अहिंसा प्रशिक्षण प्राप्त कर विद्यार्थी शान्ति पूर्ण एवं सहवास के लिए भूमिका तैयार करेगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थः

1. अहिंसा प्रशिक्षण, निर्देशन– आचार्य तुलसी एवं आचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं
2. नया मानव नया विश्व– आचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनूं
3. विश्व शांति एवं अहिंसा प्रशिक्षण– डॉ. बच्छराज दूगड़, जैन विश्वभारती संस्थान, लाडनूं
4. अहिंसा शिक्षण प्रशिक्षण– समणी डॉ. निर्वाण प्रज्ञा

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA603	हिन्दी साहित्य (हिन्दी भाषा एवं काव्यांग विवेचन)	A	Core Course (CC)	4	30	70	100

सेमेस्टर–VI

उद्देश्य–

1. विद्यार्थी को प्रयोजनमूलक हिन्दी के बारे में जानकारी देना।
2. विद्यार्थी को पत्र लेखन शैली से अवगत कराना तथा कार्यालयी पत्र लेखन में निपुण बनाना।
3. अनुवाद विज्ञान की जानकारी देकर भावी अनुवादक तैयार करना।
4. पारिभाषिक शब्दावली की जानकारी प्रदान कर भावी पीढ़ी को तैयार करना।

इकाई I

1. प्रयोजन मूलक हिन्दी– आवश्यकता और स्वरूप
2. प्रयोजन मूलक हिन्दी की विशेषताएँ
3. प्रयोजन मूलक हिन्दी की प्रयुक्तियाँ एवं प्रयोगात्मक क्षेत्र।
4. राजभाषा हिन्दी– स्वरूप तथा संविधान में हिन्दी।

इकाई II

1. पत्र–लेखन की विशेषताएँ
2. पत्र–लेखन के निर्देश एवं पत्र के अंग
3. व्यावसायिक और सामाजिक पत्र
4. सरकारी पत्र का ढांचा तथा सरकारी पत्र की विशेषताएँ

इकाई III

1. अनुवाद– अर्थ एवं स्वरूप
2. अनुवाद के प्रकार
3. अनुवाद की प्रक्रिया
4. अनुवाद की समस्या
5. अनुवादक के गुण

इकाई IV

1. पारिभाषिक शब्दावली– परिभाषा और आवश्यकता

2. पारिभाषिक शब्दावली का महत्व
3. पारिभाषिक शब्दावली के गुण
4. पारिभाषिक शब्दावली के निर्माण की प्रविधि और प्रक्रिया

उपलब्धियाँ–

1. विद्यार्थी कार्यालयी पत्र व्यवहार सीख सकेंगे तथा भावी प्रतियोगिता परीक्षाओं के लिये तैयार हो सकेंगे।
2. हिन्दी के अपने व्यावहारिक ज्ञान में वृद्धि कर सकेंगे।
3. विद्यार्थी अनुवाद एवं पारिभाषिक शब्दावली का ज्ञान लेकर एक अच्छा अनुवादक एवं भाषा वैज्ञानिक बन सकेगा।

संदर्भ ग्रंथ–

1. प्रयोजन मूलक हिन्दी– विनोद गोदरे, वाणी प्रकाशन, दिल्ली
2. प्रयोजन मूलक हिन्दी : सृजन और समीक्षा, डॉ. रामलखन मीणा,
3. प्रयोजन मूलक हिन्दी : पारिभाषिक शब्दावली– डॉ. मधु धवन
4. प्रयोजन मूलक भाषा और कार्यालयी हिन्दी– डॉ. कृष्ण कुमार गोस्वामी,
5. प्रयोजन मूलक हिन्दी– डॉ. बालेन्दु शेखर तिवारी, संजय बुक सेन्टर, वाराणसी
6. राजभाषा हिन्दी : विकास के विविध आयाम– डॉ. मलिक मोहम्मद,
7. सृजनात्मक साहित्य का अनुवाद– स्वरुप एवं समस्याएँ, सुरेश सिंहल,

Course Code	Course Title	Croup	Course Category	Credit	CIA	Theory	Total
BOA 604	English Literature (Prose and Fiction)	A	Core Course (CC)	4	30	70	100

Semester VI

Objectives:

1- To enable the students to compose short stories.
2- To acquaint them with spirituality and psychology.
3- To inculcate human values in the students.

