

Semester – IV Core Open Elective Paper – III
Course Code – MJP 407
Health Management and Preksha Meditation-Yoga
Credit-4
Paper-V

Objectives:

- To describe the concept of health and Preksha Meditation.
- To recognize the important contribution of Preksha Meditation on Health Management

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.

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

- Principles of causative factors, symptoms and Preksha Meditation-Yogamanagement of Physical weakness, Gastritis, Back Pain, Insomnia, Psytica and Arthritis.

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

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

Unit-IV : Symptoms, causative factors and Preksha Meditation-YogaManagement of critical diseases

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

Semester – IV Core Open Elective Paper-II

Course Code – MJP 406 Dissertation

Credit-4

Objectives

- Dissertation should be based on syllabus.
- Dissertation should be according to the Research Methodology.
- Student may edit any short manuscript for dissertation.
- Dissertation may be on contemporary issues.
- Dissertation should carry at least 60 to 80 typed pages
- Dissertation should be submitted in twocopies.

Outcomes:

- It will help students to know about Research Methodology.
- It will help them in further research work.
- It will increase their logical creative and scientific.

Semester – IV Core Elective Paper- IV
Course Code – MJP 404 Jain Cosmology
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)

Semester – IV Core Elective Paper-II

Course Code – MJP 403

Jain and Indian Philosophy

Credit-4

Objectives

- To study the general principles and the characteristics of Indian philosophy.
- To understand the brief outline of each religion so that the students can have a bird view of the Indian philosophy as a whole.

Unit-I :

- Nature of Reality – Vedanta, Bauddha, Jain Philosophy
- Nature of Soul – Jain, Bauddha, Sankhya
- Nature of Liberation – Jain, Bauddha, Sankhya, Vedanta

Unit-II :

- Cause and effect- Jain, Bauddha, Sankhya, Vedanta
- Nature of Vow (Vrat) - Jain, Bauddha, Yoga
- Nature of Matter- Sankhya, Nyaya, Jain Philosophy

Unit-III :

- Non-Violence- Jain, Bauddha, Mimansa, Vedanta
- Non-Possession- Jain, Bauddha, Yoga
- Nature of Anekant- Jain, Mimansa, Vedanta, Bauddha

Unit-IV :

- Nature of Meditation- Jain, Bauddha
- Nature of Deed (Karma)- Jain, Bauddha, Vedanta
- Nature of Valid Knowledge (Parmana)- Jain, Bauddha, Nyaya, Mimansa

Semester – IV Core Compulsory Paper-III**Course Code – MJP 402****Introduction to Asian Religions****Credit-4****Objectives**

- To understand the concept of Asian and Western Religions
- To describe the distinctive features of God, Word, etc. of different religions.

Unit-I : Nature of Religion

- Nature and importance of Religion
- Ancient Principles of origin of Religions
- Relation of religion with different Texts
- Religious consciousness and Religious Texts
- World religion and religious tolerance

Unit-II : Judaism and Christianity

- Judaism – God, Karma & Rebirth
- Judaism – Ethics
- Christianity – God, World
- Christianity – Asubh & Dukhbhog, Ethics

Unit-III : Islam and Zoroastrianism

- Islam – Allah
- Islam – Religious Responsibilities
- Zoroastrianism – God, Asubh & Dukhbhog
- Zoroastrianism – Nitishashtra

Unit-IV : Confucianism & Taoism

- Confucious – God, Human, Ethics
- Toaism – Introduction of Laotse, Basis of Taoism, Religion and Nature of Taoism, Other concepts, Ethics of Laotse.

Semester – IV Core Compulsory Paper
Course Code – MJP 401
Classics of Jain Philosophy - Saman Suttam
Paper II
Credit-4

Objectives

- To elaborate the concept of path of illumination.
- To explain the theory of Relativity.

Unit-I : Source of Illumination (Verse 1-191)

- Precepts on the Auspicious
- Precepts on the Transmigratory Cycles
- Precepts on the Religion
- Precepts on the Vigilance

Unit-II : Path of Liberation (Verse 192-587)

- Precepts on the Path of Liberation
- Precepts on Spiritual Realization
- Precepts on Obligatory Duties
- Precepts on Spiritual Progress

Unit-III : Path of Liberation (Verse 192-587)

- Precepts on Fundamental
- Precepts on Substance
- Precepts on Universe

Unit-IV : Theory of Relativity (Verse 660-756)

- Precepts on Non-absolutism
- Precepts on Valid Knowledge
- Precepts on View point
- Precepts on Installation

Semester – III Core Open Elective Paper-III**Course Code – MJP 309****Prakrit Abhilekh****Credit-4****Objectives**

- To know the importance of Inscriptions.
- To understand the meaning and studying style of inscriptions.

Unit-I :

- Development of Bhrami&KharostiLipi
- Chronological development of ancient inscriptions literature

Unit-II :

- Study of Prakrit Inscriptions
- Fifth inscription of Ashoka (Girnar, Sahabaajgadi and Dholi)

Unit-III :

- Seventh Pillar Inscription of Ashoka

Unit -IV :

- Hathigufa Inscription

Three Month Certificate Course in Prakrit Level-II**Course Code CCIP-104 Prakrit Literature****Paper- II**

होती

उद्देश्य

- जैनागम-बौद्ध-ग्रंथ आदि को पढ़ने की रुचि जागृत करना।
- जैन-साहित्य का सम्यक् अवबोध करना।
- सम्राट अशोक के धर्म-लिपियों में निहित सामाजिक नीतियों का ज्ञान करवाना।

इकाई-1 : प्राकृत गद्य सोपान

- विज्जाविहीणो नस्सइ,
- लोहस्स न अंतो

इकाई-2 : प्राकृत गद्य सोपान

- असंतोसस्स दोसो,
- कलहो विणास-कारणं,
- पाइय-अहिलेहाणि

इकाई-3 : उत्तराध्ययन

- नवम अध्ययन-नमि-पव्वज्जा,
- एकादश अध्ययन-बहुस्सुयपूया

इकाई-4 : द्रव्यसंग्रह सम्पूर्ण

Three Month Certificate Course in Prakrit Level-II

Course Code CCIP-103

Prakrit Grammar

Paper- I

उद्देश्य

- प्राकृत भाषा भगवान महावीर की देशना की भाषा है। अतः आगम के गूढ रहस्य का ज्ञान होगा।
- व्याकरण के अध्ययन से प्राकृत साहित्य पढ़ने की रुचि जागृत करना।

इकाई-1

1. हेत्वर्थ कृदन्त

- तुम् प्रत्यय-तुं (उं) तए
- सूत्र-65 से 70 (प्राकृत वाक्य रचना बोध)

2. सम्बन्धभूत कृदन्त

- क्त्वा प्रत्यय- (तुं, तूण, अ और तुआण)
- सूत्र-71-72 (प्राकृत वाक्य रचना बोध)

इकाई-2

- पूर्ण व्यञ्जन परिवर्तन
- सूत्र- 373 से 393 (प्राकृत वाक्य रचना बोध)

इकाई-3

- सस्वर व्यञ्जन आदेश
- सूत्र-435-445 (प्राकृत वाक्य रचना बोध)

इकाई-4

- प्राकृत स्वयं शिक्षक
- पाठ-26-50

Three Month Certificate Course in Prakrit Level-I**Course Code CCIP-102 Prakrit Literature****Paper- I****उद्देश्य**

- जैनागम-बौद्ध-ग्रंथ आदि को पढ़ने की रुचि जागृत करना।
- जैन-साहित्य का सम्यक् अवबोध करना।
- सम्राट अशोक के धर्म-लिपियों में निहित सामाजिक नीतियों का ज्ञान करवाना।

इकाई-1 : प्राकृत गद्य सोपान

- गिह-उववणं
- विज्जालयं
- कुडुम्बं
- पभायबेला
- गुण-गरिमा

इकाई-2 : प्राकृत गद्य सोपान

- दिण-चरिया
- सरोवरं
- लोअ-सरुवं
- वत्तालावं
- जीवलोओ
- अम्हाण पुज्जणीआ

इकाई-3

- वृहद् द्रव्य संग्रह (आचार्य नेमिचन्द्र सिद्धान्त प्रणीत)- प्रथमाधिकार (गाथा 1-27)

Three Month Certificate Course in Prakrit Level-I

Course Code CCIP-101

Prakrit Grammar

Paper- I

उद्देश्य

- प्राकृत भाषा भगवान महावीर की देशना की भाषा है। अतः आगम के गूढ़ रहस्य का ज्ञान होगा।
- व्याकरण के अध्ययन से प्राकृत साहित्य पढ़ने की रुचि जागृत करना।

ईकाई-I

- प्राकृत भाषा का स्वरूप एवं विकास
- प्राकृत व्याकरण की परम्परा
- स्वर, स्वर परिवर्तन
- व्यंजन-संयुक्तव्यंजन, असंयुक्तव्यंजन

ईकाई-II

- संधि
- लिंग विचार
- कारक-विभक्ति, उपपद विभक्ति

ईकाई-III

- धातु प्रक्रिया, धातु के प्रत्यय (वर्तमान भूत, भविष्य, आज्ञार्थक)
- धातुरूप-पठ, गच्छ, हो, णी/णे, लिह, हस, सय, भुंज, जिम, ठा, पिब।
- शब्दरूप-(पु.-देव, मुनि,साधु), (स्त्री.-माला, मति,वधु), (नपु.-वन, दधि,मधु)
- सर्वनाम शब्द-सर्व (तीनों लिंगों में)

ईकाई-IV

- प्राकृत स्वयं शिक्षक 1-25 पाठ, हिन्दी से प्राकृत, प्राकृत से हिन्दी
- प्राकृत भाषा प्रबोधिनी-अपठित प्राकृत अंश का हिन्दी, अपठित हिन्दी अंश का प्राकृत
(नोट-व्याकरण में सूत्रों को समाविष्ट नहीं किया गया है।)

Three Month Certificate Course in Sanskrit Level-II

Course Code CCIS-104

Sanskrit Literature

Paper- II

उद्देश्य

- संस्कृत भाषा की गहराई में उतारना।
- संस्कृत साहित्य के माध्यम से संस्कृत साहित्य के विभिन्न विद्याओं का ज्ञान करवाना।
- संस्कृत की प्राचीनता का अवबोध करवाना।

इकाई-1

1. पद्यभाग

- अश्रुवीणा (श्लोक 11 से 50)
- रघुवंशम् (प्रथम अंक 16 से 50)

इकाई-2

1. गद्यभाग

- शेमुषी (सम्पूर्ण)
- पञ्चतन्त्रम् (मित्र-सम्प्राप्ति-काक- कूर्म, मृग-मूषक कथा से प्राप्तव्यमर्थवर्णिक पुत्रकथा तक)

इकाई-3

1. नाटक

- स्वप्नवासवदत्तम् (प्रथम अंक)

इकाई-4

- छंद-वंशस्थ, द्रुतविलम्बित, मालिनी, प्रहर्षिणी, शार्दूलविक्रीडित, भुजंगप्रयात।
- अलंकार, रूपक, व्यतिरेक, अतिशयोक्ति अपहृति, विशेषोक्ति, स्वभावोक्ति, दृष्टान्त।

Three Month Certificate Course in Sanskrit Level-II

Course Code CCIS-103 Sanskrit Grammar

Paper- I

उद्देश्य

- संस्कृत व्याकरण पढ़ने की रुचि जागृत करना।
- व्याकरण के माध्यम से संस्कृत साहित्य पढ़ने की रुचि जागृत करना।
- संस्कृत-व्याकरण की गहराई को समझना।

इकाई-1

1. धातु-परिचय-अकर्मक धातु, सकर्मक धातु,
2. वाच्य परिचय

- कर्तृवाच्य
- कर्मवाच्य
- भाववाच्य

उपर्युक्त सभी वाच्यभेदों को सोदाहरण समझना।

इकाई-2

1. लिंगबोध

- पुलिंग
- स्त्रीलिंग
- नपुंसकलिंग

उपर्युक्त सभी लिंगों को नियमानुसार सोदाहरण समझना।

2. विशेष्य और विशेषण

- विशेष्य का स्वरूप
- विशेषण का स्वरूप और भेद प्रतिपादन

उपर्युक्त सभी विशेष्य और विशेषणों को सोदाहरण समझना।

इकाई-3

1. जिन्नत-परिचय

- जिन्नत का स्वरूप
- जिन्नत से भाव-कर्म रूप बनाना
- जिन्नत का प्रयोग

Three Month Certificate Course in Sanskrit Level-I

Course Code CCIS-102 Sanskrit Literature

Paper- II

उद्देश्य

- संस्कृत भाषा की गहराई में उतारना।
- संस्कृत साहित्य के माध्यम से संस्कृत साहित्य के विभिन्न विद्याओं का ज्ञान करवाना।
- संस्कृत की प्राचीनता का अवबोध करवाना।

ईकाई-1

1. पद्य भाग

- अश्रुवीणा (प्रारम्भ के 10 श्लोक)
- रघुवंशम् (प्रथम अंक के 15 श्लोक)

ईकाई-2

2. गद्य भाग

- शेमुषी (1-10 पाठ)
- पंचतंत्रम् (अपरीक्षितकारकम्, क्षपणक कथा से मत्स्य मण्डूक कथा तक)

ईकाई-3

3. नाटक

- अभिज्ञान-शाकुन्तलम् (चतुर्थ अंक)

ईकाई-4

4. छन्द

- अनुष्टुप, इन्द्रवज्रा, उपेन्द्रवज्रा, वसन्ततिलका, शिखरिणी

5. अलंकार

- अनुप्रास, उपमा, उत्प्रेक्षा, श्लेष, यमक

Three Month Certificate Course in Sanskrit Level-I

Course Code CCIS-101

Sanskrit Grammar

Paper- I

उद्देश्य

- संस्कृत व्याकरण पढ़ने की रुचि जागृत करना।
- व्याकरण के माध्यम से संस्कृत साहित्य पढ़ने की रुचि जागृत करना।
- संस्कृत-व्याकरण की गहराई को समझना।

ईकाई-1

1. वर्णपरिचय-स्वर, व्यंजन, सन्ध्यक्षर, ह्रस्व-दीर्घ-प्लुत भेद

- दैनिक जीवन - व्यवहार में प्रयोग योग्य संस्कृत शब्द और उनका प्रयोग।
- संज्ञा- टिसंज्ञा, उपधासंज्ञा, समानसंज्ञा, संयोगसंज्ञा, नामिसंज्ञा, सन्ध्यक्षर संज्ञा।

2. सन्धि व संधि-विच्छेद

- स्वरसंधि (यणसन्धि, अयादिसन्धि, गुणसन्धि, वृद्धिसन्धि, दीर्घसन्धि)।
- व्यंजन सन्धि।
- विसर्ग सन्धि।

उपर्युक्त सभी संधियों को सोदाहरण समझना।

ईकाई-2

1. कारक-प्रकरण

- कर्ता कारक
- कर्म कारक

Three Month Certificate Course in Jain Agam

Course Code CJA-102

Jain Digamber Aagam

Paper- II

Objectives

- To assess the role of Jain Canons.
- To describe the concept of soul and re-birth.
- To elaborate the main characteristics of Jain Canonical literature in both traditions.

Unit-I : Introduction of Digamber Jain Canonical Literature

- To know the significance and application of Vastu.
- Origin and Development of Jain Canonical Literature
- Digambr Jain Canonical Literature
- Introduction of Acharya's ie. Acharya Dharsena, Bhutwali and Pushpadanta, Acharya Kundakunda, Acharya Shivarya and Acharya Vattakera

Unit II : Subject-matter of *Samaysar* with Commentary, (Verse 1 to 38 with commentary)

- Introduction of Samaysar
- *Mangalacharan* and its importance
- Concept of Naya

Unit III : Subject-matter of *Samaysar* with Commentary, (Verse 39-68 with commentary)

- Nature of Jiva and Ajiva
- Relation between Jiva and Ajiva
- Nature of Pure Soul

Unit IV : Subject matter of Bhagwati Aaradhana, (Verse 01-29 with commentary)

- Nature of Aaradhana
- Types of Aaradhana
- Nature of Dying (Maran)
- Types of Dying (Maran)

Three Month Certificate Course in Jain Aagam

Course Code CJA-101

Jain Shvetamber Aagam

Paper- I

Objectives

- To know the importance and relevance of studying Jain Aagam.
- To trace the difference of Swetamber and Digamber Agams.

Unit-1 : Introduction of Aagam (Canon)

- General Introduction of Aagam : Anga, Upanga, Mulasutra, Chedsutra .
- Commentaries on Aagam : Niryukti, Bhasya, Churni, Tika
- Aagam Vacana

Unit-2 : UttaradhyanSutra :Chapter - 3 (Verse 1-20)

- Rarity of Human Life
- Rarity of Dharma Shravan
- Rarity of Faith
- Rarity of Restraint - Effort

Unit-3 : UttaradhyanSutra : Chapter - 28 (Verse1-36)

- Nature of Liberation
- Right Faith
- Right Knowledge
- Right Conduct
- Right Penance

Unit-4 : UttaradhyanSutra : Chapter - 29 (Verse1-25)

- Basis of Dharma: Samvega, Nirveda, Dharmashraddha and Shusrusa
- Beginning of Dharma: Alochna, Ninda, Garha, Prayashchitta, Kshama
- Six Essentials : Samayika, Chaturvinshati Stava, Vandana, Pratrikraman, Kayotsarga, Pratyakhyan
- Swadhyaya: Vachana, Prichhana, Parivartana, Anupreksha, Dharmakatha, Shrutaradhana, Kaalpratilekhna

**Three Month Certificate Course in
Jain Religion & Philosophy
Course Code CJR-102
Jain Philosophy
Paper- II**

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 Jain Principle.

Unit-I : Jain Metaphysics

- Nature of Sat (Reality)
- Concept of Quality and Mode (Guna and Paryaya)
- Six Substance
- Jain Cosmoa (Loka)

Unit- II : Jain Principle

- Anekantvad
- Syadvad- Saptbhangi
- Nayavad
- Nikshep

Unit-III : Jain Epistemology & Logic

- Mati Gyan, Shrut Gyan
- Avadhi Gyan, Manah Prayav Gyan
- Keval Gyan
- Jain Logic- Pramana, Prameya, Pramiti, Pramata

Unit-IV : Jain Spiritual Practices

- Karmavad
- Gunasthan
- Leshya
- Dhyana

Three Month Certificate Course in Jain Religion & Philosophy

Course Code CJR-101

Jain Religion

Paper- I

Objectives

- To know the importance and relevance of studying Jain history.
- To trace the evolution of Jainism art and architecture over the years.
- To recognise the Jain festivals and rituals.
- To discuss the role and impact of Jain Principles.

Unit-I : Jain History

- Antiquity of Jainism
- Lord Rishabh
- Lord Mahavira
- Time Cycle

Unit –II : Jain Literary Work

- Jain Canonical Counselling
- Introduction to Jain Agam
- Introduction to Jain Canonical Commentaries
- Introduction to Digamber Agam Sahitya
- Jain Religion in India and Abroad

Unit- III : Jain Ethics

- Jain Way of Life
- Nine Categories of Truth
- Twelve Vows of Lay Follower
- Anuvrata Movement
- Preparation of Peaceful Voluntary Death (Santhara)

Unit- IV : Jain Culture

- Jain festivals
- Jain Pilgrimages
- Jain Art

Three Month Certificate Course in Vastu**Course Code-CJV 102****Energetic Study in Vastu****Paper-II****Objectives**

- To know the significance and application of Vastu.
- To follow the Vastu for eradicating problems in their life.

Unit-I : Energy location according to Vastu

- Nature of Architectural energy
- Difference of Architectural energy
- Positive energy and construction work
- Negative energy and construction work
- Importance of Science of Energy

Unit-II : Treatment according to Vastu

- Air treatment method
- Light treatment method
- Beauty treatment method
- Artistic treatment method

Unit-III : Relation of Vegetation to Vastu

- Relationship of Vegetation and Vastu
- Knowledge of Direction in Vegetation and Vastu
- Vegetation and Effect of Vastu
- Vegetation and Treatment by Vastu
- Knowledge of Beneficial Vegetation

Unit-IV : Experimental Knowledge

- Determination of Knowledge of Energy
- Knowledge and Treatment of Vastu Dosha
- Relationship of Vegetation and Vastu
- Vastu and Therapy

Three Month Certificate Course in Vastu

Course Code-CJV 101 Basic Vastu

Paper-I

Objectives

- To know the significance and application of Vastu.
- To follow the Vastu for eradicating problems in their life.

Unit-I : The Origin and Development of Vastu Shastra

- The Origin and Development of Vastu Shastra
- Introduction of Vastu in Vedic Period
- Introduction of Vastu in Puran Period
- Principal and Founder Acharya of Vastu Shastra
- Types of Vastu

Unit-II : Commercial and Residential Vastu

- Nature of Commercial Vastu like shop, showroom, hospital, etc.
- Architectural Precautions in Residential Construction
- Essential Architectural Aspects in Commercial and Residential Construction
- Explanation of Architectural Aspects in Commercial and Residential Construction
- Importance of Knowledge of Vastu

Unit-III : Artistic Vastu

- Nature of Artistic Vastu
- Types of Artistic Vastu
- Religious Site Construction and Vastu
- Sculptural and Architectural Defects and Prevention
- Importance of Artistic Knowledge of Vastu

Unit-IV : Practical Knowledge

- Nature of Vastu
- Nature of Planet Vastu, Commercial Vastu, Religious Vastu and their mutual Difference
- Knowledge of Construction on Land according to Vastu
- Application of Vastu according to Location

Three Month Certificate Course in Jyotish
Course Code-CJJ 102 Predictive Astrology
Paper -II

Objectives

- To know the importance and relevance of Astrology.
- To solve day to day problems through Astrology.

Unit-I : Classification of Zodiac Signs and the Zodiac in Horoscope

- Relation between Horoscope and Zodiac Signs
- Status of the Zodiac Signs in the Horoscope
- Related Various Zodiac in Horoscope like Lagna Chakra, Rashi Chakra, Chalit Chakra, Sapta mans Chakra, Navmansh Chakra, Sudarshan Chakra, Hora Chakra

Unit-II : Study and Effect of Dasha of Navagraha

- Nature of Graha dasha
- Relation between Graha and Its Dasha
- Perception and Kaal Ganana of Mahadasha
- Influence of Dasha on the basis of Horoscope
- Utility of Dasha Gyan

Unit-III : Effect of Nakshatra on Horoscope

- Nature of Nakshatras
- Location and Nature of Nakshatras in Horoscope
- Types and Sub Types of Nakshatras
- Effect of Nakshatras on Horoscope and Prevention of Defects
- Importance of Nakshatra Science

Unit-IV : Practical Knowledge

- Determination of Varga in Horoscope
- Sequence and Year of Dasha of Planets
- Creation of Kundali by Panchang
- Knowledge of Formation of Horoscope by Date of Birth by Lagnakundli

Three Month Certificate Course in Jyotish**Course Code—CJJ 101 Basic Astrology****Paper –I****Objectives**

- To know the importance and relevance of Astrology.
- To solve day to day problems through Astrology.

Unit-I : Origin and Development of Astrology

- Nature of Astrology
- Development of Astrology in the Ancient Period
- Development of Astrology in the Middle Ages
- Development of Astrology in the Modern Period
- Development of Western Astrology

Unit-II : Nature and Influence of Navagrahas

- Nature and Form of Planets
- Rotation of Planets and their Motion
- Signs of Planets and their Natural Qualities
- Effect of Planets Based on the Horoscope
- Usefulness of Planetary Knowledge

Unit-III : Astrological Interpretation of Zodiac signs

- Nature of Zodiac Signs
- Behavior of Zodiac Signs
- Knowledge of Formation of Horoscope
- Study of the Twelve Bhavas of Horoscope
- Significance of Zodiac Science

Unit-IV : Practical knowledge

- Zodiac Science in the body and Its Determination
- Knowledge of the Nature of the Navagrahas
- Factors and role of Navagrahas
- Owners of Zodiac Signs
- Friends and Enemies of Zodiac Signs

Semester – IV Core Open Elective Paper - I**Course Code – MJP 409****Science and Spirituality in Jainism****Credit-4****Paper-V****Objectives:**

- To understand the concept of science in Jainism
- To discuss spirituality in Jain Concepts

Unit-I : Concept of matter in Jainism and Science

- Introduction to matter
- Characteristics of matter
- Theory of atoms
- Matter and Energy

Unit-II : Jain Biology

- Characteristic of Life
- Classification of living beings

Unit-III : Jain Botany

- Jain Botany
- Biologist vis a vis Scriptures

Unit-IV : Scientific Interpretations of Jain doctrines

- Jain cosmology (scientific interpretations)
- Time and Space in Jainism & Science
- Concept of Direction

Semester – IV Core Open Elective Paper-III
Course Code – MJP 408 Research Methodology
Credit-4

Objectives

- To understand the concept of Research and its various types.
- To understand the role and impact of research in human life.