Unit I: Prose

A: From Religion to Vocation: AcharyaMahapragya.

B: An Ideal Before the Youth: S Radhakrishnan.

C: Seven Rules of Writing: V.S. Naipaul.

D: How to Escape the Intellectual Rubbish: Bertrand Russell.

Unit II: English Short Stories

A: The Model Millionaire: Oscar Wilde.

B: When Mr. Peerzada came to Dine: JhumpaLariri.

C: Dr. Heidegger's Experiment: Nathaniel Hawthorne.

D: The Night the Ghost Got in: James Thurber.

Unit III: Indian Short Stories

A-The Gold Watch: Mulk Raj Anand.

B-Karma: Khushwant Singh.

C-Upper Division Love: ManoharMalgonkar.

D-A Client: Raja Rao.

Unit IV: (A) Novel - The Guide: R.K. Narayan.

(B) Media- Interview of AcharyaMahapragya with APJ Abdul Kalam.

Outcome:

1- They will compose stories without the help of a teacher.
2- They will understand the relation between literature and Media.

Suggested Reading :

1- Prasad, B. A Background to the Study of English Literature. Macmillan, 2004.
2- Collected Essays. Jain Vishva Bharti Institute, Ladnun.
3- Short Stories of Yesterday and Today. (ED.) Shiv K Kumar. OUP, New Delhi.
4- The Guide. R.K. Narayan, OUP, New Delhi.

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 605	राजस्थानी(प्राचीन राजस्थानी काव्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर –VI

उद्देश्य –

1 प्राचीन राजस्थानी काव्य एवं कवियों से परिचित करवाना।
2 राजस्थानी के कवियों की काव्य शैलियों से परिचित करवाना।
3 राजस्थानी काव्य के विभिन्न रुपों की जानकारी करवाना।

इकाई – 1

1 आदिकाल की परिस्थितियाँ।
2 आदिकाल के काव्य की सामान्य प्रवृत्तियाँ।

इकाई – 2

1. ढोला–मारु रा दूहा, संपादक–मनोहर शर्मा।

इकाई – 3

1 राजस्थानी भाषा का उद्भव और विकास।
2 राजस्थानी भाषा की बोलियों का सामान्य परिचय।

इकाई – 4

1 रस सामान्य परिचय।
2 प्रमुख राजस्थानी छंद, दूहा–भेदों सहित, वेलियो, छोटा साणोर, झमाल, निसांणी, सुपंखरो।
3 राजस्थानी काव्य दोष, छबकाल, अंधदोष, अपस, निनंग।

पाठ्य पुस्तक/संदर्भ ग्रंथ :–

1 राजस्थानी साहित्य का इतिहास, डॉ. हीरालाल माहेश्वरी।
2 ढोला मारु रा दूहा, संपादक–मनोहर शर्मा, प्रकाशक–राजस्थान जनहित प्रन्यास, बीकानेर।
3 अलंकार पारिजात, संपादक–नरोतमदास स्वामी, प्रकाशक–बीकानेर।
4 रघुवर जस प्रकाश, संपादक– किसना आढा, प्रकाशक–प्राच्य विद्या प्रतिष्ठान, जोधपुर।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA606	संस्कृत संस्कृत व्याकरण एवं साहित्य (कालू कौमुदी)	B	Core Course (CC)	4	30	70	100

सेमेस्टर–VI

उद्देश्य–

1. गणों का परिचय देना।
2. शुकनासोपदेश और कुमारसंभव के ग्रंथों के चयनित अंशों का अध्यापन करना।

इकाई–1 कालूकौमुदी (उत्तरार्द्ध) 10 प्रक्रिया, कृदन्त (सूत्र 339 से 721)