Unit-I : Introduction of Research

- Nature of Social Research
- Descriptive Research
- Data Collection
- Research Problem
- Hypotheses

Unit-II : Types of Research

- Psychological Research
- Experimental Research
- Historical Research
- Methodological Research
- Action Research
- Field Research

Unit-III : Method of Research

- Scientific Method
- Observation Method
- Interview Method
- Questionnaire

Unit-IV : Design of Research

- Synopsis writing
- Report writing
- Data collection
- Data analysis
- Conclusion
- Bibliography
- Footnotes
- Endnotes

Semester – I Core Elective Paper- I**Course Code – MJP 104 Religious Classics of Jainism****Credit-4****Objectives**

- To know the importance and relevance of studying Jain history.
- To trace the evolution of Jainism art and architecture over the years.
- To recognise the Jain festivals and rituals.
- To discuss the role and impact of Jain Principles.

Unit– I : Introduction to Jain Literature

- Introduction to Jain Canons
- Introduction to Jain Canonical Commentaries
- Jain Canonical Counselling

Unit-II : Jain Canon : Acharanga (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

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 (Jain Acara Mimamsa)
- Origin and development of the principles of Jain Ethics
- Twelve Vows of a Lay-follower
- Eleven kinds of intensive discipline (Pratima)

Unit-II : Code of Conduct of Ascetics (Shramanachar)

- Five Great Vows (Mahavrata)
- Five Comportments and Three Controls (5 Samitis & 3 Guptis)
- Six Essentials (Shadavashyaka)
- 22 Types of Hardships (Parishaha)

Unit-III : Four fold Society (Sangha)

- Four fold Society Management (Sangha Vyavastha)
- Nine categories of Truth (NineTattva)

Unit-IV: Compassion & Art of Dying

- Importance of compassion and its types
- Anukampa ki chaupayi (Meaning)
- Art of Dying in Jain Tradition (Samlekhana)
- Art of Dying in Jain Tradition (Santhara)

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 : Nature of Substance

- Nature of Sat (Reality)
- Concept of Guna and Paryaya (Quality and Mode) and its types
- Relation in Dravya, Guna and Paryaya (Substance-Quality and Mode)
- Nature of Cosmos

Unit-II : Types of Substance

- Nature of Dharmastikaya (Medium of Motion)
- Nature of Adharmastikaya (Medium of Rest)
- Nature of Akashastikaya (Space)
- Nature of Kala (Time)

Unit-III : Nature of Jiva

- Jivastikaya in Jain Philosophy
- Atma (Soul) in different philosophies
- Sadjivanikaya (Six Living Entity)

Unit-IV: Matter and Atom

- Pudgalastikaya (Matter)
- Pudgala : Classification
- Nature of Atom (Paramanu) and its process of fusion
- Synthesis of Atoms into composite bodies and its process

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

- Jainism in Pre-historical Age
- Lord Rishabh
- Lord Arishtanemi
- Lord Parshva
- Lord Mahavira

Unit-II : Jain History

- The Other Ideologies in the period of Lord Mahavira
- Gandhara's Tradition of Lord Mahavira
- Jain Religion in South India
- Jain Religion in North India
- Jain Religion in Abroad

Unit-III: Jain Culture

- Characteristics of Jain Culture
- Revolutionary thinking and view point of Mahavira
- Non-violent way of Jain life (in context of food)
- Why Vegetarianism?

Unit- IV: Jain Culture

- Jain Pilgrimages
- Jain Rituals
- Special features of Jain festivals
- Jain Festivals

Semester – III Core Open Elective- II
Course Code – MJP 308
Environmental Ethics and Sustainable Development
Credit-4
Paper- V

Objectives :

- To provide moral grounds for social policies aimed at protecting the earths environment
- To reduce negative impacts on the environment by promoting green business practices, reducing waste and emissions

Human Ecology

- Man : Environment relationship, Hunting and food gathering period, Domestication of animals and pastrolism, Domestication of Plants and agriculture period, science, technology and Industrial period, changing human nature and future of men.

Factors of Environmental Degradation

- Industrialisation, Deforestation, Urbanisation.Over population, Energy crisis, Techological Hazards, Exploitation of Resources.

Environmental Ethics

- Religious Perspective : Vedic, Buddhist, Jain and Gandhian

Environmental Movements

- Chipko, Appiko, Save Narmada, Tihri Dam.

Semester – III Core Open Elective- I**Course Code – MJP 307****Contemporary Indian Philosophy****Credit-4****Paper- V****Objectives :**

- To trace the rise of philosophy.
- To appreciate the efforts of the contemporary philosophers to make their society enlightened.

Unit- I :

- 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

Semester – III Core Open Elective Paper-II

Course Code – MJP 306

Jain Philosophy of Language

Credit-4

Objectives

- To recognize 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
- Sentencemeaning

Unit-II :

- Origin of Language
- Types of Language
- Philosophy of Language in Avashyak Nirukti [Verse 5-11 with commentary]

Unit-III :

- Philosophy of Language: Jain, Indian and Western perspective
- Philosophy of Word: Jain Perspective
- Philosophy of Sentence: Jain Perspective
- Word Meaning on the basis of Naya and Nikshepa

Unit-IV :

- Sphotavada and its Criticism
- Apohavada and its Criticism
- Abhihitavayavada and its Criticism
- Anvitavayavada and its Criticism

Semester – III Core Elective Paper-III**Course Code – MJP 305****Western Logic****Credit-4****Paper IV****Objectives**

- To get acquainted with Western Logic
- To solve the Philosophical queries in systematic way

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

Semester – III Core Elective Paper-II**Course Code – MJP 304****Indian Logic****Credit-4****Paper IV****Objectives :**

- To familiarize learners with various aspects of the Indian logic.
- To acquaint learners with the contribution of direct and indirect knowledge in Indian

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

Semester – III Core Elective Paper-III**Course Code - MJP 303****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, Consciousness 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

Semester – III Core Compulsory Paper
Course Code – MJP 302
Anekantvada, Syadvad and Saptabhangi
Credit-4
Paper II

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

- Concept of *Anekant*
- Concept of *Syadvada* and *Saptabhangi*
- Concept of *Naya* and its types
- Concept of *Nikshape* and its types

Unit II : Historicity of Anekantavada I

- Concept of *Anekanta* in Different Schools
- Historical Development of concept of *Naya*
- Historical Development of *Anekanta* and *Syadvada*
- Contribution of *Acharya Siddhasenato Jain Philosophy*

Unit III : Aspect of Anekantavada II

- Identity-cum-difference of Soul and Matter
- General and Particular Nature of an object
- Four-dimensional Approach of Knowing Reality : Substance, Space, Time and Mode
- Wider Applications of *Anekant*.

Unit IV: Saptabhangi (Seven fold predication)

- Doctrine of Sevenfold Predication and its types.
- Eightfold Criteria of *Naya* and *Pramana Saptabhangi*
- Why only Sevenfold Predication
- *Svarupa* and *Pararupa* of an Object

Semester – III Core Compulsory Paper**Course Code – MJP 301 Jain Logic****Credit-4****Paper -I****Objectives:**

- To trace the evolution of Jain logic.
- To recognize the contribution of Acharaya Hemachandra for the development of Jain logic
- To point out the important components of Jain logic.

Unit I: Introduction to Logic

- Origin and Development of *Nyaya*
- Introduction of Jain *Nyaya*
- Source of *Nyaya*

Unit II: Introduction to Text

- Introduction of Author
- Contribution of Jain Acharya to Jain Logic

Unit III: Components of Jain Logic [text based]

- *Pramana* (Organ of valid Knowledge)
- *Pratyaksh*
- *Paroksh*

Unit IV: Components of Jain Logic [text based]

- *Prameya* (Object of Knowledge)
- *Pramiti* (Knowledge of object)
- *Pramata* (Knower)

Semester – I Core Open Elective Paper-I**Course Code – JVB 206****Non-Violence & Peace****Credit-4****Objectives**

- To study the concept, types and impact of Non-violence in their day to day activities.
- To trace the techniques of Anekant and its impact on human nature relationship.

Unit-I : Violence: Concept, Types and Impact

- Non-violence : Philosophical and Historical Interpretation
- Applied aspect : Training in Non-violence

Unit-II : Conflict : Cause, Forms and Impact

- Conflict Resolution-Diplomatic, Gandhian and Anekantic Techniques

Unit-III : Human Nature Relationship

- Environmental Problems
- Ethical Aspects

Unit-IV : World Peace

- Threat to Global Peace
- Initiative For Peace Making

Semester – II Core Open Elective Paper**Course Code – JVB 205****The Use of English****Credit-4****Paper V****Objectives:**

- The Use of English is a course designed to familiarize the students with basic tenants of English
- To know Engliag 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.)

Semester – II Core Open Elective Paper
Course Code – JVB 204
Preksha Meditation and Self Management

Credit-4

Paper V

Objectives

- To understand Preksha Meditation.
- To intimate self management Course

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 Dhyana*): 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.

Semester – II Core Open Elective Paper**Course Code – JVB203****Informational Technology and Computer Application****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

Semester – II Core Open Elective
Course Code – JVB 202
Value Educations and Spirituality
Credit-4

Objectives

- To understand the need of value oriented education.
- To understand the process of contemplation for value development.
- To understand the non-violence and culture of peace.
- To understand the cardinal principles of Jainism.

Unit-I : Value Education

- Challenges of Modern Education system and need of value education.
- Values-meaning, definitions, different views and classifications of values.
- Social duties, Responsibilities and Human Rights.

Unit- II : Socio Ethical Life Style:

- Social Ethics and Jain Concepts.
- Panch Mahavrat- Ahimsa, Satya, Acharya, Bmrahmcharya & Aparigraha.
- Tri Ratna- Samyak Darshan, Gyana & Charitra.
- Anekantvada

Unit-III : Development of Social Harmony.

- Peace and Its Relevance in social harmony.
- Social Harmony through Conflict Management.
- Training in Non-violence.

Unit-IV: Enhancement of Values in behavior-

- Development of Moral Values: Contemplation of honesty, self-discipline and Non-violence
- Contemplation of mental balance, will power and patience for development of mental values.
- Development of Emotional & Spiritual Values.

Semester – II Core Open Elective Paper-II
[From Dept. of Prachya Vidya evam Bhasha]
Course Code – JVB 201
Introduction to Prakrit
Credit-4

Objectives

- To trace the origin and development of Prakrit.
- To study the basic features of Prakrit on the basis of Uttarajjhayanani text.

Unit-I :

- Uttarajjhayanani - Chapter 1 Verse (1-20)

Unit-II :

- An Introduction to Prakrit language
- Origin and development of Prakrit, general features of Prakrit. (Magdhi, Ardhamagadhi, Shaurseni, Maharastri and Apabransha)

Unit-III :

- Uttarajjhayanani - Chapter 1 Verse (25-48)

Unit-IV :

- History of Prakrit literature.
- Agama of Shwetamber and Digamber
- Prakrit Poetry (Mahakavya, Khandkavya, Ittihasik kavya)
- Narrative and Featured Literature (Katha evam Charit Sahitya)
- Prakrit and Champu Literature
- Prakrit Satak and Prakrit Grammar Literature

Semester – II Core Open Elective Paper-III**Course Code – MJP 206****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)

Semester – II Core Elective Paper-III**Course Code – MJP 205****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

Semester – II Core Elective Paper-I**Course Code – MJP 203****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

- Nature of Jain Yoga
- Haribhadra's Eight Drishtis
- Nature of Meditation
- Salamban Dhyan and Dharna

Unit-II : Preksha Meditation

- Nature of Preksha Meditation
- Canonical source of Preksha Meditation
- Anupreksha
- Leshya and its types

Unit-III : Patanjali Yoga

- Nature of Yoga-Chitvritti Nirodha
- Sampragyaat and Asampragyaat Samadhi
- Kriyayoga
- Ashtanga Yoga

Unit-IV: Buddha-Yoga Philosophy

- Concept of Buddhist Samadhi
- Ten Palibodh and Charya
- Subject of Meditation (Karmasthan)

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

- Nature of Karma
- Theory of Karma in Indian Philosophy
- Comparison of Karma theory in Jain philosophy and other philosophies
- Causes of bondage of Eight Karmas and Process of Bondage
- Importance of Jain Theory of Karma

Unit-II : Types and Sub- Types of Karma

- Types and Sub- Types of Karma
- Materiality of Karma
- Ten Stages of Karma
- Mutual Relation between Soul and Karma & Process of Liberation

Unit-III : Theory of Karma

- Theory of Karma and Spiritual Meditation (Sadhana)
- Concept of Karma on the basis of Psychology

Unit-IV: Theory of Gunasthana

- Karma Theory and Rebirth
- Five Samvaya (Concomitance)
- Gunasthana

Semester – II Core Compulsory Paper-I**Course Code – MJP 201****Jain 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 the Epistemology
- Gyan (Knowledge) and Gyeya (Object of knowledge)
- Nature of Darshan (Faith) and its types

Unit-II : Indirect Knowledge

- Shrutnishrit Mati Gyan (Perceptual Knowledge)
- Asrutnishri Mati Gyan (Perceptual Knowledge)
- Types of Shrut Gyan (Articulate Knowledge)
- Utkalika and Kalika Shrut

Unit-III: Direct Knowledge

- Physical and Pshychic senseorgan
- Characteristics and function of Mind
- Subject of Avadhi Gyan (Clairvoyance)
- Types of Clairvoyance
- Main Scope of Clairvoyance

Unit-IV: Direct Knowledge

- Rijumati and Vipulmati Manah paryaya (Mind Reading)
- Eligibility of Mind Reading
- Difference between Avadhi Gyan and Manah paryaya Gyan
- Types of Keval Gyan (Omniscience)

Semester – I Core Foundation Paper-I**Course Code – JVB 101****Jain Culture and Life Value****Credit-4****Objectives:**

- To understand the importance of study of Jain history.
- To know about the Jain principles.
- To interpret about the science of living and value based education.

Unit-I : Jain History and Culture

- Antiquity of Jainism
- Tirthankar Lord Rishabha and Mahavira
- Jain Religious Schools, Orders and Sects
- Characteristics of Jain Culture

Unit-II : Jain Ethics and Metaphysics

- Three Jewels (Ratnatraya)
- Code of Conduct of Ascetics (Shramanachar) and Householder (Shravakachar)
- Jain way of Life
- The Nine Truths
- Six Substances
- Cosmology : Jain Perspective

Unit-III : Science of Living and Value Development

- Science of Living a new way of Education
- Seven Parts of Science of Living
- Science of Living and Value Development
- Non-violence and its training
- Non-absolutism and its application
- Anuvrat Movement and Morality

Unit-IV: Preksha Meditation and Management

- Aim and Objective of Preksha Meditation
- Time Management
- Goal Management

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 *Anuyogadwar*

- *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]

प्राकृत
एम.ए. सेमेस्टर-तृतीय
ऐच्छिक पत्र (ELECTIVE PAPER)
PAPER CODE - PKT 310
(समूह-ल)

त्रयोदश पत्र : पाठ-सम्पादन, अनुवाद, वर्तनी-शुद्धि एवं पाण्डुलिपि पठन विधि

क्रेडिट-4

पूर्णांक : 100 (70 लिखित परीक्षा + 30 CIA)

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, व्याख्यानवाद) 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-ग्रन्थ:-

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-तृतीय
अनिवार्य पत्र (CORE PAPER)
PAPER CODE - PKT 303
द्वादश पत्र : शोध-प्रविधि एवं पाण्डुलिपि विज्ञान
क्रेडिट-4

पूर्णांक : 100 (70 लिखित परीक्षा + 30 CIA)

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-सामग्री, लेखन-सामग्री एवं पाण्डुलिपियों का रख-रखाव

इकाई-4:

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

सहायक संदर्भ ग्रन्थ (Suggested 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
3. सामान्य पाण्डुलिपि विज्ञान- डॉ. महावीरप्रसाद शर्मा, अपभ्रंश साहित्य अकादमी जैनविद्या संस्थान, दिगम्बर जैन अतिशय क्षेत्र श्री महावीरजी राजस्थान, 2003
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 (70 लिखित परीक्षा + 30 CIA)

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 शास्त्र

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 तत्त्व 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 एवं द्वितीय अंक

इकाई—4:

नाट्यशास्त्र (भरत मुनि विरचित) (षष्ठ अध्याय)

संदर्भ ग्रन्थ

1. उत्तररामचरित, रमाशंकर त्रिपाठी, कृष्णदास अकादमी, वाराणसी, 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 जानकारीयों 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, ग्रेफिक्स) की व्यवस्था और फोटो पत्रकारिता।
- ♦ समाचार के विभिन्न स्रोत।

इकाई तृतीय :

- ♦ सवांददाता की अर्हता, श्रेणी एवं कार्यपद्धति।
- ♦ पत्रकारिता से संबंधित लेखन—संपादकीय, फीचर, रिपोर्टाज, 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 व 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 छाया अनुवाद
पूर्ण और आंशिक अनुवाद आशु अनुवाद
व्यावहारिक अनुवाद (प्रश्नपत्र में दिये गए अंग्रेजी अवतरण का हिन्दी अनुवाद)

Semester-IV
(ELECTIVE PAPER)
प्रश्न-पत्र-XVII
MAH-407-इंटरनेट 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

CORE COMPULSORY PAPER

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 and Conflict, Development and Civilization, Sage, 1996

CORE COMPULSORY PAPER
SEMESTER-IV

PAPER-V

NVP-405: Peace Ambassador

A. Indian Ambassador

Gandhi, Vinobha, Acharya Tulsi, Jaiprakash Narayan, Sunderlal Bahuguna, Anna Hazare,

B. International Ambassador

Martin Luther King (Jr.), Henry David Thoreau, Gene Sharp and Malala Yousafzai.

Books :-

1. Conquest of Violence, The Gandhian Philosophy of Conflict, Joan. V. Bondurant, Berkeley and Los Angeles, University of California Press, 1967
2. Chipko : India's Civilisational Response to the Forest Crisis, Vandana Shiva, Jayanto Bandhyopadhyay, INTACH, New Delhi, 1986
3. Exploring Gandhi, Manmohan Choudhary, The Gandhi Peace Foundation, New Delhi, 1989
4. Gandhi and Gandhism, B.P. Sitarammaiyya, Kitabistan Allahabad, 1942
5. Gandhi and the Nuclear Age, Arne Naess, The Bed, Minister Press, Tatawa, 1965
6. Gandhi the Man, Ednath Easwaran, Nilgiri press, Box 477, Petaluma, California 94953, 1978
7. Ladnun Declaration, Anuvrat Global Organization, Bajaj Nagar, Jaipur, 1989
8. Marx, Gandhi and Socialism, Ram Mnohar Lohia, Rammanohar Lohia Samta Vidyalaya Nyasa, Hyderabad, 1973
9. Politics of the J.P. Movement, R. Barik, Radiant Publishers, New Delhi, 1977
10. Peace Has No Alternative, M.S. Gorbachev, Patriot Publishere, New Delhi, 1986
11. Selected Works of Jaiprakash Narayan, Asia Publishing House, London, 1964
12. Selection From Vinobha, Vishwanath Tandon, Sarva Seva Sangh Prakashan, Rajghat, Varanasi, 1981
13. Stride Towards Freedom, Marthin Luther King Jr., Victor Gollancz Ltd., London, 1959
14. Vinobha and his Mission, Suresh Ram Akhil Bharati Sarva Sangh, Rajghat, Kashi (India), 1962
15. War without Violence, K. Shridharani, Bartiya Vidya Bhawan, Bombay, 1962.

Semester-I
(Paper-IV)
POL-104 राजनीतिक शासन प्रणाली (Political Governance Systems)

Unit- I

- ♦ राज्य निर्माण व संविधानवाद (State-building and Constitutionalism)
- ♦ संजातीयता राजनीति तथा राज्य (Ethnicity Politics and State)
- ♦ समुदाय पहचान की राजनीति (Politics of Community Identities)
- ♦ संजातीय आन्दोलन (Ethnic Movements)

Unit- II

- ♦ राजनीतिक शासन प्रणाली (Political Regime)
- ♦ नौकरशाही (Bureaucracy)
- ♦ राजनीति में सेना (Military in Politics)
- ♦ संघवाद : प्रतिमान और प्रवृत्तियां (Federalism: Patterns and Trends)

Unit- III

- ♦ राजनीतिक दल एवं दलीय पद्धति (Political Parties and Party System)
- ♦ हितवद्ध समूह, दबाव (प्रभावक) समूह तथा लॉबिंग (Interests Groups, Pressure Groups and Lobbying)
- ♦ निर्धनता व मानव-विकास (Poverty and Human Development)
- ♦ सामाजिक लिंग भेद और विकास (Social Gender and Development)

Unit- IV

- ♦ पर्यावरण (Environment)
- ♦ विज्ञान, प्रौद्योगिकी और राजनीति (Science, Technology and Politics)
- ♦ विकेन्द्रीकरण तथा सहभागिता (Decentralisation and Participation)
- ♦ मानवाधिकार (Human Rights)

Reference Books:-

1. Jain, Pukraj –Comparative Government and Politics, Sahatiya Bhawan Agra
2. Gena, C.B.- Comparative Politics, C.B.H, Jaipur
3. Gauba, Om Prakash – An Introduction to Comparative Politics-Mayur Publishing, New Delhi

Public Administration in India (POL 205)

(Core Elective)

Unit-1

Evolution of Indian Administration
Principle of Organization
Definition, Nature, Scope & Significance of Public Administration
Major Issues in Indian Administration

Unit-2

Personnel Administration: Bureaucracy: Meaning and Types, Civil Services in India: Recruitment, Training and Promotion of Public Personnel; Generalists and Specialists: The Changing Relationship; Public Service Commissions: Union and State
Financial Administration: Basic Concepts: Meaning and Scope; Budget and types of Budgets: Performance budgeting and Zero-based budgeting; Budgetary Processes in India; Centre-State Financial Relations; Comptroller and Auditor General, Finance Commission

Unit-3

Administrative Culture & Administrative Reforms
Corruption & Grievance Redress System

Unit-4

Public and Private Administration
Public Governance- Challenges before Good-Governance, E-Governance
Information Technology & Administration

Books Recommended:

1. S. R. Maheswari: Evolution of Indian Administration.
2. S. R. Maheswari: Indian Administration.
3. R. K. Arora: The Indian Administrative System.
4. C. P. Bhambri: Public Administration.
5. A.p. Motiwal: Changing aspect of Public Administration.
6. R. B. Jain: Contemporary Issues in Public Administration.

Core Elective
Semester –IV
PAPER II
POL-405: Research Methodology

- Unit I Nature of Social Research: Definition, scope, goals and limitations of Social Research
Major steps in Social Research
Scientific Method: The nature and aim of Scientific Method; Applicability in Social Sciences.
- Unit II Techniques of Data Collection: Observation, Questionnaire and Scheduled, Interview
Case Study method.
- Unit III Data Analysis and Presentation: Coding, Tabulation, Interpretation; General principles and techniques of Scaling; Techniques of Report Writing: Organizing paragraphs, chapters, footnotes, references, bibliography: Rules of Citing and Quotations.
- Unit IV Sampling and Statistical Techniques: Meaning, uses, and types of Sampling; Basic Statistics; Frequency, Distribution, Average (Mean, Mode, Median) Measures of Variability (Mean Deviation and Standard Deviation); Correlation.

Recommended Readings -

1. Allen, Edwards : Statistical Methods for the Behavioral Scientists
2. Cohen, Morris and Nagel, Ernest : Introduction of Logic and Scientific Method
3. Dahl, Robert : Modern Political Analysis
4. Dorndusoh and Sohmid : A Primer of Social Statistics
5. Downio and Health : Basic Statistical Methods
6. Goode and Hatt : Methods in Social Research
7. Jahoda and others : Research Methods in Social Science
8. Madge, John : The Tools of Social Sciences
9. P.V. Young- Scientific- Social Survey & Research.
10. Sharma, C.L. सामाजिक अनुसंधान एवं सांख्यिकी- राजस्थान ग्रंथ अकादमी, जयपुर

CORE COMPULSORY PAPER

SEMESTER-IV

Paper-III

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 warming, Sea level rise, ozone depletion.
2. Man Made Disasters- Nuclear 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 migrate natural disaster at national and global levels. International strategy for disaster reduction. Concept of disaster management, national disaster management framework, Financial arrangements
4. Role 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.

Department of Education
Jain Vishva Bharati Institute

Agenda of Academic Council

As per the Notification no JVBI/2017/128, Dated 12-04-2017 Academic Council of JVBI will be held on 29-30 April, 2017. Agenda of the meeting are as follows:-

1. Proposed revised syllabus B.A.-B.Ed. & B.Sc.-B.Ed. (Integrated 4 years) and MEd & BEd (2 year)
2. Proposed new examination scheme.
3. Proposed Academic Calendar.

for

for
17/4/2018
(Dr. Bhakta-grihi Pradhan)



Jain Vishva Bharati Institute

A University dedicated to Oriental Studies & Human Values



No. JVBI/2017/Academic Council/2079
Date: 19.04.2017

Agenda of the Academic Council to be held on 29th & 30th April, 2017

Reference to the meeting notice dated 12.04.2017. The agenda of the meeting is placed here under:

Agenda Item 1: Approval of minutes of the 30th meeting held on 27th April, 2016.

Agenda Item 2: Department wise Academic Agenda as placed below for approval.

I. Dept. of Jainology and Comparative Religion & Philosophy

1. Proposed syllabus (approved by BOS)
2. On the basis of the recommendation, of the BOS, Department propose to start following short term courses from new session.
 - Jain Astrology
 - Jain Lifestyle and Environment
 - Jain System of Management. *
 - Manuscriptology.
3. Proposed New Examination Scheme (approved by BOS).
4. Proposed Academic Calendar
5. A text book Pramana Mimansa is proposed to be replaced with Nyayavatar in Semester III paper I.

II. Dept. of Prachya Vidy Evam Bhasha

1. Proposed modification in P.G. Syllabus (approved by BOS)
2. Proposed modification in syllabus of three month certificate course (approved by BOS)
3. Proposed New Examination Scheme (approved by BOS).
4. Proposed Academic Calendar.

III. Dept. of Yoga and Science of Living

1. Proposed revised syllabus of M.A./M.Sc. Yoga and Science of Living modified by BOS on February 28, 2017.
2. Proposed New Examination Scheme (approved by BOS).
3. Proposed Academic Calendar.

IV. Dept. of Non-violence and Peace

1. Proposed revised syllabus of M.A. in Nonviolence and Peace/Political Science (approved by BOS).
2. Proposed modification in Scheme of Examination (approved by BOS).

3. Proposed Foundation paper of Nonviolence and Peace (approved by BOS).
4. Proposed New Examination Scheme (approved by BOS).
5. Proposed Academic Calendar.

V. Dept. of Social Work

1. To approve the revised syllabus of MSW (approved by BOS).
2. To approve new courses - Master of Public Health (MPH) (approved by BOS).
3. To approve the passing marks criteria of Field Work Practicum and Theory (approved by BOS).
4. To approve the Block Placement after II Semester.
5. To approve the course code in three digit as per need of examination section.
6. To approve the New Exam pattern courses of the Department (approved by BOS).
7. Department proposed Emeritus Processor to Prof. R. B. S. Verma.
8. To approve core elective paper "Self-Management and Preksha Meditation" under inter disciplinary course (approved by BOS).
9. Proposed Academic Calendar.

✓ VI. Dept. of Education

1. Proposed revised syllabus of B.A.-B.Ed. & B.Sc.-B.Ed. (Integrated 4 years) (approved by BOS).
2. Proposed New Examination Scheme (approved by BOS).
3. Proposed Academic Calendar.

VII. Dept. of English

1. Proposed for the changes in the existing P.G. Syllabus (approved by BOS).
2. Proposed for the changes in the existing U.G. Syllabus (approved by BOS).
3. Proposed New Examination Scheme (approved by BOS).
4. Proposed Academic Calendar.

VIII. Acharya Kalu Kanya Mahavidyalaya

1. Proposed changes in B.A./B.Com. Syllabus (approved by BOS).
2. Proposed new courses (Core Foundation Courses - Cultural and Physical Activities (approved by BOS).
3. Proposed New Examination Scheme (approved by BOS).
4. Proposed launching of B.Sc. Course (approved by BOS).
5. Proposed Academic Calendar.

*Meeting
of
Academic Council*

December 02, 2017

at Ladnun




Jain Vishva Bharati Institute

(Deemed University)

Ladnun-341306, Rajasthan

Academic Council Agenda (December 2, 2017)

1. Granting of leave of absence.
2. Approval of minutes of last meeting held on 29-30 April, 2017.
3. Department wise Academic Agenda.
4. Assessment of progress of sponsored projects.
5. Changes in Examination Rules.
6. Discussion on BMIRC Monograph Writing & It's Guidelines.
7. Discussion on BMIRC Project Proposals & It's Guidelines.
8. Any matter with the permission of Chair.


(Vinod Kumar Kakkar)
Secretary

जैन विश्वभारती संस्थान, लाडनूं - 341 306 (राजस्थान)

(विश्वविद्यालय अनुदान आयोग अधिनियम 1956 की धारा 3 के अन्तर्गत मान्य विश्वविद्यालय घोषित)

दिनांक 29-30 अप्रैल, 2017 को आयोजित विद्या परिषद की बैठक का कार्यवृत्त

दिनांक 29-30 अप्रैल, 2017 को माननीय कुलपति महोदय प्रो. बच्छराज दूगड़ की अध्यक्षता में कुलपति कॉन्फ्रेंस हॉल में विद्या परिषद की बैठक का आयोजन किया गया, जिसमें निम्नलिखित सदस्यों ने भाग लिया-

1.	प्रो. बच्छराज दूगड़, कुलपति	
2.	प्रो. नलिन कुमार शास्त्री	अध्यक्ष
3.	प्रो. आर.एस. यादव	सदस्य
4.	प्रो. के.एन. व्यास	सदस्य
5.	प्रो. समणी ऋजु प्रज्ञा	सदस्य
6.	प्रो. आनन्दप्रकाश त्रिपाठी	सदस्य
7.	प्रो. अनिल धर	सदस्य
8.	प्रो. बनवारीलाल जैन	सदस्य
9.	डॉ. बिजेन्द्र प्रधान	सदस्य
10.	डॉ. समणी संगीत प्रज्ञा	सदस्य
11.	डॉ. समणी श्रेयस प्रज्ञा	सदस्य
12.	डॉ. अमिता जैन	सदस्य
13.	डॉ. रविन्द्रसिंह राठौड़	सदस्य
14.	डॉ. प्रद्युम्नसिंह शेखावत	सदस्य
15.	डॉ. युवराजसिंह खंभासेत	सदस्य
16.	डॉ. सत्यनारायण भारद्वाज	सदस्य
17.	डॉ. गोविन्द सारस्वत	सदस्य
18.	प्रो. दामोदर शास्त्री	विशेष आमंत्रित
19.	डॉ. जुगलकिशोर दाधीच	विशेष आमंत्रित
20.	डॉ. योगेश जैन	विशेष आमंत्रित
21.	डॉ. जितेन्द्र कुमार वर्मा	विशेष आमंत्रित
22.	श्री विनोद कुमार कक्कड़	कुलसचिव एवं गैर सदस्य सचिव

सर्वप्रथम माननीय कुलपति महोदय द्वारा विद्या परिषद् के नवीन सदस्यों एवं बैठक में भाग लेने वाले समस्त सदस्यों का स्वागत किया गया। दो दिवसीय बैठक में मुख्य रूप से नवीन परीक्षा-स्वरूप, प्रोफेसर एमेरिटस, शोध-परियोजना नियमावली, नवीन पाठ्यक्रम प्रारम्भ करने, पूर्व पाठ्यक्रमों में आवश्यक संशोधन, शुल्क-योजना में परिवर्तन, पाठ्यक्रमों एवं परीक्षा-आयोजना में लचीलापन (flexibility) आदि विविध विषयों पर विस्तृत चर्चा की गई एवं आवश्यक सुझावों के साथ स्वीकृतियाँ प्रदान की गई। बैठक की कार्यवाही का विवरण निम्न प्रकार है-

(01) अनुपस्थित सदस्यों के अवकाश की स्वीकृति

(Granting of Leave of Absence)

विद्या परिषद् के सदस्यों प्रो. मुनि महेन्द्र कुमार, प्रो. समणी चैतन्य प्रज्ञा, प्रो. समणी कुसुम प्रज्ञा एवं डॉ. समणी रोहिणी प्रज्ञा की बैठक में अनुपस्थिति की स्वीकृति प्रदान की गई।

(02) गत बैठक की कार्यवाही की सम्पुष्टि।

(Approval of minutes of the 30th Meeting held on 27th April, 2016)

सदन द्वारा दिनांक 27 अप्रैल, 2016 के बैठक के कार्यवृत्त की सम्पुष्टि की गई।

(vi)

शिक्षा विभाग (Department of Education)

विभागाध्यक्ष प्रो. बनवारीलाल जैन द्वारा शिक्षा विभाग के बी.एड., एम.एड., बी.ए.-बी.एड., बी.एससी.-बी.एड. पाठ्यक्रमों में अध्ययन मण्डल द्वारा पारित संशोधनों की जानकारी सदन के समक्ष प्रस्तुत की गई। विद्या परिषद् के सदस्यों द्वारा अध्ययन मण्डल द्वारा अनुमोदित संशोधनों पर विचार-विमर्श कर उन्हें एवं निम्न कतिपय नवीन निर्णयों के साथ स्वीकृति प्रदान की गई-

- शिक्षा विभाग के सभी पाठ्यक्रमों हेतु NCTE द्वारा निर्धारित Framework की पूर्ण रूप से अनुपालना की जाए।
- एम.एड. की परीक्षा-आयोजना आगामी सत्र (2017-18) से नवीन परीक्षा-प्रणाली के आधार पर आयोजित की जाए, जो आगामी सत्र के प्रवेशार्थियों पर ही लागू होगी।
- एम.एड. के EPC (Enhancement Professional Capacity) पत्रों को पाठ्यक्रम से हटाया जाए एवं उनके स्थान पर Core Foundation पत्र के रूप में स्नातकोत्तर हेतु निर्धारित पत्रों को ही रखे जाए।
- बी.ए.-बी.एड., बी.एससी.-बी.एड. एवं बी.एड. पाठ्यक्रमों में Core Foundation पत्र के रूप में प्रथम सेमेस्टर में "Introduction to Jainism" एवं तृतीय सेमेस्टर में "Yoga and Preksha Meditation" तथा "Critical Understanding of ICT" दो अनिवार्य पत्र (50-50 अंक) रखे जाएंगे।
- बी.एससी.-बी.एड. के विद्यार्थी जिन्होंने वर्तमान सत्र (2016-17) में प्रथम सेमेस्टर में "Yoga and Preksha Meditation" एवं "Value Education" पत्र की परीक्षाएँ दी हैं, उनके लिए तृतीय सेमेस्टर में "Introduction to Jainism" एवं "Critical Understanding of ICT" दो अनिवार्य-पत्र (50-50 अंक) के रूप में परीक्षाएँ आयोजित की जाएँ।
- बी.ए.-बी.एड., बी.एससी.-बी.एड. एवं बी.एड. पाठ्यक्रमों में प्रथम सेमेस्टर के पत्र "Preksha Meditation and Yoga Education" को हटाया गया, क्योंकि इसे तृतीय सेमेस्टर में Core Foundation में "Yoga and Preksha Meditation" अनिवार्य पत्र के रूप में जोड़े जाने के अनुशंसा की गई है।
- बी.ए.-बी.एड., बी.एससी.-बी.एड. एवं बी.एड. पाठ्यक्रमों में Internship का समय अधिक होने के कारण प्रत्येक सेमेस्टर के पाठ्यक्रमों को 22 क्रेडिट के स्थान पर 20 क्रेडिट में परिवर्तित किया जाए।

विभागाध्यक्ष द्वारा शिक्षा विभाग के पाठ्यक्रमों हेतु अध्ययन मण्डल से अनुमोदित परीक्षा-स्वरूप के विद्या परिषद् के समक्ष प्रस्तुत किया गया, जिसे सदन द्वारा सभी स्नातकोत्तर पाठ्यक्रमों हेतु सुझाए गए आवश्यक संशोधनों तथा शिक्षा विभाग के पाठ्यक्रमों के लिए निम्नलिखित अतिरिक्त सुझावों के समावेश के साथ स्वीकृति प्रदान की-

- शिक्षा संकाय के सभी पत्रों में Internship में उत्तीर्ण होने हेतु विद्यार्थी को न्यूनतम 50 प्रतिशत अंक अर्जित करने अनिवार्य होंगे एवं Internship में अनुत्तीर्ण होने पर विद्यार्थी को उस पूरे पत्र में अनुत्तीर्ण माना जाएगा।
- स्नातक स्तर पर विज्ञान संकाय के प्रत्येक विषय के 3 पत्रों हेतु पृथक्-पृथक् सैद्धांतिक परीक्षाओं का आयोजन किया जाए एवं प्रत्येक पत्र के लिए 20 अंकों (कुल 60 अंक) का निर्धारण किया जाए।

- स्नातक स्तर पर विज्ञान संकाय के विषयों हेतु अंकों का विभाजन निम्न प्रकार होगा-

Theory	CIA	Practical
60	15	25

विभागाध्यक्ष द्वारा विद्या परिषद् के सदस्यों के समक्ष आगामी सत्र (2017-18) हेतु विभागीय Academic Calendar प्रस्तुत किया गया, जिसे विद्या-परिषद् के सदस्यों द्वारा स्वीकृति प्रदान की।



जैन विश्व भारती संस्थान, लाडनूँ - 341 306 (राजस्थान)
(विश्वविद्यालय अनुदान आयोग अधिनियम 1956 की धारा 3 के अन्तर्गत मान्य विश्वविद्यालय प्रकृति)

शिक्षा विभाग

दिनांक 20.07.2015 को बोर्ड ऑफ स्टडीज एवं संकाय सदस्यों की बैठक आयोजित की गई। बैठक में द्विवर्षीय एम. एड. एवं बी. एड. पाठ्यक्रम को अन्तिम रूप दिया गया। निर्मित पाठ्यक्रम को सत्र 2015-16 से लागू करने का प्रस्ताव प्रस्तुत किया गया। (बैठक के मिनिट्स संलग्न हैं) पाठ्यक्रम को लागू करने के लिए विद्या परिषद् की (21.02.2015) की बैठक में श्रद्धेया आपको अधिकृत किया गया है। (बैठक के मिनिट्स संलग्न हैं) उक्त पाठ्यक्रम को लागू किये जाने की स्वीकृति का अनुरोध है।

B.L. Jain
(प्रो. बी. एल. जैन) 21.7.15
विभागाध्यक्ष

श्रद्धेया कुलमति महोदया,
S
21/7/15

जैन विश्वभारती संस्थान, लाडनू - 341 306 (राजस्थान)

(विश्वविद्यालय अनुदान आयोग अधिनियम 1956 की धारा 3 के अन्तर्गत मान्य विश्वविद्यालय घोषित)

दिनांक 21 फरवरी, 2015 को आयोजित विद्या परिषद की बैठक का कार्यवृत्त

दिनांक 21 फरवरी, 2015 को प्रातः 10.30 बजे माननीया कुलपति समणी चारित्रप्रज्ञा जी की अध्यक्षता में कुलपति कान्फ्रेंस हॉल में विद्या परिषद की बैठक का आयोजन किया गया, जिसमें निम्नलिखित सदस्यों ने भाग लिया:

1.	समणी चारित्रप्रज्ञा, कुलपति	अध्यक्षा
2.	प्रो. समणी चैतन्य प्रज्ञा	सदस्य
3.	प्रो. दामोदर शास्त्री	सदस्य
3.	प्रो. जे.पी.एन.मिश्रा	सदस्य
4.	प्रो. आर.बी.एस. वर्मा	सदस्य
5.	प्रो. बनवारीलाल जैन	सदस्य
6.	प्रो. रेखा तिवारी	सदस्या
5.	प्रो. आनन्दप्रकाश त्रिपाठी	सदस्य
6.	डॉ. समणी मल्लीप्रज्ञा	सदस्या
7.	प्रो. बच्छराज दूगड़	सदस्य
9.	डॉ. समणी सत्य प्रज्ञा	सदस्या
10.	डॉ. बिजेन्द्र प्रधान	सदस्य
11.	डॉ. मनीष भटनागर	सदस्य
12.	डॉ. जुगलकिशोर दाधीच	सदस्य
13.	डॉ. शशिबाला सिंह	सदस्य
14.	प्रो. ओ.पी.पाण्डेय	सदस्य
16.	प्रो. अशोक बापना	सदस्य
17.	प्रो. राजुल भार्गव	सदस्या
18.	प्रो. एस.पी.दुबे	सदस्य
19.	प्रो. एस. सी. राजोरा	सदस्य
20.	प्रो. एन. कृष्णास्वामी	विशेष आमंत्रित
21.	प्रो. अनिल धर	कुलसचिव एवं गैर सदस्य सचिव

सर्वप्रथम माननीया कुलपति महोदया द्वारा बैठक में आगन्तुक समस्त महानुभावों का स्वागत किया गया। इसके पश्चात् बैठक की कार्यवाही प्रारम्भ की गई।

(01) गत बैठक की कार्यवाही की सम्पुष्टि।

(Approval of minutes of the 28th Meeting held on January 25, 2014)

सदन द्वारा दिनांक 25 जनवरी, 2014 के बैठक के कार्यवृत्त की सम्पुष्टि की गई।

(02) चोइस बेसड क्रेडिट सिस्टम लागू करने की अनुमति।

(Approval for adoption of Choice Based Credit System)

कुलसचिव ने विद्या परिषद को यह जानकारी दी की माननीया कुलपति महोदया ने प्रो. आर.बी. एस. वर्मा को विश्वविद्यालय अनुदान आयोग द्वारा निर्धारित दिशा-निर्देशों के अनुसार संस्थान के समस्त स्नातक/स्नातकोत्तर/डिप्लोमा/सर्टिफिकेट पाठ्यक्रमों हेतु Choice Based Credit System का प्रारूप बनाकर देने का दायित्व दिया था। इस प्रारूप को अनुमोदन हेतु विद्या परिषद के समक्ष प्रस्तुत किया गया। इस विषय पर विचार-विमर्श के पश्चात् विद्या परिषद द्वारा इसे स्वीकृति प्रदान की गई।

समाज कार्य विभाग (Dept. of Social Work)

विभागाध्यक्ष प्रो. आर.बी.एस. वर्मा ने समाज कार्य विभाग के अध्ययन मण्डल द्वारा स्वीकृत समाज कार्य विभाग के वर्तमान पाठ्यक्रम में कुछ संशोधन एवं आगामी सत्र से विभाग में C.B.C.S. प्रणाली लागू करने की जानकारी सदन को दी। जिसे विद्या परिषद द्वारा सर्व-सम्मति से पारित किया गया।

(vi) शिक्षा विभाग (Department of Education)

विभागाध्यक्ष प्रो. बनवारीलाल जैन ने सदन को बताया कि आगामी सत्र से बी.एड एवं एम. एड का पाठ्यक्रम दो वर्ष का हो गया है। उपरोक्त पाठ्यक्रम NCTE के Frame Works के अनुसार किये जाने के बारे में जानकारी दी। इस सन्दर्भ में यह निर्णय लिया गया कि विभाग द्वारा अध्ययन मण्डल की बैठक में पाठ्यक्रम तैयार कर लिया जाए तथा इसे लागू करने के लिए विद्या परिषद ने माननीय कुलपति महोदय को अधिकृत किया।

(vii) अंग्रेजी विभाग (Department of English)

अंग्रेजी विभाग की विभागाध्यक्षा प्रो. रेखा तिवारी ने एम.ए. अंग्रेजी के पाठ्यक्रम में अध्ययन मण्डल द्वारा पारित संशोधनों की जानकारी के साथ आगामी सत्र से C.B.C.S प्रणाली लागू करने की जानकारी सदन को दी। सदन में क्रेडिट सिस्टम समान नहीं होने के सम्बन्ध में सदस्यों द्वारा प्रश्न उठाया गया। काफी विचार-विमर्श के पश्चात् यह निर्णय लिया गया कि समस्त पेपरों में क्रेडिट सिस्टम में समानता होनी चाहिए।

(viii) आचार्य कालू कन्या महाविद्यालय (Acharya Kalu Kanya Mahavidyalaya)

आचार्य कालू कन्या महाविद्यालय की प्राचार्या डॉ. समणी मल्लीप्रज्ञा जी ने आगामी सत्र से अध्ययन मण्डल द्वारा पारित बी.ए./बी.काम. के पाठ्यक्रमों में परिवर्तन की जानकारी के साथ स्नातक स्तर पाठ्यक्रमों में से C.B.C.S प्रणाली लागू करने की जानकारी सदन को दी।

इसके अतिरिक्त आगामी सत्र से बैंकिंग का एक वर्षीय डिप्लोमा पाठ्यक्रम प्रारम्भ करने की जानकारी सदन को दी। उपरोक्त दोनों प्रस्ताव विद्या परिषद द्वारा सर्व-सम्मति से पारित किए गये।

(ix) दूरस्थ शिक्षा (Distance Education)

- दूरस्थ शिक्षा निदेशालय के प्रो. आनन्दप्रकाश त्रिपाठी ने अध्ययन मण्डल द्वारा पारित एम.ए. राजनीति विज्ञान का पारित पाठ्यक्रम दूरस्थ शिक्षा से प्रारम्भ करने की जानकारी सदन को दी। इस सम्बन्ध में यह विचार आया कि "जैन संस्कृति एवं जीवन मूल्य" के स्थान पर "जैन राजनैतिक विचार एवं जीवन मूल्य" अधिक उपयुक्त होगा। विद्या परिषद द्वारा आगामी सत्र से इस पाठ्यक्रम को प्रारम्भ करने की स्वीकृति प्रदान की गई।
- प्रो. त्रिपाठी ने वर्तमान में संचालित बी.पी.पी. पाठ्यक्रम को इसी सत्र से वर्धमान महावीर खुला विश्वविद्यालय, कोटा द्वारा संचालित पाठ्यक्रम (पांच पत्रों - सामान्य हिन्दी, सामान्य अंग्रेजी, प्रारम्भिक गणित, सामाजिक विज्ञान, सामान्य विज्ञान) के अनुसार परिवर्तन कर लागू करने का प्रस्ताव सदन के समक्ष रखा। उन्होंने यह भी बताया कि इससे संस्थान, वर्धमान महावीर खुला विश्वविद्यालय, कोटा के अनुसार माध्यमिक शिक्षा बोर्ड, अजमेर से अनुमति लेकर बी.पी.पी. को 10+2 के समकक्ष करने की अनुमति ले सकता है। विद्या परिषद द्वारा आगामी सत्र से इस पाठ्यक्रम को प्रारम्भ करने की स्वीकृति प्रदान की गई।

उपरोक्त प्रस्तावों के पश्चात् संस्थान से बी.ए. पाठ्यक्रम में प्रवेश लेने की समय

Semester I

Course code	Course Title	Course Category	Credit	CIA	Theory	Total
MED 104	Introduction to Research Method	CC	4	30	70	100

Objectives:

- ❖ To develop and understanding about the concept of research in Education and its relevancy.
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- ❖ 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 : Questionnaire, Observation, Rating Scale. Check-List , Interview Schedule, Task- Analysis, Focus-Group Design, Socio-Metric- Techniques
- e) Research Report writing and bibliography 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:

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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 विधियाँ, तृतीय संशोधित संस्करण, जेनरल बुक ऐजेन्सी, पटना।
10. त्रिवेदी, आर. एन. डी. पी., शुक्ला (2004), रिसर्च मैथोडोलोजी, कॉलेज बुक डिपो, नई दिल्ली।
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Semester I

Course Code	Course Title	Course Category	Credit	CIA	Theory	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 develop 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.

Semester - I

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
MED 101	Psychology of Learning and Development	CC	4	30	70	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 assess 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

- Concept, factors and theories of Learning : E.L. Thorndike, Pavlov, B.F. Skinner, Kohler
- Constructivism & Learning
- Cognition and Learning : Tolman, Hull, Lewin
- Transfer of Learning and its theories

Unit -III Intelligence, Creativity and Motivation

- Concept, theories, types and assessment of Intelligence
- Concept, components to fostering creativity and creative thinking
- Motivation: Concept and theories
- Cognitive Development : Piaget, Bruner, Gagne, Ausubel
- Psychology for Gifted and Slow Learners

Unit -IV Personality, Adjustment and Mental Problems

- Personality-Type and Trait theories & its measurement
- Mental Health and hygiene-process of adjustment, conflicts and defence mechanism
- 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:

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- विद्यालंकार, जगदीश (1990), भारतीय मनोविज्ञान, राधा पब्लिकेशन्स

Semester II

Course code	Course Title	Course Category	Credit	CIA	Theory	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 Category	Credit	CIA	Theory	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

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Semester IV						
Course Code	Course Title	Course Category	Credit	CIA	Theory	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	Theory	Total
MED 405	Area (b) Educational Technology Principles of Educational Technology	Choose any one area which will comprise of three papers CE	3	30	70	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**
- Communication in education, communication process, types, communication in teaching learning.
 - Comparative study of memory, understanding and reflective level of teaching.
 - Content analysis.

- Unit-III Models of Teaching Technology**
- Teaching Models: Concept, characteristics.
 - Glasser's Basic Training Model.
 - Creativity Teaching Model.

- Unit-IV Programme Learning Approaches**
- Programmed Learning: Meaning, characteristics, principles.
 - Types of programmed learning: Linear and branching.
 - 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.
- ❖ Understand about the role of instructional technology.
- ❖ Acquaint about the teaching model.

Suggested Reading:

- मि्तल, सन्तोष (2008), शैक्षिक तकनीकी एवं कक्षा कक्ष प्रबंध, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर।
- सिंह, कर्ण (2008), शैक्षिक तकनीकी एवं प्रबंध, लखीमपुर – खीरी, गोविन्द प्रकाशन।
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- Green, E.J.(1960),The Learning Process & Programmed Instruction. NY.Holt, 1968, Rinehart & Winston Inc.
- Buch,M.B. & Santhanam M.R. : Communication in Class Room CASE Baroda.