(अ) 10 प्रक्रिया

(1) रूपसिद्धि

(2) सूत्रार्थ

(3) धातु रूपावली

(4) अशुद्धि शोधन

(ब) कृदन्त

(1) रूपसिद्धि

(2) सूत्रार्थ

(3) प्रकृति, प्रत्यय, प्रत्ययविधायक सूत्र

इकाई–2 वाक्य रचना बोध (75 से 82)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

शुकनासोपदेश

1. दो पद्यों की व्याख्या
2. एक सामान्य प्रश्न

इकाई–3 कुमारसंभव (पांचवा सर्ग)

1. दो श्लोक की सप्रसंग व्याख्या
2. कुमारसंभवम् पर सामान्य प्रश्न

इकाई–4 अभिधान चिन्तामणि(151 से 180)

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. त्रिनन्त, सनन्त आदि प्रक्रियाओं का ज्ञान होगा।
2. समासबद्ध एवं लघु वाक्यों के निर्माण का अभ्यास होगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थः

1. कालू कौमुदी, आदर्श साहित्य संघ, चूरू
2. वाक्य रचना बोध, लेखक–आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
3. कुमार संभवम्, चौखम्बा प्रकाशन,
4. शुकनासोपदेश, मोतीलाल बनारसीदास, दिल्ली या चौखम्बा प्रकाशन, बनारस
5. अभिधान चिन्तामणि, चौखम्बा प्रकाशन, वाराणसी

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA607	संस्कृत संस्कृत व्याकरण एवं साहित्य (लघुसिद्धान्त कौमुदी)	**B**	**Core Course (CC)**	**4**	**30**	**70**	**100**

सेमेस्टर–VI

उद्देश्य–

1. गणों का परिचय देना।
2. शुकनासोपदेश और कुमारसंभवम के ग्रंथों के चयनित अंशों का अध्यापन करना।
3. ञिनन्त आदि दस प्रक्रियाओं का ज्ञान कराना।

इकाई–1 लघु सिद्धांत कौमुदी के दवादि गण से लकारार्थ तक (सूत्र 629 से 765),कृदन्त प्रकरण (सूत्र 766 से 887 तक)

इकाई–2 रचनानुवाद कौमुदी(51 से 60)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

शुकनासोपदेश

1. दो पद्यों की व्याख्या
2. एक सामान्य प्रश्न

इकाई–3 कुमारसंभव (पांचवा सर्ग)

1. दो श्लोक की सप्रसंग व्याख्या
2. कुमारसंभवम् पर सामान्य प्रश्न

इकाई–4 अभिधान चिन्तामणिनाममाला (151 से 180)

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ–

1. ञिनन्त, सनन्त आदि प्रक्रियाओं का ज्ञान होगा।
2. समासबद्ध एवं लघु वाक्यों के निर्माण का अभ्यास होगा।
3. गणों के विभिन्न धातु रूपों का ज्ञान होगा।

पाठ्य पुस्तक / संदर्भ ग्रंथ–

1. लघु सिद्धान्त कौमुदी, श्रीवरदाजकृत, संपादक–महेश सिंह कुशवाहा, चौखम्बा विद्या भवन, दिल्ली
2. रचनानुवाद कौमुदी, डॉ. कपिल देव द्विवेदी, आचार्य विश्वविद्यालय प्रकाशन, वाराणसी
3. कुमार संभवम्, चौखम्बा प्रकाशन,
4. शुकनासोपदेश, मोतीलाल बनारसीदास, दिल्ली या चौखम्बा प्रकाशन, बनारस
5. अभिधान चिन्तामणि, चौखम्बा प्रकाशन, वाराणसी
6. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA609	जीवन–विज्ञान (व्यक्तित्व विकास और प्रबंधन)	B	Core Course (CC)	4	30	70	100