Semester IV

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
MED 411	Area (b) Education Technology Educational Technology and Computer Application	Choose any one area which will comprise of three papers CE	4	30	70	100

Objectives:

- ❖ Students will become aware of various ICT trends.
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- ❖ 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 be 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.

References:

1. Nickson. M. (1981), Educational Technology Technology: A Systematic Approach for Teachers, London, Wardlock Educational.
2. Sampath, K. Painiselvam A. and Santhanam S. (1981), Introduction to Educational Technology New Delhi, Sterling (P) Ltd..
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13. Adams, G. S. (1966), Measurement and Evaluation in Education, Psychology and Guidance, Holt Rinehart and Winston, New York
14. Vernon, P.E. (1965), The Measurement of Abilities, University of London Press Ltd.
15. Numally Jum, C. (1964), Educational Measurement and Evaluation, MC Graw Hill Book Company New York
16. Freeman, F.S. (1962), Theory and Practice of Psychological Testing, Oxford and I.B.H. Publication company, New Delhi (3rd Edition)

Semester II

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
JVB 203	Preksha Meditation and Self Management	FC Any one	4	30	70	100

Objectives:

- ❖ To understand historical development of Preksha Meditation.
- ❖ To understand the components, spiritual-scientific basis, objectives and benefits of Preksha Meditation.
- ❖ 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 Dhyana*): 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.

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

- ❖ Describe the general concept of Preksha Meditation and the components of it.
- ❖ Practice and instruct the method of Preksha Meditation.
- ❖ Describe spiritual and scientific basis of each component of Preksha Meditation.
- ❖ Identify the benefits of Preksha Meditation practice.
- ❖ Understand the mechanism of personality development through Preksha Meditation.
- ❖ Develop Preksha Meditation module for self management.

SUGGESTED READING

- 1 प्रेक्षा पुष्प – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूँ, 2003।
- 2 अपना दर्पण अपना बिम्ब – युवाचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, 1991।
- 3 प्रेक्षाध्यान : सिद्धांत और प्रयोग – आचार्य महाप्रज्ञ, जैन विश्व भारती प्रकाशन, लाडनूँ।
- 4 प्रेक्षाध्यान : व्यक्ति विकास – मुनि धर्मेश, जैन विश्व भारती प्रकाशन, लाडनूँ।
- 5 जीवन विज्ञान की रूपरेखा – मुनि धर्मेश, जैन विश्व भारती प्रकाशन, लाडनूँ, 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

	Internal	CIA	Theory	Total
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Semester - I

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED101	Childhood 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

- Educational Psychology : Concept, Methods & Applications
- Implications of Educational Psychology: Teachers, Curriculum, Class-room Situations
- Indian Psychology : Concept and its implication
- Growth & Development
- Cognitive development:- Piaget & Bruner

UNIT-II Childhood and Its Development

- Childhood : Its concept & characteristics
- Childhood : Physical, Mental, Emotional, Social & Moral Development
- Childhood : Dimensions to fostering Imagination, Memory & Creativity
- Childhood : Activities for Personality Development
- Childhood : Language Development

UNIT-III Adolescence and Its Development

- Adolescence : Its Meaning & Characteristics
- Adolescence : Physical, Emotional, Social, Spiritual & Moral Development
- Adolescence : Fostering Thinking, Reasoning & Problem- solving abilities
- Adolescence : Activities for Personality Development
- Adolescence : Related Problems & Remedies
- Guidance & Counselling services in schools

UNIT-IV Learner : Psychological Dimensions & New Trends

- Personality : Concept, Types & Measurement
- Intelligence & Multiple Intelligence : Meaning, Theories & Measurement
- Creativity : Meaning, Development & Measurement
- Adjustment : Concept, Process & Mechanism
- 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 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.

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2. Das, J. P. (1998), The Working Mind : An Introduction to Psychology, Sage Publication.
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12. मंगल, एस.के., (2008), शिक्षा मनोविज्ञान, प्रिंटिस हॉल ऑफ इण्डिया प्राइवेट लिमिटेड, नई दिल्ली
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16. श्रीवास्तव, डी.एन. व वर्मा प्रीति संशोधित संस्करण (2014), बाल मनोविज्ञान : बाल विकास, श्री विनोद पुस्तक मंदिर, आगरा।
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Semester - I

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
JVB101	Jain Culture and Life Value	FC	4	30	70	100

Objectives:

- To describe the concept of Jain Culture
- To list the different types of Jain Life Values

Unit I: Jain History and Culture

- Antiquity of Jainism

- Teerthankar Lord Rishabha and Mahavira
- Jain Religious Schools, Orders and Sects
- Characteristics of Jain Culture

Unit II: Jain Ethics and Metaphysics

- Three Jewels (Ratnatraya)
- Code of Conduct of Ascetics (Shramanachar) and Householder (Shravakachar)
- Jain way of Life
- The Nine Truths
- Six Substances
- Cosmology : Jain Perspective

Unit III: Science of Living and Value Development

- Science of Living a new way of Education
- Seven Parts of Science of Living
- Science of Living and Value Development
- Non-violence and its training
- Non-absolutism and its application
- Anuvrat Movement and Morality

Unit IV: Preksha Meditation and Management

- Aim and Objective of Preksha Meditation
- Time Management
- Goal Management
- Health Management
- Stress Management
- Addiction Free Management

Outcomes:

- The students would develop on non- absolute approach.
- Can apply the knowledge of Jain life values into scientific research.

SUGGESTED READING

- Acharya Mahaprajna, Jain Darshan Manan Aur Mimansa, Adarsh Sahitya Sangh, Churu, 1977.
- Shastri, Kailashchandra, Jain Dharm, Bharatvarshiya Digamber Jain Sangh, UP, 1985.
- Jain, Jyoti Prasad, Religion and Culture of the Jains, Bharatiya Gyanpeeth, 1999.
- Bhaskar, Bhagchand Jain, Jain Dharma ka Maulik Itihas (Vol 1 & 2), Samyakgyan Pracharak Mandal, Jaipur, 1974.
- Shastri Nemichandra, Tirthankara Mahaveer aur Unki Acharya Parampara (Vol.I), Acharya Shantisagar Chani Granthmala, 1992.
- Samani Riju Prajna, Jain Itihas aur Sanskriti, Jain Vishva Bharati Institute, Ladnun, 2007.
- Samani Riju Prajna, Jain Tattva Mimansa aur Achara Mimansa, Jain Vishva Bharati Institute, Ladnun, 2015.
- Samani Riju Prajna, Jain Darshan ke Pramukh Siddhanta, Jain Vishva Bharati Institute, Ladnun, 2015

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, writing, speaking and listening.
- ❖ To develop the skill of oral and written language.
- ❖ To acquaint 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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1. Baruah, T.C. (1985), The English Teacher's Hndbook, New Delhi, Sterling Publication Pvt. Ltd.
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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 disciplines 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 - 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

- Concept of measurement, assessment and evaluation
- Types, Need, scope and relevance of evaluation
- Principles of assessment and evaluation
- Test, scale and measurement
- Types of scale : nominal, ordinal, interval and ratio

Unit II -Tools and Techniques of Assessment and Evaluation

- Characteristics of a good measuring instrument
- Achievement test: steps of construction of achievement test – Teacher made and Standardized test
- Types of test items and its construction : subjective test items and objectives test item
- Diagnostic test construction and preparation of remedial materials
- Analysis of test items – item difficulty level and item discrimination power

Unit III -Trends in Assessment

- Continuous and Comprehensive Evaluation
- Marking system vs Grading system
- Semester system (C B C S) Choice Based Credit System
- 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 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.

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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 education.
- ❖ To develop various methods of teaching.
- ❖ To understand the various application of education.

Course Contents:

Unit -I Basics of Learning

- Learning : Concept, Nature and Characteristics
- Factors Affecting Learning
- Laws and Types of Learning
- Cognitive Learning- Peaget, Bruner
- Transfer of Learning

Unit-II : Theories of Learning and their Educational Implications.

- Trial and Error theory
- Classical conditioning theory
- Operant conditioning theory
- Insight theory of Learning
- Social Learning theory (Bandura)

Unit-III Concept variables and models of Teaching

- Teaching : concept, Nature and characteristics
- Variables of Teaching and their functions
- Factors Affecting Teaching and Teaching process
- Relationship between teaching and Learning
- Teaching model- concept, functions, sources and elements

Unit-IV Theories and Application of Teaching

- Levels of Teaching - memory, understanding and Reflective
- Teaching theories-concept, need, types and utility
- Analyzing Teaching in Diverse classrooms
- Teaching as a complex activity
- 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	100
					Pre Internship	

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 <ul style="list-style-type: none"> ➤ Introduction ➤ Questioning ➤ Black Board ➤ Reinforecement ➤ Stumulus Variation ➤ Communication ➤ Personality Development etc.
2.	Comprehensive School Teaching <ul style="list-style-type: none"> ➤ Demsstration Lesson Plan ➤ Lesson based on Various Approaches Method, such as -- <ul style="list-style-type: none"> ○ 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 <ul style="list-style-type: none"> ➤ 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 III						
Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BED401	Post Internship distribution	CC	16		160 Internship+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 students.
- ❖ To organize different co-curricular activities in the school.
- ❖ To prepare blue print 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

- School Admission
- Time Table
- Morning Assembly
- Classroom Management
- Organization of Various Activities
- Physical Activities
- Cultural Activities
- Literary Activities
- Yoga Exercises
- Field Trips/Picnic
- Conducting of Meeting
- Maintenance of Garden/School
- Action Research
- Preparation of Register
- Library Management
- Other Work of School
- Swachhata Abhiyan
- S. U. P. W.
- 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 students.
- ❖ Organize different co-curricular activities in the school.
- ❖ Prepare blue print and test paper for different classes.

Semester III

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
JVB 401	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, Downloading and Uploading
- c) Multimedia and its Education Uses.
- d) Mobile Banking

Assignment & Practical Works: (Any Two)

- Prepare one Assignment Work on any topic related to above units.
- Prepare power point presentation on Any one topics related to School content/ B.Ed. Syllabus.

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	Practical
JVB 402	Yoga and Preksha Meditation	FC	2	15	35	5

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, पादहरतासन, गरुडासन, जानुशिरासन, वक्रासन, वज्रासन, पद्मासन, उत्तानपादासन, पवनमुक्तासन, भुजंगासन, शलभासन, (स्थिति, विधि, लाभ)
(स) प्राणायाम : सूर्यभेदी, चन्द्रभेदी, व अनुलोम विलोम
(द) मुद्रा : ज्ञान मुद्रा, वीतराग मुद्रा
(य) बन्ध : मूलबन्ध, उड्डियानबन्ध व जालधर बन्ध

इकाई-2 प्रेक्षाध्यान

- (अ) प्रेक्षाध्यान का इतिहास, अर्थ एवं उद्देश्य
(ब) प्रेक्षाध्यान के सहायक अंगों का संक्षिप्त परिचय एवं महत्त्व
(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।

सन्दर्भ ग्रन्थ सूची :

- अमूर्त चिन्तन : आचार्य महाप्रज्ञ
- जीवन विज्ञान की रूपरेखा, लेखक : मुनि धर्मेश कुमार
- जीवन विज्ञान शिक्षक निर्देशिका – मुनि किशनलाल
- जीवन विज्ञान : मूल्यपरक शिक्षा का एवं अभिनव प्रयोग – मुनि धर्मेश
- जीवन विज्ञान प्रेक्षाध्यान एवं योग : समणी मल्लि प्रज्ञा
- जीवन विज्ञान : शिक्षा का नया आयाम, लेखक : आचार्य महाप्रज्ञ
- जीवन विज्ञान : शिक्षक प्रशिक्षक मार्गदर्शिका – मुनि किशनलाल
- जीवन विज्ञान : स्वस्थ समाज रचना का संकल्प, लेखक : आचार्य महाप्रज्ञ
- नया मानव : नया विश्व – आचार्य महाप्रज्ञ
- परिवार के साथ कैसे रहें ? – आचार्य महाप्रज्ञ
- प्रेक्षाध्यान प्रयोग पद्धति – लेखक : आचार्य महाप्रज्ञ
- प्रेक्षाध्यान : आसन प्राणायाम, मुनि किशनलाल
- प्रेक्षाध्यान : सिद्धान्त और प्रयोग, लेखक : आचार्य महाप्रज्ञ, सम्पादक : मुनि किशन लाल, शुभकरण सुराना
- प्रेक्षाध्यान : यौगिक क्रियाएं, मुनि किशनलाल
- प्रेक्षाध्यान : शरीर विज्ञान, श्री जेठालाल जवेरी, मुनि महेन्द्र कुमार
- प्रेक्षाध्यान : स्वास्थ्य विज्ञान (भाग 1,2), श्री जेठालाल जवेरी, मुनि महेन्द्र कुमार 'तुम स्वस्थ रह सकते हो, लेखक – आचार्य महाप्रज्ञ
- प्रेक्षाध्यान : व्यक्तित्व विकास, लेखक : मुनि धर्मेश कुमार
- प्रेक्षा संदर्शिका – मुनि धर्मेशकुमार
- Preksha Meditation : Therapeutic Thinking by Arun Zaveri
- 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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10. वास्तव अजना (2016), महिला शिक्षा तथा कानून राखी प्रकाशन आगरा 2016

website

1. www.gender.com.ac.uk.
2. www.genderstudies.org.
3. www.genderparadigm.com/publication/html

Semester IV

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Total
BED302	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:

- ❖ Understand 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
BED 303	Drama and Arts in Education (EPC)	CC	2	15	35 Practical and Viva-voce
					Total 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

- Prepare a Drama for any Social issues (Class VI to XI)
- Role playing for different scene of Drama
- To know different types of Drama

Unit- II Fine Arts, materials and its relevancy (Any two works)

- Mehendi, Drawing
- Rangoli/Model Preparation
- 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 Shes
- Handicraft

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 familiarize 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

- Meaning, Objective , Need and Types of Inclusive Education
- Principles of Inclusive Education
- Solution and challenge of Inclusive Education
- ICT Material of Inclusive Education

Unit- II Legislation, Emerging Issues and Role of Agencies in Inclusive Education

- Legislation for inclusive education- National policy of disabilities 2006
- Sarva Shiksha Abhiyan (2002)

- c) NGO
- d) RTE-2009

Unit- III Exceptional Child and Special Educational

- a) Exceptional Child : Meaning and Types
- b) Mentally Retarded 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:

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Course Code	Course Title	Semester IV				
		Course Category	Credit	C.I.A.	Theory	Total
BED-309	3. Guidance and Counseling	Any one CE	4	30	70	100

Objectives:

- To educate about the basic 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

- Meaning and Nature of Guidance.
- Aims and Principles of Guidance.
- Types of Guidance
- Importance of Guidance in schools for individual and for society.
- Process of Guidance.

Unit- II Basics of Counseling

- Meaning, Nature and Principles of counseling
- Types of Counseling.
- Distinction between Guidance and Counseling.
- Role and Responsibilities of Guidance workers in school.
- 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 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:

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- Samani Riju Prajna, Jain Tattva Mimansa aur Achara Mimansa, Jain Vishva Bharati Institute, Ladnun, 2015.
- Samani Riju Prajna, Jain Darshan ke Pramukh Siddhanta,
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Semester II

Course Code	Course Title	Course Category	Credit	CIA	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) Choice 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.

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Semester II

Course Code	Course Title	Course Category	Credit	CIA	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 education.
- ❖ To develop various methods of teaching.
- ❖ To understand the various application of education.

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- Piaget, 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 theory (Bandura)

Unit-III Concept variables and models of Teaching

- a) Teaching: concept, Nature and characteristics.
- b) Variables of Teaching and their functions.
- c) Factors Affecting Teaching and Teaching process.
- d) Relationship between teaching and Learning.
- 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 Diverse 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.

Learning Outcomes: After completion of this course students would be 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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21. मंगल, एस.के., (2008), शिक्षा मनोविज्ञान, प्रिटर्स हॉल ऑफ इण्डिया प्राइवेट, नई दिल्ली.
22. वर्मा, प्रीति, श्रीवास्तव डी.एन., (2008), आधुनिक सामान्य मनोविज्ञान, अग्रवाल पब्लिकेशन, आगरा.
23. यादव, सियाराम, (2008), अधिगमकर्ता का विकास एवं शिक्षण अधिगम प्रक्रिया, शारदा पुस्तक भवन, इलाहाबाद

Semester VII

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
EDU 702	Language Across the Curriculum	CC	4	30	70	100

Objectives:

- ❖ To understand the various mode of language like reading, writing, speaking and listening.
- ❖ To develop the skill of oral and written language.
- ❖ To acquaint 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) 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 III

Course Code	Course Title	Course Category	Credit	CIA	Theory	Tot
EDU 301	Understanding Discipline and Subjects	Any one CE	4	30	70	104

Objectives:

- ❖ To make aware the students about the disciplines 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

c) 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 :

1. Lado, Robert (1971), Language Teaching, New Delhi, Tata Mc Graw Hill Publishing House co. Ltd.
2. Richards, J.C. of Rodgers, T.S. (2009), Approchas and Methods in Language Teaching, Cambrige, C.U.P.
3. अंग्रेजी पाठ्य पुस्तक कक्षा 9 से 12 तक, माध्यमिक शिक्षा बोर्ड राजस्थान, अजमेर (2014)
4. विज्ञान पाठ्य पुस्तक कक्षा 9 से 12 तक, माध्यमिक शिक्षा बोर्ड राजस्थान, अजमेर (2014)
5. संस्कृत पाठ्य पुस्तक कक्षा 9 से 12 तक, माध्यमिक शिक्षा बोर्ड राजस्थान, अजमेर (2014)
6. सामाजिक अध्ययन पाठ्य पुस्तक कक्षा 9 से 12 तक, माध्यमिक शिक्षा बोर्ड राजस्थान, अजमेर (2014)
7. हिन्दी पाठ्य पुस्तक कक्षा 9 से 12 तक, माध्यमिक शिक्षा बोर्ड राजस्थान, अजमेर (2014)

Semester III

Course Code	Course Title	Course Category	Credit	CIA	Th
BVB 303	Critical Understanding of ICT	CF	2	15 Practical	35

Objectives:

- ❖ To explain the concept of ICT in education.
- ❖ To develop skills in using MS Office applications for education.

B.A.-B.Ed. Syllabus 2019

- ❖ 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

- MS- word (Text management)
- Power Point (Preparation of Slide)
- Smart Class
- E - Learning

Unit - II Internet and Multimedia

- E-mail, Chat
- Searching, Downloading and Uploading
- Multimedia and its Education Uses.
- Mobile Banking

Assignment & Practical Works: (Any Two)

- Prepare one Assignment Work on any topic related to above units.
- Prepare power point presentation on Any one topics related to School content/ B.Ed. Syllabus.

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.

References:

- Cooper, I.M., classroom teaching skills, D.C. Heathco, Toronto, 1960.
- Coulson, J. E. (ed); Programme Learning and Computer Based Instruction, Wiley, New York, 1962
- Khanna, S.D. and others; Technology of Teaching and Teacher Behaviour, Vth edition, Doaba house, Delhi, 1984.
- Kulkarni, S.S., Introduction to Educational Technology, Oxford and IBH publishing co., 1986.
- Sampath, K. Panner Selvam, A and Santhanam, S; Introduction to Educational Technology, Sterling publishers, New Delhi, 1990.
- Sharma, R.A., Technology of Teaching, Loyal Book Depot Meerut, 1986.
- Saxena N.R. & Swarup, Oberoi S. C.; Technology of Teaching, Surya Publication, Meerut, 1996.
- Skinner, B, F.; Technology of Teaching, Appleton Century Crafts, New York, 1981
- Thompson, James, J.; Instructional Communication, Van Nostrand Reinhold Co. New Jersey, 1969
- Verma, Ramesh and others; Modern Trends in Teaching Technology; Anmol Publications Pvt. Ltd., New Delhi, 1990.
- Computer for Education, Working paper Ist, NCET, 1967
- मिश्रा, महेन्द्र कुमार, 2007, शैक्षिक प्रौद्योगिकी एवं कक्षा-कक्ष प्रबन्ध, युनिवर्सिटी बुक हाउस, जयपुर.

Semester III

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
AYB302	Yoga and Preksha Meditation	CF	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।

विषयवस्तु :

इकाई-1 योग के प्रयोग

- योग : अर्थ, परिभाषा, अष्टांग योग की उपयोगिता
- आसन : सूर्यनमस्कार, (अर्थ, प्रक्रिया एवं लाभ) ताड़ासन, पादहस्तासन, गरुडासन, जानुशिरासन, वक्रासन, वज्रासन, पद्मासन, उत्तानपादासन, पवनमुक्तासन, भुजंगासन, शलभासन, (स्थिति, विधि, लाभ)
- प्राणायाम : सूर्यभेदी, चन्द्रभेदी, व अनुलोम विलोम
- मुद्रा : ज्ञान मुद्रा, वीतराग मुद्रा
- बन्ध : मूलबन्ध, उड्डियानबन्ध व जालधरं बन्ध

इकाई-2 प्रेक्षाध्यान

- प्रेक्षाध्यान का इतिहास, अर्थ एवं उद्देश्य
- प्रेक्षाध्यान के सहायक अंगों का संक्षिप्त परिचय एवं महत्व
- कायोत्सर्ग, अर्न्तयात्रा, श्वास प्रेक्षा एवं ज्योतिकेन्द्र प्रेक्षा (प्रयोग, अभिव्यक्ति एवं प्रस्तुति)
- प्रेक्षाध्यान के मुख्य चरणों का संक्षिप्त परिचय

टर्म पेपर : (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।

सन्दर्भ 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, भुभकरण 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 धर्मेश कुमार
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	CIA	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. कुशवाहा, पुष्पलता एवं सक्सैना, कनक, (2006), शैक्षिक प्रबंधन एवं संगठन, आस्था प्रकाशन, जयपुर
2. चौबे, सरयू प्रसाद, (1990), शिक्षा के समाजशास्त्रीय आधार, विनोद पुस्तक मंदिर, आगरा
3. पाण्डेय, रामशक्ल (2008), उभरते हुए भारतीय समाज में शिक्षा, विनोद पुस्तक मंदिर, आगरा
4. बघेला, एच. एस. सिंह, (2007), शैक्षिक प्रबंधन एवं संगठन, राजस्थान प्रकाशन, जयपुर

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 पुस्तक मंदिर, आगरा
7. शर्मा, आर. ए. (1995), विद्यालय संगठन एवं शिक्षा प्रशासन, सूर्या पब्लिकेशन, मेरठ
8. शर्मा, ओ. पी., गुप्ता, शोभा (2008), उभरते हुए भारतीय समाज में शिक्षा, विनोद पुस्तक मंदिर, आगरा
9. सुखिया, एस. पी., (2008), विद्यालय प्रशासन एवं संगठन, विनोद पुस्तक मंदिर, आगरा
10. www.gender.com.ac.uk.
11. www.genderstudies.org.

Semester IV					
Course Code	Course Title	Course Category	Credit	CIA	Theory
EDU 402	Reading and Reflecting on Texts (EPC)	CC	2	15	35 Practical & Viva-Voce

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:

- ❖ Able to explain the Communication Skills.
- ❖ Explain the Creative Writing among students.
- ❖ Understand 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	CIA	Theory
EDU 403	Drama and Arts in Education (EPC)	CC	2	15	35 Practical & Viva-Voce

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

2. सामान्य हिन्दी (गद्य संग्रह, काव्य संचय), कैलाश भट्ट 'आकाश' सम्पादक - डॉ. समणी शुभप्रज्ञा, जैन विश्वभारती संस्थान (मान्य विश्वविद्यालय) लाडनू

संदर्भ ग्रंथ-

1. काव्य संचय, संपादक- डॉ शम्भुनाथ पाण्डेय, अनुराग प्रकाशन, अजमेर
2. गद्य संग्रह, संपादक- डॉ विजय कुलश्रेष्ठ, अल्का पब्लिकेशन, अजमेर
3. हिन्दी व्याकरण तथा रचना, डॉ भोलानाथ तिवारी, नेशनल पब्लिशिंग हाउस, नई दिल्ली
4. हिन्दी व्याकरण-श्री हरदेव बाहरी
5. आधुनिक हिन्दी व्याकरण-वासुदेवानन्द प्रसाद
6. अच्छी हिन्दी-रामचन्द्र वर्मा

Semester VI

Course Code	Course Title	Course Category	Credit	CIA	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 Focused Teaching <ul style="list-style-type: none"> ➤ Introduction ➤ Questioning ➤ Black Board ➤ Reinforcement ➤ Stimulus Variation ➤ Communication ➤ Personality Development etc.
2.	Comprehensive School Teaching <ul style="list-style-type: none"> ➤ Demonstration Lesson Plan ➤ Lesson based on Various Approaches Method, such as -- <ul style="list-style-type: none"> ○ Co-operative Learning ○ Activities Based Approach ○ 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

- 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:**
- Explain the concept, determinants and factors of health
 - Describe the types of occupational health and related diseases related to workers
 - Different types of pollution and their related remedies
 - Educate about the objectiveness 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	CIA	Theory	Total
DU 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 familiarize 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) Solution 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

- ❖ Aware about correct health habits
- ❖ Attain knowledge of proper health procedures as related with physical exercises.

References:

1. Thorburn, M. (2000), Physical Education-Intermediate Course Notes, L.A. Inc & L.A. Inc Publishers.
2. कमलेश एवं संगरज, शारीरिक शिक्षा में शिक्षण विधि, विनोद प्रकाशन, गुरुग्राम।
3. पायराज, गीता एवं कुमार सुनील (2014), स्वास्थ्य शिक्षा तथा मनोरंजन।
4. सहाया, आर. के. स्वास्थ्य एवं शारीरिक शिक्षा, विनोद प्रकाशन, गुरुग्राम।
5. सिंह, बलदेव, स्वास्थ्य एवं शारीरिक शिक्षा, विनोद प्रकाशन, गुरुग्राम।
6. सिंह, परमजीत, राठी, मृगेश सिंह, बर्मादेया, मया, खान, एम. ए. (2017), शारीरिक एवं स्वास्थ्य शिक्षा, भाग-1 माध्यमिक शिक्षा बोर्ड, राजस्थान अजमेर।

Semester VII						
Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
BAE 712	Guidance and Counseling	Any one CE	4	30	70	100

Objectives:

- ❖ To educate about the basic 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.

References:

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

12. National Curriculum Framework NCF (2005), for School Education, NCERT, New Delhi

Semester VIII

Course Code	Course Title	Course Category	Credit	CIA	Theory	Total
EDU-803	Post Internship Internship	CC	16	160	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 students.
- ❖ To organize different co-curricular activities in the school.
- ❖ To prepare blue print 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 <ul style="list-style-type: none">○ School Admission○ Time Table○ Morning Assembly○ Classroom Management○ Organization of Various Activities○ Physical Activities○ Cultural Activities○ Literary Activities○ Yoga Exercises○ Field Trips/Picnic○ Conducting of Meeting○ Maintenance of Garden/School○ Action Research○ Preparation of Register○ Library Management○ Other Work of School○ Swachhata Abhiyan○ S. U. P. W.○ Education Tour
4.	Final Lesson (Two teaching subject)

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

- ❖ Describe unit plan and lesson plan
- ❖ Understand objective in behavioural terms
- ❖ Develop the schedule of various activities for students.
- ❖ Able to organize different co-curricular activities in the school.

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuums Internal Assessment)	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—2 : प्राकृत भाषा प्रबोधनी

- (1) स्वर परिचय
- (2) व्यंजन
- (3) संधि
- (4) कारक एवं विभक्ति
- (5) अपठित गद्यांश का प्राकृत अथवा हिन्दी अनुवाद

इकाई 3 : दसवेआलियं (अध्ययन—1, 2, 3, 4,)

- (1) सप्रसंग अनुवाद, व्याख्या
- (2) आलोचनात्मक प्रश्न
- (3) लघूत्तरात्मक प्रश्न
- (4) वस्तुनिष्ठ प्रश्न
- (5) शब्दार्थ

इकाई 4 : दसवेआलियं (अध्ययन— 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, लाडनू 1983
- 10 प्राकृत प्रवेशिका—डॉ. कोमलचंद जैन, तारा बुक एजेन्सी, वाराणसी 1989
- 11 प्राकृत वाक्य रचना बोध—युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू 1991
- 12 दसवेआलियं—वाचना प्रमुख, आचार्य तुलसी, जैन विश्व भारती, लाडनू
- 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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 102	अहिंसा एवं शांति (अहिंसा और शांति भारतीय दृष्टि)	A	Core Course	4	30	70	100

Semester-I

उद्देश्य—

1. अहिंसा के स्वरूप की जानकारी देना।
2. भारतीय दर्शनों में वर्णित अहिंसा दर्शन से परिचित करवाना।
3. प्राचीन साहित्य में अहिंसा व शांति का अध्ययन करवाना।
4. अहिंसा को विभिन्न क्षेत्रों में जानना।

इकाई—1: अहिंसा, हिंसा का स्वरूप एवं क्षेत्र, अहिंसा का स्वरूप एवं आवश्यकता, अहिंसा का आदिम्रोत, आत्मा का अस्तित्व एवं अहिंसा, अहिंसा व्यापक एवं विधायक, अहिंसा उच्च सक्रिय भावना।

इकाई—2: 1. वेद एवं उपनिषद् में अहिंसा एवं शांति,
2. सांख्य योग में अहिंसा एवं शांति

इकाई—3: गीता एवं महाभारत—प्रवृत्ति बनाम निवृत्ति, निष्काम कर्म, समत्व योग, दण्ड एवं अहिंसा

इकाई—4: 1. जैन अहिंसा का स्वरूप, आधार एवं अहिंसा के विविध रूप अहिंसा एक पर्यावरणीय सिद्धान्त
2. बौद्ध—अपराध और पाप के प्रति बुद्ध का दृष्टिकोण, करुणा का दर्शन एवं अशोक की व्यावहारिक अहिंसा

उपलब्धियाँ—

1. अहिंसा का स्वरूप जानेंगे।
2. भारतीय परिप्रेक्ष्य में अहिंसा दर्शन को समझेंगे।
3. वेद—उपनिषद् में अहिंसा को समझेंगे।
4. विभिन्न धर्मों में अहिंसा के रूप को जानेंगे।

पाठ्य पुस्तकें :

1. अहिंसा तत्व दर्शन—आचार्य महाप्रज्ञ
2. जैन धर्म में अहिंसा—वशिष्ठ नारायण सिन्हा

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory	Total
BOA 103	हिन्दी साहित्य (भक्ति काव्य)	A	Core Course	4	30	70	100

सेमेस्टर – I

उद्देश्य—

1. भक्तिकालीन काव्य एवं कवियों से परिचित करवाना।
2. विभिन्न साहित्यकारों की काव्यशैलियों से परिचित करवाना।

इकाई I

1. भक्तिकाल काव्य का इतिहास, प्रेरक परिस्थितियाँ, काव्य धाराएँ एवं उनकी प्रवृत्तियाँ एवं विशेषताएँ।

इकाई II

1. कबीर – कवि परिचय, पद व्याख्याएँ (1–10 पद्य)।
2. जायसी— कवि परिचय, सिंहल द्वीप वर्णन खण्ड (2,5,6,11,12,13,14)।
3. सूरदास – कवि परिचय, विनय के पद।
4. इकाई से सम्बन्धित कवियों की काव्यगत विशेषताओं से सम्बन्धित प्रश्नोत्तर।

इकाई III

1. तुलसीदास – कवि परिचय, बाललीला वर्णन एवं धनुष यज्ञ की पद व्याख्याएँ।
2. रसखान – कवि परिचय, (क्रमशः 1–12 व 22वाँ पद)।
3. मीरा बाई – कवयित्री परिचय, मीरा पदावली (क्रमशः 1,2,3,4,5,6,9,10,13,14,16,18,20,22,24) पद व्याख्याएँ।
4. इकाई से सम्बन्धित कवियों एवं कवयित्री की काव्यगत विशेषताओं से सम्बन्धित प्रश्नोत्तर।

इकाई IV

1. काव्य का इतिहास
2. काव्य का अर्थ, परिभाषाएँ, काव्य गुण,
3. अलंकार – अनुप्रास, यमक, श्लेष, उपमा, रूपक, उत्प्रेक्षा, अतिशयोक्ति, भ्रान्तिमान
4. शब्द शक्तियाँ

उपलब्धियाँ—

1. 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. भक्तिकालीन साहित्य की जानकारी प्राप्त कर भावी प्रतियोगिता परीक्षाओं के लिये स्वयं को तैयार कर सकेंगे।

पाठ्यपुस्तक

1. भक्तिकालीन काव्य साहित्य, लेखक— कैलाश भट्ट, सम्पादक—प्रो. नन्दलाल कल्ला, प्रकाशक—जैन विश्वभारती संस्थान (मान्य विश्वविद्यालय), लाडनू

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 ग्रंथावली, संपादक श्यामसुंदरदास
5. जायसी —पद्मावत, संपादक, आचार्य रामचन्द्र शुक्ल
6. मीरा ग्रंथावली संपादक कल्याण सिंह शेखावत
7. रसखान ग्रंथावली संपादक विद्यानिवास मिश्र
8. सूरदास — संपादक — आचार्य रामचन्द्र शुक्ल
9. गोस्वामी तुलसीदास — रामचन्द्र शुक्ल
10. कबीर — हजारी प्रसाद द्विवेदी
11. हिन्दी साहित्य का सुगम इतिहास — हरेराम पाठक
12. हिन्दी साहित्य का सुबोध इतिहास — बाबू गुलाबराय
13. हिन्दी साहित्य का संवेदना एवं विकास — रामस्वरूप चतुर्वेदी

Course Code	Course Title	Croup	Course Category	Credit	C.I.A Continuous Internal Assessment	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 understand Elizabethan and Romantic Poetry.
2. To make them aware about Indian Poetry.
3. To familiarize them with the dramatic art.
4. To acquaint them with some literary terms and Figures of Speech of these genres.

Unit I Four One Act Plays

Anton Chekhov :The Boor

William Stanley Houghton :The Dear Departed

Mc. Kinnel : Bishop's Candlesticks

John Galsworthy : The Little Man

Unit II Poems from Poet's Pen: (Ed.) Homi p Dustoor. Oxford University Press

Shakespeare : All the World's a Stage

James Shirley: Death the Leveller

Alexandar Pope : From An Essay on Man

Alfred Lord Tennyson : The Charge of the Light Brigade

William Wordsworth : The Solitary Reaper

James Leigh Hunt : About Ben Adam

Unit III Poems from **Indian Poetry in English.**

R. N. Tagore : Where the Mind is Without Fear

Sarojini Naidu : Indian Weavers

P. Lal : The Lecturer

K. N. Daruwalla : Graft

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. Contemporary Indian Poetry in English: (Ed.) Saleem Peerandina. MacMillan, New Delhi.

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	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 रूपों की जानकारी प्रदान करना।
3. राजस्थानी के विभिन्न कवियों की काव्य शैलियों से परिचित करवाना।

इकाई—1

1. आधुनिक राजस्थानी काव्य का इतिहास: 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।

इकाई—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 रूपों 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 रूपों की जानकारी प्राप्त करेंगे।
3. राजस्थानी के विभिन्न कवियों की काव्य शैलियों से 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	C.I.A. (Continouns Internal Assessment)	Theory	Total
BOA 106	संस्कृत व्याकरण एवं साहित्य (कालू कौमुदी)	B	Core Course	4	30	70	100

- विद्यार्थी BOA 106 अथवा 107 में से किसी एक पत्र का चुनाव करें।

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 कौमुदी (पूर्वार्ध) —संज्ञा, सन्धि, स्यादि प्रकरण (स्वरान्त स्यादि तक) (सूत्र1-203)

(क) संज्ञा, सन्धि —(1) संज्ञा विधायक सूत्र, (2) सूत्रार्थ, (3) संधि विषयक प्रश्न

(ख) स्यादि प्रकरण सूत्र (1-203)—(1) रूपसिद्धि, (2) सूत्रार्थ, (3) शब्द रूपावली

इकाई 2 : वाक्य रचना बोध (पाठ 1-15)

(1) हिन्दी से संस्कृत अनुवाद, (2) संस्कृत से हिन्दी अनुवाद, (3) शब्दार्थ

इकाई 3 : सुप्रभातम्

(1) हिन्दी अनुवाद, (2) कथा सारांश

इकाई 4 : अभिधान चिन्तामणि छठाकाण्ड (श्लोक 01 से 30)

(1) 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।

पाठ्य पुस्तक/संदर्भ ग्रंथ

1. कालू कौमुदी, मुनि चौथमल आदर्श साहित्य संघ, चूरु।
2. वाक्य रचना बोध, आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनू।
3. सुप्रभातम्, आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनू।
4. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी।
5. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे।

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 107	संस्कृत व्याकरण एवं साहित्य (लघुसिद्धान्त कौमुदी)	B	Core Course	4	30	70	100

- विद्यार्थी BOA 106 अथवा 107 में से किसी एक पत्र का चुनाव करें।

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. लघुसिद्धान्त कौमुदी : संज्ञा, संधि, सुबन्त प्रकरण (अजन्त पुल्लिङ्ग 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।

पाठ्युक्तक/ 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, लाडनू।
4. अभिधान चिन्तामणि नाममाला, चौखम्बा प्रकाशन, वाराणसी।
5. संस्कृत रचनानुवाद कौमुदी, बी.एस. आप्टे।

Course Code	Course Title	Group	Course Category	Credit	Assignment	Theory	Total
BOA 108	राजनीति विज्ञान (राजनीति विज्ञान के मूल आधार)	B	Core Course	4	30	70	100

सेमेस्टर –I

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 शास्त्र: अर्थ, क्षेत्र, राजनीति शास्त्र की अध्ययन पद्धतियाँ, व्यवहारवाद, उत्तर-व्यवहारवाद।

इकाई—2 राज्य : राज्य के मूल तत्व, राज्य के कार्य, राज्य विकास के विभिन्न सिद्धान्त: दैवी सिद्धान्त, शक्ति सिद्धान्त, सामाजिक संविदा सिद्धान्त, विकासवादी सिद्धान्त, सम्प्रभुता की अवधारणा : सम्प्रभुता का स्वरूप, सम्प्रभुता के मूल तत्व, सम्प्रभुता सिद्धान्त की आलोचना।

इकाई—3 राजनीतिक आधुनिकीकरण, राजनीतिक विकास, राजनीतिक दल एवं दवाब समुह, सरकार के अंग: व्यवस्थापिका, कार्यपालिका एवं न्यायपालिका, एकात्मक एवं संघात्मक प्रणाली, संसदीय एवं अध्यक्षीय प्रणाली।

इकाई—4 राजनीतिक विचारधाराएँ: उपयोगितावाद, आदर्शवाद, समाजवाद, मार्क्सवाद, लोक कल्याणकारी राज्य, गाँधीवाद एवं सर्वोदय, अणुव्रती समाज की रूपरेखा

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।

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 109	जीवन विज्ञान (जीवन विज्ञान : सिद्धान्त)	B	Core Course	4	30	50+20	100

सेमेस्टर –I

सैद्धान्तिक भाग

उद्देश्य—

1. भारतीय संस्कृति की जानकारी देना।
2. जीवन विज्ञान के उद्भव और विकास को समझाना।
3. जीवन विज्ञान के मूल अंगों से परिचित करवाना।
4. अनेकांत और अहिंसा के सैद्धान्तिक और प्रायोगिक बिन्दुओं को समझाना।

इकाई : 1 (क) **भारतीय संस्कृति** : स्वरूप, विशेषताएं, संकट के कारण, सुरक्षा के प्रयास, सुरक्षा के उपाय—अध्यात्म, योग, संस्कृति का शिक्षण और प्रशिक्षण, जीवन विज्ञान

(ख) **जीवन विज्ञान : उद्भव एवं विकास** : ऐतिहासिक पृष्ठभूमि, स्वरूप, प्रविधियां, मूल अंग

इकाई : 2 (क) **जीवन विज्ञान एवं उसका अन्य विद्या शाखाओं से सम्बन्ध** : भौतिक विज्ञान, जीव विज्ञान, शरीर विज्ञान, समाज विज्ञान, दर्शनशास्त्र, नीतिशास्त्र, मनोविज्ञान, तथा पर्यावरण विज्ञान के साथ जीवन विज्ञान का सम्बन्ध

(ख) **जीवन विज्ञान की उपयोगिता** : व्यक्तित्व विकास, शिक्षा, प्रशासन, चिकित्सा, सामाजिक जीवन, उद्योग में जीवन विज्ञान

इकाई —3 (क) **अनेकान्त** : अनेकान्त स्वरूप, अनेकान्त के आधारभूत तत्व—सत् प्रतिपक्ष, सह—अस्तित्व, सापेक्षता, स्वतन्त्रता, समन्वय, अनेकान्त और अहिंसा

(ख) **अनेकान्त के व्यावहारिक प्रयोग** : परिवार, समाज, अर्थनीति, राजनीति, विश्व शांति, लोकतन्त्र में अनेकान्त

इकाई—4 (क) **अहिंसा का सिद्धान्त** : अहिंसा का स्वरूप, अर्थ एवं परिभाषा, विभिन्न धर्मों में अहिंसा, जीवन शैली और अहिंसा, अहिंसा और आहार, अहिंसा और आसन, हिंसा : मानसिक तनाव और नशा

(ख) **अणुव्रत आन्दोलन** : स्वरूप—पृष्ठभूमि, सूत्रपात एवं विकास, वर्तमान स्वरूप, अणुव्रत आन्दोलन का महत्व एवं प्रासंगिकता, अणुव्रत का कार्यक्षेत्र, स्वस्थ समाज रचना का आधार : अणुव्रत

प्रायोगिक भाग

1. समस्त यौगिक क्रियाएं
2. आसन—ताडासन, समपादासन, शंशाकासन, सुप्तव्रजासन
3. प्राणायाम—चन्द्रभेदी व सूर्यभेदी प्राणायाम
4. सम्पूर्ण कायोत्सर्ग
5. अनुप्रेक्षा—सहिष्णुता

उपलब्धियाँ—

1. भारतीय संस्कृति की सुरक्षा के उपायों की जानकारी प्राप्त कर सकेंगे।
2. जीवन-विज्ञान विषय को जान सकेंगे।
3. वर्तमान में अनेकान्त की प्रासंगिकता को जान सकेंगे।
4. विश्व शान्ति एवं आतंकवाद के निवारण में अहिंसा की भूमिका को जान सकेंगे।

पाठ्यपुस्तक / संदर्भ पुस्तकें

1. जीवन-विज्ञान सिद्धान्त, समणी श्रेयसप्रज्ञा, जैन विश्वभारती विश्वविद्यालय, लाडनूं
2. जीवन-विज्ञान की रूपरेखा, समाकलन- मुनि धर्मेश, जैन विश्वभारती संस्थान, लाडनूं
3. जीवन-विज्ञान शिक्षा का नया आयाम- आचार्य महाप्रज्ञ, तुलसी अध्यात्मनीडम प्रकाशन, लाडनूं
4. अनेकांत तीसरा नेत्र- आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूं
5. जीवन-विज्ञान शिक्षक संदर्शिका- मुनि किशनलाल, जैन विश्व भारती, लाडनूं
6. जीवन-विज्ञान प्रायोगिक- डॉ. अशोक भास्कर, दूरस्थ शिक्षा, जैन विश्वभारती संस्थान, लाडनूं
7. जीवन विज्ञान, प्रेक्षाध्यान और योग- समणी मल्लि प्रज्ञा, जैन विश्वभारती संस्थान, लाडनूं

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 110	Social Work(Social Work: Concept and Practice)	B	Core Course (CC)	4	30	70	100

Semester – I

Objectives:

1. Understand the basic Social Work concepts, principles, theories & its application in social work profession.
2. Understand the history of Social Work Profession in India & abroad.
3. Understand the basic values and principles of Social Work profession.

Unit 1: Basic Concepts Related to Social Work

Basic concepts related to Social Work: Social Work, Social Service and Social Development, Social Welfare, Social Reform, Social Justice and Social Security, Empowerment.

Unit –2: Social Work: Concept and Historical Development

Social Work: Concept, Meaning, Definitions, Principles, Basic Assumptions, Objectives, Nature and Scope

Historical Development of Social Work in India and Abroad, Social Work as a Profession

Unit-3: Methods of Social Work-I

Social Case Work: Meaning, Objectives and Principles and Process. Social Group Work: Meaning, Objectives, Principles and Skills, Community Organisation: Meaning, Objectives and Principles

Unit-4: Methods of Social Work-II

Social Welfare Administration: Concept, Meaning, Definitions and areas, and Social Work Research: Concept, Meaning, Definitions, Objectives and Steps, Social Action: Concept, Meaning, Definitions, models, Strategies.

Outcome-

1. Student will understand the basic Social Work concepts, principles, theories & its application in social work profession.
2. Student will understand the history of Social Work Profession in India & abroad.
3. Student will Understand the basic values and principles of Social Work profession.

Suggeted Books :

1. Gore, M.S. Social Work and Social Work Education, New Delhi: Asi Publishing House.1965
2. Wadia, A.R. (Eds.) History and Philosophy of Social Work in India, Mumbai: Allied Publisher Private Ltd.1968
3. Compton, B.R. Social Work Processes, Illinois: The Dorsey Press.1979
4. Nair, T.K. Social Work Education and Social Work Practice in India, Madras: Association of Schools of Social Work. 1981
5. Jacob, K.K. Social Work Education in India, N. Delhi: Himanshu publications. 1994
6. Woodroffe, K. From Charity to Social Work - In England and the United States, London: Routeledge & Kegan Paul. 2000
7. Healy, Karen Social Work Practices, London: Sage Publications.2000
8. Banerjee, G.R. Papers on Social Work, Mumbai: T.I.S.S. 2000
9. Dominelli, L. Social Work: Theory and Practice for a Changing Profession, UK: Polity. 2004
4. डॉ. कुमार, गिरीश, समाज कार्य के क्षेत्र, महात्मा गांधी मार्ग, लखनऊ, यू.पी., 1996
5. मदन, जी.आर., समाज कार्य, विवेक प्रकाशन, दिल्ली, 1996।
6. शास्त्री, राजाराम, समाज कार्य, उत्तरप्रदेश, दिल्ली संस्थान, राजश्री पुरुषोत्तमदास टण्डन, हिन्दी भवन 6, महात्मागांधी मार्ग, लखनऊ, 1989।
7. 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।
8. पाण्डेय, तेजस्कर, पाण्डेय, ओजस्कर, समाज कार्य, भारत बुक सेन्टर, 17, अशोक मार्ग, लखनऊ।

Semester I

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory & Practical	Total
BOA 111	FUNDANMENTALS OF IT– I	C	Core Course (CC)	4	30	50+20	100

Objective:

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

1. It will expose the students to the fundamentals of the IT
2. Students will have the introductory knowledge of the MS-Windows
3. Practically students will be able to use MS-PowerPoint and MS-Word.

Course Contents:

Unit I

Computer: Introduction, What is Computer, Basic Applications of Computer, Components of Computer System, Central Processing Unit, Keyboard, mouse and VDU, Other Input devices, Other Output devices, Computer Memory, Concept of Hardware and Software, Hardware, Software, Application Software, Systems software, Concept of computing, data and information, Applications of IECT, e-governance, Entertainment.