सेमेस्टर –VI

उद्देश्य–

1. व्यक्तित्व की अवधारणा को समझाना।
2. व्यक्तित्व विकास एवं इसके प्रबंधन को जानना।
3. क्षमताओं के विकास की विधियां जानना।
4. योग द्वारा व्यक्तित्व विकास को समझाना।

इकाई Iव्यक्तित्व का विश्लेषण

व्यक्तित्व का अर्थ एवं परिभाषाएं

व्यक्तित्व के निर्धारक तत्त्व

व्यक्तित्त्व के प्रकार

आचार्य महाप्रज्ञ का लेश्या पर आधारित व्यक्तित्व पर विचार

व्यक्तित्व विकास की प्रक्रिया

इकाई IIव्यक्तित्व विकास और प्रबंधन

समय प्रबंधन– महत्त्व, स्वरूप और प्रबंधन के सूत्र, अर्थ, महत्व, समय प्रबंधन की आवश्यकता एवं समय प्रबंधन की प्रक्रिया

तनाव प्रबंधन– कारण, प्रकार एवं प्रक्रिया अर्थ एवं कारक, तनाव प्रबंधन

संवेग प्रबंधन– प्रकार एवं निवारण के उपाय संवेग–अर्थ, संवेग उत्पन्न होने की प्रक्रिया एवं कारण तथा संवेग प्रबंधन

इकाई IIIव्यक्तित्व और क्षमता का विकास

कार्यक्षमता का विकास

सकारात्मक सोच का विकास

अभिव्यक्ति क्षमता और व्यवहार कौशल का विकास

इकाई IVव्यक्तित्व विकास एवं चिकित्सा–स्वास्थ्य प्रबंधन

अध्यात्म योग का स्वरूप–रोग एवं रोगों के कारण, व्यक्तित्व विकास में स्वास्थ्य की भूमिका

प्राकृतिक चिकित्सा : अर्थ, सिद्धांत–स्वास्थ्य प्रबंधन में योग

प्रेक्षा चिकित्सा : अर्थ, चिकित्सा के मूल तत्व एवं प्रयोग–प्रेक्षाध्यान में प्रेक्षाध्यान की भूमिका

उपलब्धियाँ–

1. जीवन में स्वास्थ्य का महत्त्व एवं स्वास्थ्य संवर्धन के उपायों को जान सकेंगे।
2. शरीर के विभिन्न तंत्रों एवं अंगों से परिचित हो सकेंगे।
3. विभिन्न शारीरिक बीमारियों का योग द्वारा प्रबन्धन को समझ सकेंगे।
4. संतुलित आहार, उपवास एवं शाकाहार के महत्त्व को जान सकेंगे।

प्रायोगिक भाग :

1. षट्कर्म
2. आसन– सिंहासन, पदमासन, कर्णपीड़ासन, चक्रासन
3. प्रेक्षाध्यान– लेश्याध्यान
4. अनुप्रेक्षा–स्वास्थ्य, सामन्जस्य

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1. व्यक्तित्व विकास और योग– डॉ. समणी ऋजुप्रज्ञा, जैविभावि, लाडनूं
2. प्रेक्षाध्यान : व्यक्तित्व विकास– मुनि धर्मेश कुमार, जैविभावि, लाडनूं
3. सोया मन जग जाये– आचार्य महाप्रज्ञ, जैविभा, लाडनूं
4. जैन योग– आचार्य महाप्रज्ञ, जैविभा, लाडनूं
5. व्यक्तित्व का मनोविज्ञान– डॉ. जायसवाल, विनोद पुस्तक मन्दिर, आगरा
6. आधुनिक सामान्य मनोविज्ञान– डॉ. प्रीति वर्मा, डॉ. डी.एन. श्रीवास्तव, अग्रवाल पब्लिकेशन, आगरा, 2007–2008
7. डी.एन. श्रीवास्तव– व्यक्तित्व का मनोविज्ञान, विनोद पुस्तक मन्दिर, आगरा।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA610	**Social Work (Social Work: Themes and Practice skills)**	**B**	**Core Course (CC)**	**4**	**30**	**70**	**100**

Semester - VI

Objective:

1. Create awareness about enlarging scope of Social Work profession
2. To get equipped with the practice skills in different social work related settings.
3. Acquire skills for working in different areas of Social Work
4. To develop an integrated approach to Social Work practice to uphold Human Rights and Social Justice.