Unit II

Operating System :Introduction, Basics of Operating System, Operating system, Basics of popular operating system (LINUX, WINDOWS), The User Interface, Task Bar, Icons, Menu, Running an Application, Operating System Simple Setting, Changing System Date And Time, Changing Display Properties, To Add Or Remove A Windows Component, Changing Mouse Properties, Adding and removing Printers, File and Directory Management, Creating and renaming of files and directories, Common utilities

Unit III

Word Processing : Introduction, Word Processing Basics, Opening Word Processing Package, Menu Bar, Using The Help, Using The Icons Below Menu Bar, Opening and closing Documents, Opening Documents, Save and Save as, Page Setup, Print Preview, Printing of Documents, Text Creation and manipulation, Document Creation, Editing Text, Text Selection, Cut, Copy and Paste, Spell check, Thesaurus, Formatting the Text, Font and Size, Alignment of Text, Paragraph Indenting, Bullets and Numbering, Changing case, Table Manipulation, Mail Merge

Unit IV

Presentations: Introduction, Objectives, Basics, Using PowerPoint, Opening A PowerPoint Presentation, Saving A Presentation, Creation of Presentation, Creating a Presentation Using a Template, Creating a Blank Presentation, Entering and Editing Text, Inserting And Deleting Slides in a Presentation. Inserting Word Table or An Excel Worksheet, Adding Clip Art Pictures, Inserting Other Objects, Resizing and Scaling an Object, Presentation of Slides, Viewing A Presentation, Choosing a Set Up for Presentation, Printing Slides And Handouts, Slide Show, Running a Slide Show, Transition and Animation

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, 2015
4. Fundamentals of computers (English) 1st Edition by Reema Thareja, Oxford University Press, 2019

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	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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 113	इतिहास (प्राचीन भारत का इतिहास) (प्रारंभ से 1206 ई. तक)	C	Core Course (CC)	4	30	70	100

सेमेस्टर-I

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 परीक्षाओं के लिये उपयोगी बनाना।

इकाई-1

प्राचीन भारतीय इतिहास की जानकारी के प्रमुख स्रोत-पुरातात्विक, साहित्यिक एवं विदेशी यात्रियों के वृत्तान्त। जैन स्रोत-आगम ग्रन्थ। सिन्धुघाटी सभ्यता-खोज, विस्तारक्षेत्र, कालक्रम, नगर योजना, आर्थिक स्थिति, सामाजिक स्थिति एवं पतन।

इकाई -2

वैदिक सभ्यता मूल निवास, स्थान, राजनैतिक, आर्थिक एवं सामाजिक स्थिति। सोलह महाजनपदों का उदय। मौर्य वंश-चन्द्रगुप्त मौर्य का उदय एवं उपलब्धियाँ, अशोक का धम्म, नितियाँ, 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 का इतिहास, (चन्द्रगुप्त प्रथम, समुद्रगुप्त, चन्द्रगुप्त द्वितीय, कुमारगुप्त, स्कन्दगुप्त) राजनीतिक इतिहास एवं प्रशासन।

इकाई-4

गुप्तकालीन संस्कृति (इतिहास का स्वर्णकाल)-कला, साहित्य, एवं विज्ञान की उन्नति। गुप्तोत्तर भारत-हर्षवर्धन की राजनीतिक एवं सांस्कृतिक उपलब्धियाँ। राजपूत राज्यों के पतन के उत्तरदायी कारण। विग्रहराज चौहान, भोज परमार।

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 / संदर्भ ग्रंथ:

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

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory+ Practical	Total
BOA 114	Geography(Physical Geography)	C	Core Course (CC)	4	30	50+20	100

*** Note – Stencils and simple calculator are permitted in theory and practical examination.**

Semester - I

Objectives-

1. To attain knowledge in detail about physical geography and associated branches.

Unit-I

- a) Definition and Scope of Physical Geography
- b) Origin of the Earth : Introduction, Monistic - Kant & Laplace hypothesis, Dualistic - James Jeans hypothesis & Big Bang theory
- c) Geological Time Scale
- d) Interior of the Earth : Structure, Composition & Zones
- e) Origin of the Continent and Oceans : Wegener's theory of Continental Drift, Plate-Tectonics and Sea Floor Spreading Theory

Unit- II

- a) Theories of Mountain Building : Geosyncline Orogen theory of Kober
- b) Isostasy : Concept and Views of Airy and Pratt
- c) Cycle of Erosion : Davis & Penck
- d) Volcanoes and Earthquake
- e) Denudation Process and their driving forces
 1. Weathering: Physical, Chemical, Biological
 2. Erosion: by Wind, River, Glacier, Underground water, Waves
 3. Mass Trans-Location: Gradual flow, Rapid flow, Extreme rapid flow

Unit – III

- a) Drainage Pattern
- b) Atmosphere:
 1. Composition and Structure
 2. Temperature, Insolation and Heat Budget
 3. Air Pressure and Atmospheric Circulation
- c) Frontogenesis, Cyclone and Anticyclone
- d) General Climate Classification : W. Koppen & Thornthwaite

Unit - IV

- a) Reliefs of the ocean basins
- b) 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) Definition and Types of Scale : Simple, Comparative and Diagonal

- b) Representation of Relief : Methods of Showing different Relief features; Hachures, Hill Shading, Bench-Mark, Spot-Height
- c) Contours and Drawing of Cross Section: Conical Hill, Plateau, Types of Slopes, Valleys, Ridge, Saddle, Gorge, Waterfall and Rapids, Escarpment, Lake, Spur, Meanders and Cliff
- d) Profiles: Serial, Superimposed, Projected and Composite
- e) Enlargement, Reduction and Combination of Maps

Outcome-

- 1. Knowledge about three branches of Physical Geography : Geomorphology, Climatology and Oceanography.
- 2. Gain awareness about the reasons for natural disasters & their mitigation.
- 3. Gain awareness about the atmosphere.
- 4. Gain awareness about the relief features' representation.

Suggested Readings :

- 1. भौतिकभूगोल, डॉ. एल.एन. उपाध्याय, हिन्दीग्रन्थअकादमी 2016।
- 2. सविन्द्रसिंह : भौतिकभूगोल, वसुन्धराप्रकाशन, गोरखपुर।
- 3. शर्मा एच.एस. : “भौतिकभूगोल” पंचशीलप्रकाशन, जयपुर।
- 4. चतुर्भुजमामोरिया एवंजैन : भौतिकभूगोल एवंजीवमण्डल, साहित्य भवनआगरा।
- 5. वीरेन्द्र सिंह चौहान : भौतिकभूगोल, रस्तोगीपब्लिकेशन्स, मेरठ।
- 6. उपाध्याय एल.एन. : भौतिकभूगोल, राजस्थानहिन्दीग्रन्थअकादमी, जयपुर

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assessment)	Theory	Total
BOA 115	Jainology (जैन इतिहास एवं 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 भगवान महावीर से पार्श्वनाथ तक

- जैन धर्म और इसकी प्राचीनता
- कालचक्र और कुलकर व्यवस्था
- भगवान ऋषभ का जीवन-दर्शन, भरत का अनासक्त योग
- भगवान अरिष्टनेमि और भगवान पार्श्वनाथ

इकाई-2 : भगवान महावीर और उनकी उत्तरवर्ती परम्परा

- भगवान महावीर का जीवन और साधना
- गणधर और निहन्व
- श्वेताम्बर और दिगम्बर आचार्य

इकाई-3 : जैन संस्कृति एवं साहित्य

- आगम वाचना और आगम विभाजन
- आगमों का व्याख्या साहित्य एवं उत्तरवर्ती साहित्य
- जैन संस्कृति की विशेषताएं और जैन पर्व
- जैन कला, तीर्थस्थल तथा जैन धर्म के प्रचार में राजाओं का योगदान

इकाई-4 : चिन्तन के विकास में जैन —दर्शन का योगदान

- भगवान महावीर और जनतन्त्र तथा अनेकान्तवाद
- साध्य-साधनवाद
- 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	C.I.A. (Continouns Internal Assesment)	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 : तुलसी मंजरी (सूत्र 235 से 393)

- (1) रूप सिद्धि
- (2) संस्कृत शब्द से प्राकृत शब्द
- (3) प्राकृत शब्द से संस्कृत शब्द

इकाई 2 : प्राकृत 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 : प्राकृत गद्य सोपान (अध्ययन 1-20)

- (1) सप्रसंग अनुवाद, व्याख्या
- (2) आलोचनात्मक प्रश्न
- (3) लघूत्तरात्मक प्रश्न
- (4) वस्तुनिष्ठ प्रश्न
- (5) शब्दार्थ

इकाई-4 : प्राकृत 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 बड़ेगा।
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, लाडनू 1983
- 9 प्राकृत प्रवेशिका—डॉ. कोमलचंद जैन, तारा बुक एजेन्सी, वाराणसी 1989
- 10 प्राकृत वाक्य रचना बोध—युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू 1991
- 11 प्राकृत भाषा प्रबोधनी—डॉ. समणी संगीतप्रज्ञा, जैन विश्वभारती संस्थान, लाडनू 2011
- 12 प्राकृत गद्य सोपान—डॉ. प्रेमसुमन जैन, राजस्थान प्राकृत भारती अकादमी, जयपुर
- 13 प्राकृत रचना सौख्य—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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 202	अहिंसा एवं शांति (अहिंसा का व्यवहार)	A	Core Course (CC)	4	30	70	100

सेमेस्टर –II

उद्देश्य—

1. विभिन्न धर्मों में वर्णित अहिंसा एवं शांति तत्त्व को समझाना।
2. पाश्चात्य धर्मों में अहिंसा व शांति के रूप को समझना।
3. यहूदी, ईसाई, इस्लाम व सूफी धर्म की शिक्षाओं को बताना।
4. विभिन्न धर्मों के सन्तों की जीवनियों को बताना।

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 अहिंसा और शांति, शांति का स्वरूप, अहिंसा और विश्व शांति, अहिंसा: सापेक्षता एवं सह-अस्तित्व।

उपलब्धियाँ—

1. सभी धर्मों के प्रति सद्भावना बढ़ेगी।
2. आपसी प्रेम, भाईचारा बढ़ेगा।
3. एक-दूसरे धर्मों के प्रति आस्था बढ़ेगी।

पाठ्य पुस्तकें

1. अहिंसा की शक्ति—रिचर्ड बी. ग्रेग
2. अहिंसा और शांति—आचार्य महाप्रज्ञ
3. अहिंसा तत्व दर्शन—आचार्य महाप्रज्ञ
4. जीवन धर्म अहिंसा—भगवानदास केला

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 203	हिन्दी साहित्य कथा साहित्य	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।

इकाई I

1. हिन्दी कहानी का इतिहास (उद्भव एवं विकास)।
2. हिन्दी उपन्यास का इतिहास (उद्भव एवं विकास)।

इकाई II

1. उपन्यास : महाभोज — लेखिका मन्नू भण्डारी
2. महाभोज लेखिका का सामान्य परिचय, उपन्यास की महत्वपूर्ण व्याख्याएँ एवं सम्बन्धित प्रश्नोत्तर

इकाई III : कहानियाँ—

1. गुल्ली डण्डा — मुंशी प्रेमचन्द
2. ममता — जयशंकर प्रसाद
3. सेव और देव — अज्ञेय
4. परदा — यशपाल
5. परमात्मा का कुत्ता — मोहन राकेश
6. इकाई में सम्मिलित सभी कहानियों की महत्वपूर्ण व्याख्याएँ तथा प्रश्नोत्तर

इकाई IV : कहानियाँ—

1. बिरादरी बाहर — राजेन्द्र यादव
2. अकेली — मन्नू भण्डारी
3. झुटपुटा — भीष्म साहनी
4. फेन्स के इधर और उधर — ज्ञान रंजन
5. बर्डे — स्वयं प्रकाश
6. इकाई में सम्मिलित सभी कहानियों की महत्वपूर्ण व्याख्याएँ तथा प्रश्नोत्तर

उपलब्धियाँ—

1. विद्यार्थी उपन्यास एवं कहानी साहित्य की विस्तृत जानकारी प्राप्त कर हिन्दी कहानियों की विभिन्न लेखन शैलियों से परिचित हो सकेंगे।
2. विद्यार्थी स्वयं कहानी लेखन का अभ्यास कर सकेंगे।

पाठ्यपुस्तक :

1. कहानी एवं उपन्यास, कैलाश भट्ट, सम्पादक—प्रो. नन्दलाल कल्ला, प्रकाशक—जैन विश्वभारती संस्थान (मान्य विश्वविद्यालय), लाडनू

संदर्भग्रंथ

1. कथा संचय, सं. दुर्गा प्रसाद अग्रवाल, यूनिवर्सिटी बुक हाउस, नई दिल्ली
2. हिन्दी उपन्यास: लक्ष्मीसागर वार्ष्णेय, राधाकृष्ण प्रकाशन नई दिल्ली
3. हिन्दी कहानी: स्वरूप और संवेदना—राजेन्द्र यादव, नेशनल पब्लिशिंग हाउस नई दिल्ली
4. कहानी: नई कहानी—नामवरसिंह, लोकभारती प्रकाशन, इलाहाबाद
5. हिन्दी साहित्य का इतिहास, नगेन्द्र, मयूर पेपर बैक्स, नोएडा
6. हिन्दी कहानी: अन्तरंग पहचान—रामदरश मिश्र नेशनल पब्लिशिंग हाउस नई दिल्ली
7. हिन्दी उपन्यास: एक अंतर्गता—रामदरश मिश्र राजकमल प्रकाशन नई दिल्ली
8. कथाकार वृंदावन लाल वर्मा—शशिभूषण सिंहल, हरियाणा साहित्य अकादमी चंडीगढ़
9. हिन्दी गद्य का इतिहास — डॉ. रामचन्द्र तिवारी
10. उपन्यास का विकास — मधुरेश
11. हिन्दी कहानी का इतिहास — गोपाल राय
12. हिन्दी उपन्यास का इतिहास — गोपाल राय

Course Code	Course Title	Group	Course Category	Credit	C.I.A (continuous Internal Assessment)	Theory	Total
BOA 204	English Literature (Prose and Fiction)	A	Core Course (CC)	4	30	70	100

Semester II

Objectives:

1. To enable students to understand stories and its forms.
2. To familiarize with prose and Narrative art.
3. To acquaint them with some literary terms of these genres.

Unit I Stories from **A Choice of Short Stories.**

(Ed. Shakti Batra and PS Sidhu. OUP.)

Pearl S. Buck : The Refugee

C Rajagopalachari : The Nose-Jewel

Khushwant Singh : The Interview

Kartar Sinbgh Duggal : Miracle

P. Padmaraju : Cyclone

R. N. Tagore : The Baboos of Nayanjore

Mulk Raj Anand : The Lost Child

HH Munro (Saki) : Dusk

Unit II: English Essays

Of Studie : Francis Bacon

Charles Lamb : Dream Children: A Reverie

Oliver Goldsmith : On National Prejudices

G.K. Chesterton : On the Pleasures of No Longer Being Very Young

Unit III. George Orwell : **Animal Farm.** Orient Longman.

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. Orwell, George. *Animal Farm*. Orient Longman.
6. Abraham, M. H. *A Glossary of Literary Terms*. MacMillan, New Delhi.

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 206	संस्कृत(संस्कृत व्याकरण एवं साहित्य) (कालूकौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA 206 अथवा 207 में से किसी एक पत्र का चुनाव करें।

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-1 : कालू कौमुदी (पूर्वार्द्ध) स्यादि प्रकरण (हसान्त स्यादि तक— सूत्र 204 से 269) युस्मद्-अस्मद्, अव्यय, स्त्री प्रत्यय, (सूत्र 270 से 392)

- (1) रूप सिद्धि
- (2) सूत्रार्थ
- (3) शब्द रूपावली

इकाई-2 : वाक्य रचना बोध (16 से 29 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 चिन्तामणि छठा काण्ड (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 शुद्धाशुद्धि का अभ्यास होगा।
2. श्लोक रचना आदि में युग्मद्—अस्मद्, अव्यय का कार्यकारी ज्ञान होगा।
3. सरल संस्कृत संभाषण का प्रयास रहेगा।

पाठ्य पुस्तक/ संदर्भ ग्रंथ :

1. कालु कौमुदी, आदर्श साहित्य संघ, चूरु
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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 207	संस्कृत (संस्कृत व्याकरण एवं साहित्य) (लघु सिद्धांत कौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA 206 अथवा 207 में से किसी एक पत्र का चुनाव करें।

सेमेस्टर-II

उद्देश्य—

1. शब्दों के स्त्रिलिङ्गी 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 स्त्रीलिङ्ग 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 छठाकाण्ड (श्लोक 31 से 60)

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ—

1. स्त्रीलिंग 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. शेषुषी, 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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 208	राजनीति विज्ञान (भारतीय राजनीतिक व्यवस्था)	B	Core Course (CC)	4	30	70	100

सेमेस्टर –II

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—1

संवैधानिक विकास : 1919–1935 तक, भारत शासन अधिनियम 1919 तथा भारत शासन अधिनियम, 1935 के अन्तर्गत शासन व्यवस्था एवं क्रियान्वयन, 1935–1947 की अवधि में भारतीय राष्ट्रीय आन्दोलन।

इकाई—2

भारतीय संविधान निर्मात्री सभा एवं भारतीय संविधान निर्माण प्रक्रिया, प्रस्तावना (Preamble) का स्वरूप, भारतीय संविधान की विशेषताएँ, मौलिक अधिकार एवं कर्तव्य, राज्य के नीति निर्देशक तत्व, भारतीय संघीय व्यवस्था

इकाई—3

राष्ट्रपति का पद एवं उसकी शक्तियाँ—सामान्य एवं आपातकालीन, प्रधानमंत्री एवं मन्त्री परिषद, लोक सभा एवं राज्य सभा : गठन एवं शक्तियाँ, सर्वोच्च न्यायालय : गठन एवं शक्तियाँ, न्यायिक पुनरावलोकन।

इकाई—4

राज्यपाल, मुख्यमंत्री एवं मन्त्री परिषद, भारत में संविधान संशोधन। चुनाव आयोग। भारतीय राजनीति की प्रमुख समस्याएँ—क्षेत्रीयतावाद, साम्प्रदायिकतावाद, जाति, भाषावाद, राष्ट्रीय एकीकरण।

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 ग्रन्थ:

1. बी.एल. फडिया : भारतीय राजनीतिक व्यवस्था, साहित्य भवन पब्लिकेशन्स, आगरा।
2. डॉ. पुखराज जैन : भारत का राष्ट्रीय आन्दोलन एवं भारतीय संविधान, साहित्य भवन पब्लिकेशन्स, आगरा।
3. बी.एल. फडिया : भारत का संविधान, साहित्य भवन पब्लिकेशन्स, आगरा।
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 : भारतीय शासन एवं राजनीति, साहित्य भवन पब्लिकेशन्स, आगरा।
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।

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 209	जीवन विज्ञान (जीवन विज्ञान की प्रविधि : प्रेक्षाध्यान और योग)	B	Core Course (CC)	4	30	50+20	100

सेमेस्टर –II

सैद्धान्तिक भाग

उद्देश्य—

1. प्रेक्षाध्यान के अंगों का परिचय करवाना।
2. प्रेक्षाध्यान के मुख्य अंगों के आध्यात्मिक और वैज्ञानिक दृष्टिकोण का ज्ञान करवाना।
3. प्रेक्षाध्यान के मुख्य अंगों के प्रयोजन और निष्पत्तियों का ज्ञान करवाना।

इकाई—1 : प्रेक्षाध्यान का परिचय और सहायक अंग

(क) भारतीय परम्परा में योग एवं प्रेक्षाध्यान, योग का अर्थ, परिभाषा एवं योग की विविध शाखाएं, पातंजल योग : अष्टांग योग, प्रेक्षाध्यान उद्भव

(ख) प्रेक्षाध्यान एवं उसके सहायक अंग

- प्रेक्षाध्यान—स्वरूप, अर्थ, ध्येय, मूल स्रोत, आध्यात्मिक आधार, उपसंपदा, अंग।
- आसन—वैज्ञानिक दृष्टिकोण—अस्थितंत्र, श्वसन तंत्र, पाचन तंत्र, रक्त परिसंचरण तंत्र, नाडी तंत्र, अंतःस्रावी ग्रंथि तंत्र आध्यात्मिक दृष्टिकोण—महत्त्व, प्रकार, श्रेणियां, सावधानियां, निष्पत्ति।

(ग) प्राणायाम, मुद्रा और ध्वनि

वैज्ञानिक दृष्टिकोण

आध्यात्मिक दृष्टिकोण

मुद्रा—प्रयोजन, वैज्ञानिकता, विधि एवं निष्पत्ति

ध्वनि—अर्हम् ध्वनि, महाप्राण ध्वनि, प्रयोजन, स्वरूप और परिणाम

इकाई—2 : प्रेक्षाध्यान के मुख्य अंग—I

(क) कायोत्सर्ग— वैज्ञानिक दृष्टिकोण, आध्यात्मिक दृष्टिकोण, निष्पत्ति

(ख) अन्तर्गता—वैज्ञानिक दृष्टिकोण, आध्यात्मिक दृष्टिकोण, निष्पत्तियां

इकाई—3 : प्रेक्षाध्यान के मुख्य अंग—II

(क) श्वासप्रेक्षा

वैज्ञानिक दृष्टिकोण—श्वसन प्रक्रिया, पूर्ण श्वसन के लाभ

आध्यात्मिक दृष्टिकोण—प्राण का आहरण, श्वास और प्राण, श्वास के आलंबन का महत्त्व, दीर्घ श्वास, समवृत्ति श्वासप्रेक्षा।

निष्पत्ति—चित्त की प्रसन्नता, मानसिक एकाग्रता, जागरूकता, समभाव, शक्ति जागरण एवं अतीन्द्रियचेतना का विकास।

(ख) शरीर प्रेक्षा

वैज्ञानिक दृष्टिकोण—नाडी तंत्र, रक्त—संचार तंत्र, पाचन तंत्र, अंतःस्रावी ग्रंथि तंत्र, विसर्जन तंत्र

आध्यात्मिक दृष्टिकोण—प्राण, औदारिक शरीर, तैजस शरीर, कर्मण शरीर

निष्पत्ति —रोग प्रतिरोधात्मक शक्ति का विकास, अशुभ संस्कारों का क्षरण

इकाई-4: प्रेक्षाध्यान के मुख्य अंग-III

(क) चैतन्य केन्द्र प्रेक्षा

वैज्ञानिक दृष्टिकोण

आध्यात्मिक दृष्टिकोण

निष्पत्ति— चैतन्य केन्द्र की निर्मलता, आनन्द का जागरण, शक्ति का जागरण

(ख) लेश्याध्यान

वैज्ञानिक दृष्टिकोण— रंग का स्वरूप, रंग और मनोविज्ञान, आभामण्डल

आध्यात्मिक दृष्टिकोण—लेश्या का स्वरूप, क्रियाकलाप, वृत्तियों का उद्भव स्थान, भावधारा, लेश्या और आभामण्डल

निष्पत्ति—आदतों में परिवर्तन, अपूर्व आनन्द, जितेन्द्रियता, आत्म—साक्षात्कार

उपलब्धियाँ—

1. प्रेक्षाध्यान की आध्यात्मिकता एवं वैज्ञानिकता को जान सकेंगे।
2. प्रेक्षाध्यान के मुख्य अंगों के प्रयोजन और निष्पत्तियों से परिचित हो सकेंगे।
3. तनाव मुक्ति की प्रक्रिया से परिचित हों सकेंगे।
4. शरीर एवं मन की आन्तरिक शक्तियों की जागरण की विधि को जान सकेंगे।

प्रायोगिक

1. मेरुदण्ड की क्रियाएं
2. आसन—भुजंगासन, जानुशिरासन, पश्चिमोत्तानासन त्रिकोणासन
3. प्राणायाम— अनुलोम—विलोम
4. प्रेक्षाध्यान—ध्यान की पूर्व तैयारी, कायोत्सर्ग, अन्तर्यात्रा
5. अनुप्रेक्षा—कर्तव्यनिष्ठा एवं अभय

पाठ्यपुस्तक / संदर्भ ग्रन्थ:

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, सम्पादक 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	C.I.A. (Continous Internal Assesment)	Theory	Total
BOA 210	Social Work (Human Behaviour and Personality)	B	Core Course (CC)	4	30	70	100

Semester – II

Objectives:

1. To acquire a clear understanding of Human Behaviour
2. To develop knowledge and skills regarding the nature and conditions of personality.
3. To gain knowledge about normal and abnormal behaviours.
4. To know attitudes which are basics for the social behaviour

Unit-1: Personality: Conceptual Framework

Personality: Concept, Stages of Development with Special Reference to Indian Concept of Life Span, Types and Determinants.

Unit-2: Processes

Basic Socio-Psychological Processes: Sensation, Perception, Attribution, Learning, Socialization, Motivation, Attitudes, Belief, Prejudices & Stereo-Types.

Unit-3: Human Behaviour

Human Behaviour: Concept, Determinants & Reflectors, Behavioural Problems in Different Stages of Personality Development.

Adjustment: Concept, Characteristics & Factors and Leadership: Concept, Types & Functions

Unit-4: Normal and Abnormal Behaviour

Concept of Normalcy & Abnormalcy, Defence Mechanism, Etiology of Abnormal

Behaviour, Types of Abnormal Behaviour: Psychosis and Psychoneurosis, Management of Mental Disorders.

Outcome-

1. Student will acquire a clear understanding of Human Behaviour
2. Student will develop knowledge and skills regarding the nature and conditions of personality.
3. Student will gain knowledge about normal and abnormal behaviours.
4. Student will know attitudes which are basics for the social behaviour

Suggeted Books:

- 1 Hillgard, Atkinson and Atkinson, Introduction to Psychology, New Delhi: McGraw Hill Publications. 1975
- 2 Halls C.S. and Lindzey, G. Theories of Personality, New York: Wiley. 1978
- 3 Kuppuswamy, B.C. An Introduction to Social Psychology, Bombay: Media Promoters & Pub.Pvt. Ltd. 1980
- 4 Schimberg, L.B. Human Development, London: Macmillan Pub. Co., 2nd Ed. 1985
- 5 Anastasi A.C. Psychological Testing, New York: Macmillan (Rev. Edition) 1987
- 6 हल्लोर्क, बी. एलिजाबेथ, विकास मनोविज्ञान, हिन्दी माध्यम कार्यान्वय निदेशालय, दिल्ली विश्वविद्यालय द्वारा प्रकाशित, प्रथम संस्करण, 1967।
- 7 लाशे, एस.एच., औद्योगिक संबंधों का मनोविज्ञान, राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर, प्रथम संस्करण 1972।
- 8 क्लेने, डी.बी., मानसिक आरोग्य विज्ञान, हरियाणा हिन्दी ग्रंथ अकादमी, चण्डीगढ़, प्रथम संस्करण, 1974, द्वितीय संस्करण, 1976।
- 9 शर्मा, रामनाथ, असामान्य मनोविज्ञान की रूपरेखा, केदारनाथ रामनाथ कोलिज रोड़, मेरठ, प्रथम संस्करण, 1978।
- 10 मिश्र, पी.डी., मिश्र, बीना, असामान्य व्यवहार, उत्तरप्रदेश हिन्दी संस्थान, 1982।
- 11 सिंह, अरुण कुमार, सरल विकासात्मक एवं सामान्य मनोविज्ञान, मोतीलाल बनारसीदास, दिल्ली मुम्बई, चन्नई, कलकत्ता, बैंगलोर, वाराणसी, पुणे, पटना, द्वितीय संशोधन संस्करण, 1997।
- 12 सिंह, अरुण कुमार, सिंह, आशिष कुमार, व्यक्तित्व का मनोविज्ञान, मोतीलाल, बनारसीदास, बंगलो रोड़, दिल्ली-110007, प्रथम संस्करण, 2000।
- 13 सिंह, अरुण कुमार, आधुनिक असामान्य मनोविज्ञान, मोतीलाल बनारसीदास, दिल्ली मुम्बई, चैन्नई, कलकत्ता, बैंगलोर, वाराणसी, पुणे, पटना, प्रथम संस्करण 2001।
- 14 सिंह अरुण कुमार, संज्ञानात्मक मनोविज्ञान, मोतीलाल, बनारसीदास, बंगलो रोड़, दिल्ली-110007, प्रथम संस्करण 2002।
- 15 डॉ. श्रीवास्तव, अजय कुमार, मनोविकृति विज्ञान, विनोद पुस्तक मन्दिर, आगरा-2, प्रथम संस्करण, 2003-2004।
- 16 डॉ. वर्मा, प्रीति, डॉ श्रीवास्तव, डी.एन., आधुनिक सामान्य मनोविज्ञान, अग्रवाल पब्लिकेशन, आगरा-7, 15वां संस्करण, 2007-2008

Semester II

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

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 introduced and Exposed to using Spread Sheet Software.
- Students will be exposed to internet and cyber security concepts .