Unit-1: Social Work: Redial and Feminist and Post Modernism

Radical Social Work: Concept, Roots, Diaspore, Feminist Social Work: Issues, Integrated Social Work Practice, Social Worker's Role as a Change Agent, Anti-Oppressive Practice, Post Modernism: Concept, Meaning, Approaches to Social Work, Team Work, Cognitive Behavioural Practice

Unit-2: Human Rights

Human Rights: Concept, Need & Significance, UN Declaration on Human Rights, Major International & National Human Rights Organizations, National Human Rights

Commission Act, 1993, National and State Human Rights Commissions

Unit-3: Social Work and Corporate Social Responsibility

Social Work and Corporate Social Responsibility: Concept, Need and Importance, Legal Provision, Efforts by Corporate Sectors, Scope of Social Work in government and non government sector.

Unit-4: Skills

Skills Used in Case Work, Group Work, Community Organization, Importance of Social Work Practice Skills, and Applicability in Different Social Work Settings. Development of PRA, Principles and Methods Critical Considerations of PRA Methods.

Outcome-

1. Student will be aware about enlarging scope of Social Work profession
2. Student will be equipped with the practice skills in different social work related settings.
3. Student Acquire skills for working in different areas of Social Work
4. Student will develop an integrated approach to Social Work practice to uphold Human Rights and Social Justice.

Suggested Reading :

1. Bartlett, Harriett M. Common Base of Social Work Practice. New York: National Association of Social Workers, 1980.
2. Galper, Jeffry H. Social Work Practice: A Radical Perspective. Englewood Cliffs, N.J.: Prentice-Hall, 1980.
3. Bronfenbrenner, Urie. The Ecology of Human Development: Experiments by Nature and Design. Cambridge, Massachusetts [etc.]: Harvard University Press, 1981.
4. Compton, Beulah Roberts, and Burt Galaway. Social Work Processes. Pacific Grove, Calif: Brooks/Cole, 1994.
5. Allen-Meares, Paula, and Charles D. Garvin. The Handbook of Social Work Direct Practice. Thousand Oaks, Calif: Sage Publications, 2000.
6. Cox, David R., and Manohar S. Pawar. International Social Work: Issues, Strategies, and Programs. Thousand Oaks, Calif: SAGE Publications, 2006.
7. Cleaver, Hedy. The Integrated Children's System: Enhancing Social Work and Inter-Agency Practice. London: Jessica Kingsley Publishers, 2008.
8. Work Practice: An Integrated Approach. Boston: A & B/Pearson, 2008
9. Curriculum. Oxford: Oxford University Press, 2010.
10. Beck, Elizabeth, Nancy P. Kropf, and Pamela Blume Leonard. Social Work and Restorative Justice: Skills for Dialogue, Peacemaking, and Reconciliation. New York: Oxford University Press, 2011.
11. Cooper, Marlene G., and Joan Granucci Lesser. Clinical Social Dilshad, Mohd. Integrated Social Work Practice. New Delhi: Anmol Publications, 2011.
12. Barsky, Allan Edward. Ethics and Values in Social Work: An Integrated Approach for a Comprehensive
13. शास्त्री, राजाराम, समाज कार्य, उत्तरप्रदेश, दिल्ली संस्थान, राजश्री पुरूषोत्तमदास टण्डन, हिन्दी भवन 6, महात्मागांधी मार्ग, लखनऊ, 1989।
14. मदन, जी.आर.,समाज कार्य, विवेक प्रकाशन, दिल्ली, 1996।
15. डॉ. कुमार, गिरीश, समाज कार्य के क्षेत्र, महात्मा गांधी मार्ग, लखनाऊ, यू.पी., 1996
16. पाण्डेय, तेजस्कर, पाण्डेय, ओजस्कर, समाज कार्य, भारत बुक सेन्टर, 17, अशोक मार्ग, लखनऊ।
17. डॉ. सिंह, सुरेन्द्र, मिश्र पी.डी., समाज कार्य, इतिहास दर्शन प्रणालियां, न्यू रॉयल बुक कम्पनी, प्रथम तल, सह ट्रेड सेन्टर, 32/16, वाल्मिकी मार्ग, लालबाग, लखनऊ,2004।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory+ Practical	Total
BOA611	**Information Technology (**Business Data Processing& Programming in Visual Basic II**)**	**C**	**Core Course (CC)**	**4**	**30**	**50+20**	**100**