Unit I

Using Spread Sheets: Introduction: Elements of Electronic Spread Sheet, Opening of Spread Sheet, Addressing of Cells, Printing of Spread Sheet, Saving Workbooks, Manipulation of Cells, Entering Text, Numbers and Dates, Creating Text, Number and Date Series, Editing Worksheet Data, Inserting and Deleting Rows, Column, Changing Cell Height and Width, Formulas and Function, Using Formula, Function

Unit II

Introduction to Internet, www and web browsers: Introduction, Basic of Computer Networks, Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet, Applications of Internet, Connecting to the Internet, Troubleshooting, World Wide Web (WWW), Web Browsing Software, Popular Web Browsing Software, Search Engines, Popular Search Engines / Search for content, Accessing Web Browser, Using Favorites Folder, Downloading Web Pages, Printing Web Pages, Understanding URL, Surfing the web, Using e-governance website

Unit III

Communications and Collaboration: Introduction, Basics of E-mail, What is an Electronic Mail, Email Addressing, Using E-mails, Opening Email account, Mailbox: Inbox and Outbox, Creating and Sending a new E-mail, Replying to an E-mail message, Forwarding an E-mail message, Sorting and Searching emails, Document collaboration, Instant Messaging and Collaboration, Using Instant messaging, Instant messaging providers, Netiquettes

Unit IV

Cyber Security, Introduction to Cyber Security, Basic Cyber Security Concepts, Layers of security, Vulnerability & Threats, Harmful acts, -active attacks, passive attacks, Software attacks, hardware attacks, Cyber Threats-Cyber Warfare, Cyber Crime, Cyber terrorism, Cyber Espionage, etc., Comprehensive Cyber Security Policy

Outcome:

- Students will apply the knowledge of IT practically in their day to day life and use internet effectively.
- Students will be able to use and send email.
- Students will be able to create excel sheets.

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) 1st Edition by Reema Thareja, Oxford University Press, 2014

Practical:

- Creation of Simple Worksheet like Mark sheet , Pay slip using MS-Excel
- General use of internet

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 213	इतिहास (भारतीय संस्कृति के मूलाधार)	C	Core Course (CC)	4	30	70	100

सेमेस्टर-II

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 गौतम 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। मौर्यकालीन कला की मुख्य विशेषताएं, गुप्तकालीन मन्दिर स्थापत्य कला एवं प्रमुख मंदिर, जैन कला की विशेषताएं। मुगल स्थापत्य एवं राजपुत चित्रकला की प्रमुख 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। आर्य समाज एवं ब्रह्म समाज का प्रमुख सामाजिक एवं धार्मिक क्षेत्र में 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

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory+ Practical	Total
BOA 214	Geography (Geography of Rajasthan)	C	Core Course (CC)	4	30	50+20	100

*** Note – Stencils and simple calculator are permitted in theory and practical examination.**

Semester II

Objectives-

1. To provide thorough knowledge of Rajasthan.

Unit-I

- a) Location
- b) Geology
- c) Physiography
- d) Climate
- e) Soil

Unit-II

- a) Natural Vegetation & Wildlife
- b) Water Resources: Rivers, Lakes, Ponds, Wells, Tubewells, Canals and Dams
- c) Mineral Resources: Types, Distribution and Production of Copper, Zinc, Lead, Tungsten, Gypsum, Rock Phosphate
- d) Energy Resources: Types, Distribution and Production Wind Energy, Solar Energy, Nuclear Energy, Thermal Energy

Unit- III

- a) Agriculture Resources: Types, Distribution and Production of Major Crops
- b) Human Resources: Population Growth, Distribution General and Category (Rural- Urban, Male-Female, Literacy, Occupation, ST-SC-OBC population)
- c) Industrial Development under five-year policies
- d) Industries: Introduction, Factors, Distribution, Production and Trade of Textile, Salt, Cement, Marble, Fertilizer, Zinc and Copper Smelting and Tourism

Unit - IV

- a) Transport: Roads, Rails, Airways
- b) Programmes: Desert Development Programme, Tribal Area Development Programme, Aravali Hill Development Programme
- c) Tribes: All tribes of Rajasthan

Practical

- a) Weather symbols and Interpretation of Indian Weather Maps

- b) Weather Instruments: Temperature, Humidity, Atmospheric Pressure, Wind's direction and speed & Precipitation Measuring Instruments (with labeled diagram)
- c) Hythergraph, Climograph, Climatograph & Water Budget
- d) Knowledge of Surveying: Meaning, Classification and Significance
- e) Chain and Tape Surveying: Equipments, Open and Closed Traverse

Outcomes -

1. To get sensitized about climatic conditions and adapt accordingly.
2. Optimum and thoughtful utilization of available resources (Natural & Human).
3. Gain awareness about various Industries of Rajasthan.

Suggested Reading :

- 1 डॉ एच.एम. सक्सेना, राजस्थानकाभूगोल, राजस्थानहिन्दीग्रंथअकादमी, जयपुर 2015
- 2 टी.एस. चौहान, राजस्थानकाभूगोल, श्रीउदयरामचौहान, विज्ञानप्रकाशन, नागौरियोंकाबास, गलीनं. 01, जोधपुर
- 3 आर.एस. भल्ला, राजस्थानकाभूगोल, कुलदीपपब्लिकेशन, जयपुर।
- 4 आर.के. गुर्जर, इन्दिरागांधीनहर क्षेत्र काभूगोल, राजस्थानहिन्दीग्रंथअकादमी, जयपुर।

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continous Internal Assessment)	Theory	Total
BOA 215	Jainology (जैन तत्त्व मीमांसा)	C	Core Course (CC)	4	30	70	100

SEMESTER-II

उद्देश्य—

1. जैन तत्त्व मीमांसा का परिचय देना।
2. पुद्गल, परमाणु की अवधारणा समझाना।

इकाई—1 तत्त्व का स्वरूप, तत्त्व के प्रकार, तत्त्व चिन्तन का लक्ष्य, अस्तिकाय

इकाई—2 द्रव्य, गुण, पर्याय का स्वरूप, भेद एवं संबंध

इकाई—3 जीव स्वरूप, जीव सिद्धि, जीव के प्रकार विभिन्न दृष्टि से

इकाई—4 पुद्गल का स्वरूप, भेद, अवस्थाएं, जीव एवं पुद्गल का सम्बन्ध, पुद्गल, परमाणु

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
1. जैन सिद्धान्त दीपिका, आचार्य तुलसी, जैन विश्व भारती, लाडनूं
2. जैन तत्त्व विद्या, आचार्य तुलसी, जैन विश्व भारती, लाडनूं
3. जैनतत्त्वमीमांसा और आचार मीमांसा, प्रो. समणी ऋजुप्रज्ञा, जैन विश्व भारती, लाडनूं

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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 21–35)

- (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-4 : उत्तराध्ययन (अध्ययन-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, लाडनू 1983
- 10 पाइयगज्जसंगहो—संपादक —डॉ. राजाराम जैन, प्राच्य भारती प्रकाशन, आरा 1987
- 11 भाग—1, उत्तरज्जयणाणि जैन विश्वभारती, लाडनू
- 12 प्राकृत प्रवेशिका—डॉ. कोमलचंद जैन, तारा बुक एजेन्सी, वाराणसी 1989
- 13 प्राकृत वाक्य रचना बोध—युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू 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. नेमीचन्द्र शास्त्री, तारा बुक एजेन्सी, वाराणसी
- 19 प्राकृत कथा साहित्य—डॉ. जगदीशचन्द्र जैन
- 20 उत्तराध्ययनसूत्र एक समीक्षात्मक अध्ययन—युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू
- 21 उत्तराध्ययनसूत्र एक परिशीलन—डॉ. सुदर्शनलाल जैन, प्रकाशक पार्श्वनाथ विद्याश्रम, वाराणसी

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 302	अहिंसा और शांति (अहिंसा और शांति-भारतीयेतर दृष्टि -I)	A	Core Course (CC)	4	30	70	100

सेमेस्टर-III

उद्देश्य-

1. विभिन्न विचारकों के अहिंसा और शांति के चिन्तन को समझाना।
2. पाश्चात्य धर्मों में अहिंसा को बताना।
3. भारतीय विचारकों को भी समझना।

इकाई-1 यहूदी धर्म ग्रन्थ में अहिंसा एवं शांति

इकाई-2 ईसाई धर्म ग्रन्थ में अहिंसा एवं शांति

इकाई-3 इस्लाम धर्म ग्रन्थ में अहिंसा एवं शांति

इकाई-4 प्रमुख विचारक मार्क्स, हेनरी डेविड थोरो, मार्टिन लूथर किंग

उपलब्धियाँ-

1. भारतीय एवं पाश्चात्य चिंतकों की विचारधारा को जानने से तुलनात्मक दृष्टि का विकास होगा।
2. पाश्चात्य दर्शन को जानने का अवसर मिलेगा।
3. जैन दर्शन की सूक्ष्म अहिंसा को भी समझेंगे।

पाठ्य पुस्तकें

- 1 सामान्य धर्म दर्शन-याकू मसीह,
- 2 जैनधर्म में अहिंसा-वशिष्ट नारायण सिन्हा

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 303	हिन्दी साहित्य (रीति काव्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर – III

उद्देश्य –

- 1 रीतिकालीन काव्य एवं कवियों से परिचित करवाना।
- 2 रीतिकालीन काव्य के विभिन्न रूपों की जानकारी करवाना।
- 3 रीतिकालीन कवियों की काव्य शैली से परिचित करवाना।

इकाई I

1. रीतिकालीन काव्य का इतिहास –नामकरण, सीमा निर्धारण, प्रवर्तक, प्रेरक परिस्थितियाँ, प्रमुख कवि एवं उनकी रचना, काव्य धाराएँ, काल की प्रमुख प्रवृत्तियाँ/विशेषताएँ।
2. केशवदास– कवि परिचय, (सरस्वती वंदना, राम वंदना, लंका हनुमान गमन, सीता दर्शन, सीता हनुमान संवाद, हनुमान रावण संवाद, हनुमान राम चर्चा)

इकाई II

1. बिहारी (दोहा सं.–1,2,4,8,9,11,14,15,16,17)
2. धनानन्द
3. देव – जीवन सारसुधा
4. इकाई में निर्धारित कवियों का सामान्य परिचय एवं काव्यगत विशेषताएँ।

इकाई III

1. सेनापति (राम वंदना, ऋतु वर्णन, शृंगार वर्णन)
2. भूषण (शिवाजी शौर्य, छत्रशाल प्रताप वर्णन)
3. मतिराम (दानवीर महिमा, प्रकृति वर्णन)
4. इकाई में निर्धारित कवियों का सामान्य परिचय एवं काव्यगत विशेषताएँ।

इकाई IV

1. वृन्द (वृन्द सतसई के पाठ्यपुस्तक में चयनित अंश)
2. रस निष्पत्ति
3. काव्य रीतियाँ (गौड़ी, वैधर्मी, पांचाली)
4. नायक नायिका भेद
5. इकाई में निर्धारित कवि का सामान्य परिचय एवं काव्यगत विशेषताएँ।

उपलब्धियाँ—

1. विद्यार्थी रीतिकालीन भाषा की कलात्मकता की गहराई को समझ सकेंगे।
2. विद्यार्थी शृंगारिक रचनाओं के पाठक बन कर स्वयं शृंगार रस लेखन का प्रयास कर सकेंगे।

पाठ्यपुस्तक :

1. रीतिकालीन काव्य साहित्य, कैलाश भट्ट, सम्पादक—प्रो. नन्दलाल कल्ला, प्रकाशक—जैन विश्वभारती संस्थान (मान्य विश्वविद्यालय), लाडनू

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. हिन्दी साहित्य का वैज्ञानिक इतिहास, (प्रथम एवं द्वितीय खण्ड), डॉ. गणपतिचन्द्र गुप्त
5. हिन्दी साहित्य का अतीत — विश्वनाथ मिश्र

Course Code	Course Title	Group	Course Category	Credit	C.I.A continuous Internal Assessment	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 understand poems.
- 2- To familiarize them with Romantic and Victorian Poetry, Indian Poetry and Drama.
- 3- To acquaint them with some literary terms of these genres.

Unit-I : Alan Mc. Connell Duff : Tiger's Eye..OUP. **20**

Unit-II : Poems from Poet's Pen. Homi p. Dustoor. Oxford University Press, New Delhi **20**

Matthew Arnold: Dover Beach

William Wordsworth : To A Skylark

Robert Browning : Prospice

Alfred Tennyson : Ulysses

Thomas Hardy : Weathers

Unit-III : Poems from Indian Poetry in English **15**

Gieve Patel : Servants

Adil Jussawalla : A Bomb-site

Mamta Kalia : Tribute to Papa

Parthasarthy: Lines for a Photograph-R.

Arun Kolatkar : Irani Restaurant Bombay

Unit IV: Literary Terms: Elegy, Sonnet, Ode, Epic, Dramatic Monologue, Comedy, Soliloquy, Aside.

15

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. Abraham, M. H. *A Glossary of Literary Terms*. MacMillan, New Delhi.

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory	Total
BOA 305	राजस्थानी (मध्यकालीन राजस्थानी काव्य)	A	Core Course(CC)	4	30	70	100

सेमेस्टर –III

उद्देश्य –

- 4 मध्यकालीन राजस्थानी काव्य एवं कवियों से परिचित करवाना।
- 5 राजस्थानी काव्य के विभिन्न रूपों की जानकारी करवाना।
- 6 विभिन्न राजस्थानी कवियों की काव्य शैली से परिचित करवाना।

इकाई – 1

- 1 राजिया रा सौरठा-रचयिता किरपाराम/संपादक-नरोत्तमदास स्वामी।
राजस्थानी लोक नीति काव्य की विशेषताएँ।

इकाई – 2

1. भिक्षु वाङ्मय-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 रूपों की जानकारी प्राप्त करेंगे।

पाठ्य पुस्तक/संदर्भ ग्रंथ :-

- 1 राजिया रा दूहा (सौरठा), संपादक-नरोत्तमदास स्वामी, प्रकाशक-राजस्थानी ग्रन्थागार, जोधपुर।

- 2 भिक्षु वाङ्मय-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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 306	संस्कृत (संस्कृत व्याकरण एवं साहित्य) (कालू कौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA 306 अथवा 307 में से किसी एक पत्र का चुनाव करें।

सेमेस्टर-III

उद्देश्य—

- शब्दों के स्त्रिलिङ्गी प्रत्ययों का ज्ञान करवाना।
- तद्धित शब्दों की विधि सीखाना।
- नाटक एवं महाकाव्य की शैली का अवबोध करवाना।

इकाई 1 : कालू कौमुदी पूर्वार्द्ध—समास प्रकरण (सूत्र 393 से 513)

समास प्रकरण

- (क) सूत्रार्थ
- (ख) रूपसिद्धि
- (ग) प्रकृति—प्रत्यय

इकाई 2 : वाक्य रचना बोध (30 से 37 पाठ)

- (क) संस्कृत से हिन्दी अनुवाद
- (ख) हिन्दी से संस्कृत अनुवाद
- (ग) शब्दार्थ

इकाई 3. (क) रघुवंशम् (द्वितीय सर्ग)

- सप्रसंग व्याख्या
 - आलोचनात्मक प्रश्न
- (ख) स्वप्नवासदत्तम् (सम्पूर्ण)
- सप्रसंग व्याख्या
 - आलोचनात्मक प्रश्न

इकाई 4. अभिधान चिन्तामणि (छठा काण्ड, श्लोक 61 से 90)

उपलब्धियाँ—

1. समास 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

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 307	संस्कृत (संस्कृत व्याकरण एवं साहित्य) (लघुसिद्धान्त कौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA 306 अथवा 307 में से किसी एक पत्र का चुनाव करें।

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. लघुसिद्धान्तकौमुदी

- 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 (सम्पूर्ण)

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 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. 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

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 308	राजनीति विज्ञान (भारतीय राजनीतिक विचारक)	B	Core Course (CC)	4	30	70	100

सेमेस्टर-III

उद्देश्य-

1. विद्यार्थियों को प्राचीन भारतीय राजनीतिक विचारकों की विचारधाराओं से अवगत करवाना।
2. विभिन्न विचारकों के दर्शन की प्रासंगिकता को समझाना।
3. विभिन्न विचारकों का तुलनात्मक अध्ययन कर विद्यार्थियों को नये आयाम देना।

इकाई-1 मनु, कौटिल्य, महावीर

इकाई-2 राजा राम मोहनराय, दयानन्द सरस्वती, गोपाल कृष्ण गोखले

इकाई-3 बाल गंगाधर तिलक, अरविन्द घोष, डॉ.बी.आर. अम्बेडकर

इकाई-4 महात्मा गाँधी, जवाहरलाल नेहरू, आचार्य तुलसी

उपलब्धियाँ-

1. विद्यार्थी प्राचीन विचारकों के दर्शन को जान पायेंगे।
2. विद्यार्थी प्राचीनकाल से लेकर आधुनिक काल तक विभिन्न विचारधाराओं का अध्ययन कर सकेंगे।
3. विद्यार्थी प्राचीन राज व्यवस्था एवं आधुनिक राज-व्यवस्था का तुलनात्मक अध्ययन कर सकेंगे।

पाठ्यपुस्तक/संदर्भ ग्रन्थ:

1. J. Bandhopadhyaya : Social and Political Thought of Gandhi, Bomby Alieid, 1969.
2. Jayaswal : Hindu Policy
3. Sharma R.S. : Political Ideas and Institutions in Ancient India.
4. Ghosal : History of Indian Political Ideas.
5. Verma V.P. : Modern Indian Poliltical Ideas.
6. K. Damodrarn : Indian Thought - A critical Survey, London, Asia Publishing House.
7. विश्वनाथ प्रसाद वर्मा-आधुनिक भारतीय राजनीतिक चिन्तन
8. पुरुषोत्तम नागर-आधुनिक भारतीय सामाजिक और राजनीतिक चिन्तन
9. परमात्मा शरण-प्राचीन भारतीय राजनीतिक चिन्तन
10. पुखराज जैन-भारतीय राजनीतिक चिन्तन

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 309	योग एवं जीवन-विज्ञान (मूल्यपरक प्रशिक्षण)	B	Core Course (CC)	4	30	70	100

सेमेस्टर –III

सैद्धान्तिक भाग

उद्देश्य—

- वर्तमान शिक्षा पद्धति में मूल्यपरक शिक्षा की आवश्यकता को समझना।
- स्वस्थ समाज संरचना एवं मूल्यों के उत्थान में जीवन विज्ञान की महत्ता को समझना।
- जीवन विज्ञान शिक्षा द्वारा मूल्यों के विकास की प्रक्रिया को समझना और अभ्यास करना।

इकाई—1: मूल्य परिचय

- (क) मूल्य संकल्पना—अर्थ, प्रकृति, मूल्य निर्धारण की प्रक्रिया, मूल्यों के लक्षण। मूल्य खोज के प्रयास और वर्गीकरण
- (ख) मूल्य—शिक्षा की आवश्यकता, मूल्यों की शिक्षा एवं विद्यालयीकरण, मूल्यों के विकास में परिवार व समाज की भूमिका।

इकाई—2 : जीवन विज्ञान एवं मूल्य

- (क) जीवन विज्ञान और मूल्य
शिक्षा की समस्याएं, जीवन विज्ञान शिक्षा की अनिवार्यता
जीवन विज्ञान शिक्षा का स्वरूप, आधार और प्रक्रिया
- (ख) शिक्षा और जीवन मूल्य
मूल्यपरक शिक्षा : सिद्धान्त और प्रयोग

इकाई—3 मूल्य प्रशिक्षण—I

- (क) मूल्य विकास का आधार—अनुप्रेक्षा
प्रयोजन, वैज्ञानिक और आध्यात्मिक दृष्टिकोण, निष्पत्तियां
सामाजिक मूल्य—कर्तव्यनिष्ठा और स्वात्मन
- (ख) सामूहिक मूल्य—समन्वय, सम्प्रदाय निरपेक्षता, मानवीय एकता

इकाई—4: मूल्य प्रशिक्षण—II

- (क) मानसिक मूल्य —मानसिक संतुलन और धैर्य
नैतिक मूल्य— प्रामाणिकता, करुणा, आत्मानुशासन, सह—अस्तित्व
- (ख) वैयक्तिक मूल्य—अनासक्ति, सहिष्णुता, मृदुता, अभय

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 ग्रन्थ:

1. तुम स्वस्थ रह सकते हो—आचार्य महाप्रज्ञ, 2005, जैन विश्वभारती, लाडनू
2. जीवन विज्ञान : मूल्यपरक शिक्षा, डॉ. समणी मल्लि प्रज्ञा, डॉ. हेमलता जोशी, जैन विश्वभारती संस्थान लाडनू— 341306 (राजस्थान) संस्करण 2010
3. प्रेक्षाध्यान स्वास्थ्य विज्ञान—मुनि महेन्द्र कुमार जैन विश्वभारती, लाडनू
4. जीवन विज्ञान और स्वास्थ्य—डॉ. जेपीएन मिश्रा, जैन विश्व भारती विश्वविद्यालय, लाडनू
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, लाडनू
7. यौगिक क्रिया—मुनि किशनलाल, जैन विश्व भारती, लाडनू
8. प्रेक्षाध्यान प्रयोग पद्धति—आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनू
9. आसन—प्राणायाम—मुनि किशनलाल, जैन विश्व भारती, लाडनू
10. जीवन—विज्ञान प्रायोगिक— डॉ. अशोक भास्कर, जैन विश्वभारती, लाडनू
11. जीवन विज्ञान की रूपरेखा— मुनि धर्मेश, जैन विश्व भारती संस्थान, लाडनू
12. शिक्षा दर्शन : डॉ. रामशक्ल पाण्डेय, अग्रवाल पब्लिकेशन्स, आगरा

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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

Suggested Reading:

1. Dube, S.C. Indian Village, London: Routledge & Kegan 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.Harlampos, 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 लखनऊ, 2009 ।
15. शर्मा, अनुराग, भारतीय समाज, इशिका पब्लिशिंग हाऊस, जयपुर, 2010 ।
16. डॉ. तिवारी, एन., समाजशास्त्र, मिश्रा पब्लिसर एण्ड डिस्ट्रीब्यूटर, 2010 ।

Semester III

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory+ Practical	Total
BOA 311	Web Technologies - HTML	C	Core Course (CC)	4	30	50+20	100

Objective: Main objectives of this course are

1. To introduce students to HTML and CSS for creating web pages and web sites.
2. To give the hands on exercise on HTML

Unit I

Introduction to HTML, Introduction to Web Designing & HTML, HTML Elements/Tag, HTML Attributes, HTML Heading, HTML Paragraph, HTML Formatting

Unit II

Working with links, bookmarks, Images, Marquee, HTML Lists, HTML Table – insert row, columns, rowspan, colspan

Unit III

Using CSS, Introduction to CSS, HTML CSS Styles, Inline, Internal, External

Unit IV

HTML Forms, Introduction to Forms, Form Attributes, Form Elements, Input Type - Text Input, Buttons, Check Box, Radio Button, Select Box or Drop Down Box, Fieldset and Legend

Outcome:

After completing the course, the students will be able to create website using HTML .

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 webpages using HTML

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 313	इतिहास (मध्यकालीन भारत का इतिहास)	C	Core Course (CC)	4	30	70	100

सेमेस्टर-III

उद्देश्य-

1. विद्यार्थियों को 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 सुल्तान। दिल्ली सल्तनत में बलबन की महत्वपूर्ण 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, उपलब्धियाँ एवं पतन। सल्तनतकालीन प्रशासन।

इकाई III

मुगल साम्राज्य की स्थापना—बाबर, हुमाँयु। शेरशाह सूरी का उत्कर्ष एवं प्रशासन प्रबंध। अकबर—साम्राज्य विस्तार, सुदृढीकरण, राजपूत नीति, धार्मिक नीति का मूल्यांकन।

इकाई IV

मुगल दरबार में नूरजहां जुन्ता गुट की भूमिका। औरंगजेब की राजपूत नीति, दक्षिण नीति एवं असफलता के कारण। शिवाजी का उत्कर्ष एवं शासन प्रबंध।

मुगलकालीन—स्थापत्य कला, (शंहाजहाँ के विशेष सन्दर्भ में) शासन प्रबंध (मनसबदारी प्रथा) एवं मुगल सम्राज्य के 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 बढ़ेगी।

पाठ्यपुस्तक/सन्दर्भ ग्रंथ:

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

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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, Trachographic 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.