Semester VI

Objective: Students will get exposure to the concept of database connectivity using MS-Access and will be introduced to the advance concept of Visual basic programming.

UNIT I

VB Controls and It's Main Properties

- Combo Box
- List Box
  - Filling the List using Property window / Add Item Method
  - Clear Method,
  - Removing an item from a list
  - Sorting A List Box
  - Making List Boxes Scroll Horizontally
  - Checkmarks In A List Box
- Picture Box
- Scrollbars
- Timer
- Drive List Box
- File List Box
- Dir List Box
- Shape
- Line and OLE

UNIT II

Data Environment and Data Reports

- Introduction
- Types of creating Reports
- Preview report print report

MDI Forms

- Features Of an MDI forms
- Loading MDI forms & child forms
- Creating an simple MDI forms
- Accessing MDI forms

UNIT III

- **Loops :**

  Do—Loop, For—Next & While-Wend
- Arrays Single and Two Dimension Arrays
- Using List Boxes with Array

UNIT IV

- Accessing Database File with DAO
- Using the Data Control ,setting its property
- Using Data Control with forms
- Navigating the database in code

Outcome:

Students will be able to create small applications using MS-Access and Visual Basic 6.0.

Practical:

Database and Report Design Using MS-Access

Programming In Visual Basic 6.0

Reference Books

1. Visual Basic 6 Programming new black book, Steven Holzner, Wiley publication 2000
2. Visual Basic 6 Complete, Steve Brown, Sybex Publication 1999
3. RameshBangia,Learning MS Accsss,Khanna Publications,Delhi, 2008

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA612	Psychology(Counseling and Guidance)	C	Core Course (CC)	4	30	70	100

SEMESTER – VI

Objective :

1. The impart knowledge about the Counseling and Guidance.

2. To make students understand the nature and course of various Counseling and Guidance Settings.

Unit-I : Introduction to Counseling

Nature and goals of Counseling

Distinction Between guidance and counseling

Perspectives of counseling : Psychoanalytic, behavioural and cognitive

Types of counseling : (a) Directive and non-Directive (b) Individual and group

Unit-II : Counseling Process

Principles of Counseling process

Counseling skills : Report, empathy and communication

Phases of counseling : Initial, middle, (terminal and follow of)

Special areas of counseling : cawed, marital and personal counseling

Unit-III : Introduction to Guidance

Meaning and need of guidance

Goals of guidance

Functions of guidance

Areas of guidance : Educational, Vocation al and personal

Unit-IV : Psychological Basis of Guidance of counseling

Procedure for collecting information

Utility of psychological tests in guidance and counseling

Diagnostic and instructional uses of tests

Introduction to objective and projective tests

Note :- The department may change the practical depending on the Availability of the apparatus and recent developments.

Books :

1. Gibson, R.L. and Mitchell, M.H., Introduction to Counseling and Guidance (6th Ed), Pearson Education.

2. Rai, A and Asthana, M., Guidance and Counseling (Concepts, Areas and Approaches), New Delhi : Moti Lal Banarsi Das.

3. Woolfe, R., Dryden, W. and Strawbridge, S., Handbook of Counseling Psychology (2nd Ed.) London : Sage Publication Ltd.

PRACTICALS (Any Three)

1. Measuring the level life satisfaction
2. Measuring the level of Home Environment.
3. Assessment of Values
4. Assessment of Personality by Word Association Test
5. Measuring the level of Adjustment

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory+ Practical	Total
BOA614	**Geography (Geographical Thought)**	**C**	**Core Course (CC)**	**4**	**30**	**50+20**	**100**

Semester VI

Objects-

1. To give knowledge about teh concept of geographical thought.
2. To give knowledge about thoughts of various geographical thinkers as of British, German, American, Romans etc.
3. Trends of Moern Geography.

Unit - I

a. Definition and aims of Geogrpahy.

b. Evolution of Geograpical thought.

c. Major branches of Geography.

d. Beginning of classical Geography contribution of Greeks- Herodotus & Eratosthmes.

Unit - II

a. Contribution of Romans - Strabo & Plolemy.

b. Early medieval geography : contribution of Arabian Geographers (AI - Burini & Al-Idrisi)

c. Concept of Cultural landscape : Meaning & elements of Cultural landscape

d. Recent trends of modern geography.

Unit - III

a. Contribution of German schools of Geography Humboldt & Carl Ritter,

b. French Schools of Geography vidal de. la blache & Jean Brunhes

c. British School of Geography : Halford J. Mackinder.

d. American School of Geography : G. Tailor, Huntington.

Unit - IV

a. Dichotomies in Geography : Physical V/s Human Geography systemetic V/s Regional Geography.

b. Radicalism : Origin, salient features & objectives of Radical geography

c. Behaviourdism in Geography

d. Concepts of Cultural Ladnscape : Meaning & elements of cultural landscape.

Outcomes-

1. This paper will lead to the expansion of knowledge about various thoughts regarding geography.
2. Along with Indian thinkers, Student will touch the thinkings of world's thinkers.
3. Comparisions can be made about thinking of various thinkers.

Practical-

1. Aerial photographys : Introducation & development of Aerial Photographs, Identifications of Aerial photographs,
2. Development of Remote sensing, Advantages of remote sensing.
3. Remote Sensing: - Introductions, Development and Advantages of remote Sensing.

Suggested Readings:

1. डॉ एच.एम. सक्सेना, भौगोलिक चिंतन का इतिहास, हिन्दी ग्रंथ अकादमी, जयपुर 2016
2. कौशिक, एस.डी. : भौगोलिक चिंतन के सिद्धांत, रस्तोगी पब्लिकेशन्स, मेरठ।

Course Code	Course Title	Group	Course Category	Credit	CIA	Theory	Total
BOA 615	Jainology (जैन दर्शन और विज्ञान)	C	Core Course (CC)	4	30	70	100

सेमेस्टर– VI

उद्देश्य–

1. अध्यात्म और विज्ञान की जानकारी देना।
2. जैन जीवनशैली को समझाना।
3. नशा करने के कारण एवं निवारण समझाना।

इकाई – 1

अध्यात्म और विज्ञान

इकाई – 2

जैन दर्शन और परामनोविज्ञान

इकाई – 3

विज्ञान के संदर्भ में जैन जीवन शैली

तम्बाकू वर्जन

मद्यपान वर्जन

इकाई – 4

ईश्वरवाद, कर्मवाद, अनेकान्तवाद

जैन दर्शन और विज्ञान में परमाणु

उपलब्धियाँ–

1. अध्यात्म और किसान के समन्वय की समझ बढ़ेगी।
2. संयम प्रधान जीवनचर्या का विकास होगा।
3. नशामुक्ति की प्रेरणा मिलेगी।

पाठ्यपुस्तक / संदर्भ ग्रन्थः

1. जैन दर्शन और विज्ञान– प्रो. मुनि महेन्द्र कुमार, जैन विश्वभारती संस्थान, लाडनूँ
2. अतीन्द्रियज्ञान– डॉ. बच्छराज दूगड़, के. जैन पब्लिशर्स, उदयपुर
3. कर्मवाद– आचार्यश्री महाप्रज्ञ, आदर्श साहित्य संघ, चुरू