*** 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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 315	Jainology (जैन आचार)	C	Core Course (CC)	4	30	70	100

उद्देश्य—

1. जैन-आचार मीमांसा की जानकारी देना।
2. जैन ध्यान पद्धति को समझाना।
3. अहिंसा और अणुव्रत की जानकारी देना।

इकाई-1: जैन आचार-मीमांसा

1. जैन आचार का आधार और स्वरूप
2. पंचाचार
3. नव तत्त्व
4. संवर-निर्जरा
5. मोक्ष

इकाई-2: श्रमणाचार

1. श्रमणाचार-महाव्रत, समिति, गुप्ति
2. दस धर्म
3. षडावश्यक
4. गुणस्थान
5. लेख्या

इकाई-3: श्रावकाचार

1. श्रावकाचार-अणुव्रत एवं अणुव्रत आन्दोलन, गुणव्रत, शिक्षाव्रत
2. श्रावक की प्रतिमा
3. जैन-जीवन शैली
4. संलेखना : संधारा, अहिंसा प्रशिक्षण

इकाई-4: ध्यानयोग

1. ध्यान का स्वरूप
2. सालम्बन-निरालम्बन ध्यान
3. अनुप्रेक्षा
4. प्रेक्षाध्यान की उपसंपदा
5. प्रेक्षाध्यान के अंग

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 ग्रन्थ:

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

Course Code	Course Title	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
JUA 301	पर्यावरण (अनिवार्य पत्र)	Core Foundation(CF)	4	30	70	100

सेमेस्टर-III

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 शृंखला
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 समस्याएँ

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 चुनौतियाँ
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 भ्रमण शहरी/ग्रामीण/औद्योगिक/ कृषि

पाठ्य पुस्तक/ संदर्भ ग्रन्थ:

1. पर्यावरण अध्ययन, प्रो. अनिल धर, जैन विश्व भारती संस्थान, लाडनू
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, चौड़ा रास्ता, जयपुर
6. व्यास हरिश्चन्द्र, पर्यावरण शिक्षा, विद्या विहार, नई दिल्ली
7. Sharma, R.A., Educational Environment Lall Book Depo, Meerut
8. Duby and S.singh Environmental Management, Geography Department, Allahabad University

Course Code	Course Title	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory+ Practical	Total
JVB302	BASICS OF COMPUTER	Foundation Course	4	30	50+20	100

Semester III

Objective:

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

1. It will expose the students to the fundamentals of the IT
2. Students will be having the introductory knowledge of the MS-Windows
3. Practically students will be able to use MS-PowerPoint and MS-Word.
4. It will expose the students to concept of Internet and Cybersecurity

Unit I

Word Processing: Introduction, Word Processing Basics, Menu Bar, Using The Icons Below Menu Bar, Opening and closing Documents, Opening Documents, Save and Save as, Page Setup, Print Preview, Document Creation, Editing Text, Text Selection, Cut, Copy and Paste, Spell check, Thesaurus, Formatting the Text, Font and Size selection, Alignment of Text, Paragraph Indenting, Bullets and Numbering, Changing case, Table Manipulation, Draw Table, Changing cell width and height, Alignment of Text in cell, Delete / Insertion of row and column, Border and Shading

Unit II

Presentations, Introduction, Basics, Using PowerPoint, Opening A PowerPoint Presentation, Saving A Presentation, Creation of Presentation, Creating a Presentation Using a Template, Creating a Blank Presentation, Editing Text, Preparation of Slides: Inserting Word Table or an Excel Worksheet, Adding Clip Art Pictures, Inserting Other Objects, Resizing and Scaling an object, Presentation of Slides: Viewing, Choosing a set up for Presentation, Slide Show, Running a Slide Show, Transition and Slide Timing, Automating Slide Show

Unit III

Using Spread Sheets, Introduction, Opening of Spread Sheet, Addressing of Cells, Printing of Spread Sheet, Saving Workbooks, Manipulation of Cells, Entering Text, Numbers and Dates, Creating Text, Number and Date Series, Editing Worksheet Data, Inserting and Deleting Rows, Column, Changing Cell Height and Width, Formulas and Function, Using Formula, Function

Unit IV

Introduction to Internet & Cyber Security : Basics of Computer Networks, LAN, WAN, Internet, Applications of Internet, Connecting to the Internet, World Wide Web (WWW), Web Browsing Software, Search Engines, Downloading Web Pages, Understanding URL, Surfing the web, Basics of E-mail, Email Addressing,

Cyber Security: Layers of security, Vulnerability & Threats, Harmful acts, active attacks, passive

attacks, Software attacks, hardware attacks, Cyber Threats, Cyber Crime, Cyber terrorism, Cyber Espionage, etc., Introduction to Indian Cyber Law.

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.
- Students will be able to create spreadsheets
- Students will be well versed with concept of Internet & Cyber Security

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, 2015
4. Fundamentals of computers (English) 1st Edition by Reema Thareja, Oxford University Press, 2019

Practical

- General use of Windows Operating System
- Creating document in MS-Word like Advertisement, Letter, Tables, Mail Merge etc
- Creating presentations in power point.
- Creation of Simple Worksheet like Mark sheet, Pay slip using MS-Excel
- General use of internet

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assessment)	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 36-50)

- (1) हिन्दी से प्राकृत और प्राकृत से हिन्दी अनुवाद करना

इकाई 3. अगडदत्तचरियं (सम्पूर्ण)

- (1) सप्रसंग अनुवाद
- (2) आलोचनात्मक प्रश्न
- (3) व्याकरणात्मक टिप्पणियां
- (5) लघूत्तरात्मक प्रश्न (प्राकृत में उत्तर दिये जायें)

इकाई 4. उत्तराध्ययन (अध्ययन 10वां एवं 14वां)

- (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, लाडनू 1983
- 10 प्राकृत प्रवेशिका—डॉ. कोमलचंद जैन, तारा बुक एजेन्सी, वाराणसी 1989
- 11 अगडदत्तचरियं—संपादक —डॉ. राजाराम जैन, पंकज प्रकाशन, आरा 1991
- 12 प्राकृत वाक्य रचना बोध—युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू 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, लाडनू
- 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. नेमीचन्द्र शास्त्री, तारा बुक एजेन्सी, वाराणसी
- 20 उत्तराध्ययनसूत्र एक समीक्षात्मक अध्ययन—युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू
- 21 उत्तराध्ययनसूत्र एक परिशीलन—डॉ. सुदर्शनलाल जैन, प्रकाशक पार्श्वनाथ विद्याश्रम, वाराणसी

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA402	अहिंसा एवं शांति (अहिंसा एवं अणुव्रत)	A	Core Course (CC)	4	30	70	100

सेमेस्टर-IV
(अहिंसा एवं अणुव्रत)

उद्देश्य—

1. जीवन के विभिन्न क्षेत्रों में अहिंसा के अनुप्रयोगों की जानकारी देना।
2. अहिंसा के व्यवहार को जानने की प्रयास करना।
3. अहिंसक जीवन शैली से परिचय करवाना।
4. अहिंसा शिक्षा व पशु क्रूरता को बताना।

इकाई—1 अणुव्रत दर्शन, व्रत अणु क्यों, व्रतों की भाषा और भावना, व्रत और अप्रमाद, व्रत का आधार, अणुव्रत रचनात्मक या निषेधात्मक अणुव्रत और प्रतिरोधात्मक शक्ति, अणुव्रत की प्रेरणा, व्रत, साधना: सामाजिक मूल्य

इकाई—2 अणुव्रत आंदोलन क्यों? व्यवस्था सुधार या वृत्ति सुधार, अणुव्रत आंदोलन के प्रवर्तक, अणुव्रती की पात्रता

इकाई—3 अणुव्रत आंदोलन का प्रसार एवं कार्यक्रम

इकाई—4 राष्ट्रीय एकता की समस्या और समाधान की दिशा, आध्यात्मिक समतावाद, आत्मतुला का विस्तार, अहिंसक समाज रचना की संभावना, अहिंसक समाज व्यवस्था

उपलब्धियाँ—

1. अहिंसा के व्यावहारिक कार्य क्षेत्रों से परिचित होंगे।
2. अहिंसक जीवनशैली को जानेंगे।
3. जीवों के प्रति क्रूरता को कम किया जा सकता है।

पाठ्य पुस्तकें

1. अणुव्रत दर्शन—आचार्य महाप्रज्ञ
2. अहिंसा और अणुव्रत—सिद्धान्त और प्रयोग—मुनि सुखलाल एवं आनन्दप्रकाश त्रिपाठी

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns InternalAssesment)	Theory	Total
BOA403	हिन्दी साहित्य गद्य साहित्य (नाट्य एवं निबन्ध साहित्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर –IV

उद्देश्य –

1. विद्यार्थियों को नाटक विद्या का विस्तृत ज्ञान करवाना।
2. विद्यार्थियों को निबन्ध विद्या, उसके उद्भव एवं विकास से परिचित करवाना।
3. स्वयं विद्यार्थियों को इन विद्याओं में लेखन के प्रति प्रोत्साहित करना।

इकाई I

1. हिन्दी नाटक का विकास एवं प्रमुख प्रवृत्तियाँ
2. हिन्दी एंकाकी का विकास एवं प्रमुख प्रवृत्तियाँ

इकाई II

1. नाटक 'कबिरा खड़ा बाजार में' (भीष्म साहनी)

इकाई III

1. दीपदान – डॉ. रामकुमार वर्मा
2. धरोहर – सेठ गोविन्द दास
3. हमारा स्वाधीनता संग्राम – विष्णु प्रभाकर
4. समाज दर्पण – डॉ. उदयशंकर भट्ट

इकाई IV

1. हिन्दी निबन्ध का उद्भव एवं विकास एवं सामान्य प्रवृत्तियाँ/विशेषताएँ
2. लोकजागरण एवं भक्ति-काव्य (आचार्य रामचन्द्र शुक्ल)
3. तुलसी के सामाजिक मूल्य (रामविलास शर्मा)
4. साहित्य के नये मूल्य (हजारी प्रसाद द्विवेदी)

उपलब्धियां :

1. विद्यार्थी निबन्धों की भाषा के माध्यम से स्वयं की भाषा में भाषिक प्रौढ़ता ला सकेंगे।
2. नाटक विद्या के माध्यम से विद्यार्थी नाटकों के इतिहास एवं कला का ज्ञान प्राप्त कर सकेंगे।

पाठ्य पुस्तक :

1. नाट्य एवं निबन्ध साहित्य, कैलाश भट्ट, सम्पादक-प्रो. नन्दलाल कल्ला, प्रकाशक-जैन विश्वभारती संस्थान (मान्य विश्वविद्यालय), लाडनूं

संदर्भ ग्रंथ :-

1. हिन्दी साहित्य का इतिहास-संपादक डॉ नगेन्द्र, मयूर पेपर बैक्स, नोयडा
2. हिन्दी साहित्य का इतिहास-आचार्य रामचन्द्र शुक्ल नागरी प्रचारिणी सभा, काशी
3. आधुनिक साहित्य की प्रवृत्तियाँ- डॉ नामवरसिंह, लोकभारती प्रकाशन, इलाहाबाद
4. साहित्य शास्त्र- डॉ. ओमप्रकाश गुप्त, डॉ. गौवर्धन बंजारा, पार्श्व प्रकाशन, अहमदाबाद
5. चिन्तामणि – आचार्य रामचन्द्र शुक्ल
6. हिन्दी नाटक का उद्भव एवं विकास – दशरथ ओझा
7. परम्परा का विकास – रामविलास शर्मा

Course Code	Course Title	Group	Course Category	Credit	C.I.A continuous Internal Assessment	Unit End Test	Total
BOA 404	English Literature (Prose and Fiction)	A	Core Course (CC)	4	30	70	100

Semester IV

Objectives:

- 1- To enable the students to understand Stories.
- 2- To make familiarize them with English Essay, Short Stories and Partition Fiction.
- 3- To acquaint them with some literary terms of these genres.

Unit-I : Stories from *A choice of Short Stories*

(Ed. Shakti Battra and PS Sindhu. OUP)

Katherine Mansfield : A Cup of Tea

R.K. Narayan : An Astroloer's Day

W.S. Maugham : A Friend in Need

Chaman Nahal : The Silver Lining

Colin Howard : Post Haste

Premchand : The Child

Bhisham Sahani : The Boss Came to Dinner

Manohar Malgonkar : Two Red Roosters

Unit-II: Jane Austen : Pride and Prejudice

Unit-III : Kushwant Singh : Train to Pakistan

Unit-IV : Collection of Essays

Chief Seattle : The End of Living and the Beginning of Survival

Swami Vivekanand : The End and the Means

CEM Joad : The Civilization of Today

J.L. Nehru : India's Strength and Weakness

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.

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	C.I.A. (Continuous Internal Assessment)	Theory	Total
BOA 405	राजस्थानी (मध्यकालीन राजस्थानी गद्य)	A	Core Course (CC)	4	30	70	100

सेमेस्टर –IV

उद्देश्य –

- 4 मध्यकालीन राजस्थानी गद्य के विविध स्वरूपों का ज्ञान करना।
- 5 राजस्थानी की प्रमुख बातों का परिचय देना।
- 6 विद्यार्थियों में 'बात' लेखन एवं वाचन क्षमता का विकास करना।

इकाई – 1

1. राजस्थानी बात संग्रह सं. डॉ. मनोहर शर्मा
 - पाबूजी राठौड़ की बात
 - जगदेव पंवार की बात
 - सयणी चारणी की बात
 - जसमां ओडण की बात

इकाई – 2

- 2 राजा भोज, माघ पिंडित अर डोकरी की बात।
- 3 नाहरी हरणी घरमेकै की बात।
- 4 सांखलै कंवरसी नै भरमल की बात।
- 5 अकल की 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 स्वरूपों 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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 406	संस्कृत संस्कृत व्याकरण एवं साहित्य (कालूकौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA4106 अथवा 407 में से किसी एक पत्र का चुनाव करें।

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 कालूकौमुदी पूर्वार्द्ध—तद्धित एवं द्विरुक्त प्रक्रिया तक (सूत्र 514 से 751)

1. सूत्रार्थ
2. रूपसिद्धि
3. प्रकृति—प्रत्यय

इकाई—2 वाक्य रचना बोध (पाठ 38 से 52)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

इकाई—3 अभिज्ञानशाकुन्तलम् (सम्पूर्ण)

1. दो श्लोकों की सप्रसंग व्याख्या
2. चरित्र चित्रण
3. एक समीक्षात्मक प्रश्न
4. दो सूक्तियों की व्याख्या

इकाई—4 (क) सिन्दूर प्रकरण (श्लोक—1 से 50)

1. दो श्लोकों की सप्रसंग व्याख्या
2. प्रकरण का सारांश

(ख) अभिधान चिन्तामणि छठा काण्ड (श्लोक—91 से 120)

1. दो श्लोक पूर्ति
2. पांच शब्दों के अर्थ

उपलब्धियाँ—

1. विभिन्न शब्द स्वरूप जानकारी प्राप्त होगी।
2. शब्द कोश का ज्ञान बढ़ेगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थ:

1. अभिज्ञान शाकुन्तलम्, महाकवि कालिदास, व्याख्याकार यनदुन्दन मिश्र, चौखम्बा पब्लिशर्स, वाराणसी, 1999
2. कालु कौमुदी, आदर्श साहित्य संघ, चूरु
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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 407	संस्कृत संस्कृत व्याकरण एवं साहित्य (लघु सिद्धांत कौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA4106 अथवा 407 में से किसी एक पत्र का चुनाव करें।

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 (क) सिन्दूर प्रकर (श्लोक 1 से 50) एवं अभिधान चिन्तामणि (छठा काण्ड, श्लोक 91 से 120)

1. दो श्लोकों की सप्रसंग व्याख्या

2. प्रकरण का सारांश

(ख) 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 ग्रन्थ:

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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 408	राजनीति विज्ञान (आधुनिक संविधान)	B	Core Course (CC)	4	30	70	100

सेमेस्टर- IV

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-1 ब्रिटेन का संविधान: विशेषताएँ, अभिसमय, सम्राट और राजमुकुट, प्रधानमन्त्री एवं मन्त्रि परिषद, संसद-कॉमन सभा तथा लार्ड सभा: संगठन, शक्तियाँ, स्पीकर की भूमिका।

इकाई-2 अमेरिका का संविधान: विशेषताएँ, राष्ट्रपति का पद, निर्वाचन एवं शक्तियाँ, संघीय व्यवस्था का स्वरूप, शक्ति पृथक्करण तथा नियन्त्रण एवं सन्तुलन। कॉंग्रेस-प्रतिनिधि सभा तथा सीनेट, शक्तियाँ। संघीय सर्वोच्च न्यायालय-गठन एवं शक्तियाँ, न्यायिक पुनरावलोकन की शक्ति,।

इकाई-3 स्विटजरलैण्ड का संविधान: संविधान की विशेषताएँ, संघीय व्यवस्था की विशेषताएँ, संघीय संसद, संघीय परिषद, मौलिक अधिकार, स्विटजरलैण्ड में प्रत्यक्ष प्रजातन्त्र

इकाई-4 साम्यवादी चीनी गणतन्त्र: संविधान की प्रमुख विशेषताएं। राष्ट्रीय जन कांग्रेस, राष्ट्रपति का पद। साम्यवादी दल-संगठन एवं भूमिका।

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।

प्रस्तावित पुस्तकें

1. इकबाल नारायण-विश्व के प्रमुख संविधान
2. बी.एल. फडिया-विश्व के प्रमुख संविधान
3. आर.सी. अग्रवाल-विश्व के प्रमुख संविधान
4. हरिमोहन जैन-संयुक्त राज्य अमेरिका की शासन प्रणाली
5. वीरकेश्वर प्रसाद सिंह-विश्व के प्रमुख संविधान (ज्ञानदा प्रकाशन, पटना)
6. साम्यवादी चीनी गणतन्त्र का संविधान (चीन सरकार द्वारा प्रकाशित)

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assessment)	Theory	Total
BOA 409	योग एवं जीवन-विज्ञान (जीवन-विज्ञान एवं स्वास्थ्य)	B	Core Course (CC)	4	30	50+20	100

सेमेस्टर –IV

सैद्धान्तिक भाग
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-1 : स्वास्थ्य शिक्षा और जीवन विज्ञान

- (क) स्वास्थ्य की अवधारणा एवं परिभाषाएं, निर्धारक तत्व, पर्यावरण और स्वास्थ्य के अन्तर्सम्बन्ध।
- (ख) स्वास्थ्य शिक्षा-सिद्धान्त एवं प्रविधि, जीवन विज्ञान द्वारा स्वास्थ्य संवर्धन (प्रेक्षा चिकित्सा)

इकाई-2 : शारीरिक तंत्रों का रचनात्मक-कार्यात्मक परिचय सम्बन्धित रोग एवं रोगों का प्रबन्धन-I

- (क) शरीर संगठन का प्रारूप कोशिका, ऊतक एवं तंत्रों का संगठनात्मक परिचय
- (ख) अस्थि तंत्र-परिचय
अस्थि तंत्र के विकार-गठिया और गर्दन का दर्द
जीवन विज्ञान प्रविधि द्वारा प्रबन्धन
- (ग) पेशी तंत्र – परिचय
पेशी तंत्र के विकार-पेशीय डिस्ट्रोफी, स्लीपडिस्क (कंकालपेशीय रोग)
जीवन विज्ञान प्रविधि द्वारा प्रबन्धन

इकाई-3 : शारीरिक तंत्रों का रचनात्मक परिचय सम्बन्धित रोग एवं रोगों का प्रबन्धन-II

- (क) श्वसन तंत्र एवं पाचन तंत्र-परिचय
श्वसन तंत्र एवं पाचन तंत्र के विकार-दमा एवं ब्रोंकाइटिस, मधुमेह, हियाटस हर्निया, जीवन विज्ञान प्रविधि द्वारा प्रबन्धन
- (ख) रोग प्रतिरोधी तंत्र-परिचय
रोग प्रतिरोध एवं जीवन विज्ञान प्रविधि द्वारा प्रबन्धन

इकाई-4: आहार एवं स्वास्थ्य

- (क) आहार की अवधारणा एवं आवश्यकताएं
आहार के घटक पोषक तत्व
- (ख) संतुलित आहार की अवधारणा एवं प्रारूप
आहार, चयापचय एवं स्वास्थ्य

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 ग्रन्थ:

1. तुम स्वस्थ रह सकते हो— आचार्य महाप्रज्ञ, 2004, जैन विश्वभारती, लाडनू
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, लाडनू
4. जीवन—विज्ञान और स्वास्थ्य— डॉ. जेपीएन मिश्रा, जैन विश्वभारती विश्वविद्यालय, लाडनू
5. जीवन—विज्ञान एवं स्वास्थ्य— डॉ. संजीव कुमार गुप्ता, जैन विश्वभारती विश्वविद्यालय, लाडनू
6. प्रेक्षाध्यान प्रयोग पद्धति— आचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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

Suggested 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 Work and Social Action. 1985
- 7 Macgiver, 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 प्रो० 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

Semester IV

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory+ practical	Total
BOA411	Advanced Web Technologies – Java Script	C	Core Course (CC)	4	30	50+20	100

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, Java Script Variables, Operators, Statements, Comments

Unit II

Java Script Statements - Decision Making Statements, If, If...Else, Else ..If, Switch, Loops, For Loop, While, Do.. While, HTML Marquee, HTML Lists, HTML Table

Unit III

Arrays, Functions & HTML DOM , Java Script Arrays, Java Script Functions, HTML DOM, Event Handling, CSS - Inline, Internal, External

Unit IV

Java Script Objects & Cookies, Introduction to Objects, Number, Boolean, Strings, Arrays, Date, 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 Reference Java Script III Edition, 2013, Thomas A. Powell Fraitz Sehneider, Mc Graw Hill
3. <http://www.w3schools.com/js/default.asp>

Practical:

Writing programs using Java script

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theor y	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	C.I.A. (Continouns Internal Assessment)	Theory	Total
BOA 413	इतिहास (राजस्थान के इतिहास का सर्वेक्षण)	C	Core Course (CC)	4	30	70	100

सेमेस्टर— IV

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 महत्वपूर्ण उपलब्धियाँ एवं साम्राज्य विस्तार।

इकाई— II

राजपूत राज्यों में सामन्तवाद की विशेषताएं। मालदेव के अधीन मारवाड़ राज्य का उत्कर्ष, दुर्ग वास्तुकला— विशेषतः चित्तौड़, रणथंभोर और आमेर के संदर्भ में। महाराणा कुंभा की राजनीतिक एवं सांस्कृतिक उपलब्धियाँ।

इकाई—III

राजपूत मुगल संबंध— आमेर के मानसिंह, सवाई जयसिंह द्वितीय, बीकानेर के रायसिंह, मारवाड़ के जसवंत सिंह और दुर्गादास राठौड़। मेवाड़ के राणा सांगा, महाराणा प्रताप का मुगलों से संघर्ष।

इकाई—IV

राजस्थान में धार्मिक आन्दोलन मीरा एवं दादू दयाल के विशेष संदर्भ में। राजस्थान में राजनैतिक जागरण के कारण। राजपूताना में मराठों के हस्तक्षेप के कारण एवं परिणाम। राजस्थान में 1857 के विद्रोह के कारण एवं परिणाम। बिजोलिया किसान आंदोलन। 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 ग्रंथ:

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 Culture of Rajasthan.

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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, Climogargh 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	C.I.A. (Continous Internal Assesment)	Theory	Total
BOA415	Jainology (जैन दर्शन के मौलिक तत्व)	C	Core Course (CC)	4	30	70	100

सेमेस्टर— चतुर्थ

उद्देश्य—

1. जैन सृष्टिवाद को समझाना।
2. कर्म—सिद्धान्त की जानकारी देना।
3. अनेकान्त को समझाना।
4. आत्मवाद और कारणवाद को समझाना।

इकाई—1 लोकवाद, सृष्टिवाद, जगत् और ईश्वर एवं त्रिरत्न—सम्यग्दर्शन, सम्यक्ज्ञान, सम्यक् चरित्र,

इकाई—2 कर्म का स्वरूप, भेद, कर्म हेतु एवं प्रकार, कर्म की अवस्थाएं कर्म और कर्मफल से मुक्ति कैसे?

इकाई—3 अनेकान्त, स्याद्वाद, सप्तभंगी

इकाई—4 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 ग्रन्थ:

1. जैन दर्शन के मौलिक तत्व, लेखक—डॉ. समीप चैतन्य प्रज्ञा, जैन विश्व भारती संस्थान, लाडनू
2. जैनदर्शन के प्रमुख सिद्धान्त, प्रो. समीप ऋजुप्रज्ञा, जैन विश्व भारती संस्थान, लाडनू
3. जैन दर्शन : मनन और मीमांसा, आचार्य महाप्रज्ञ, आदर्श साहित्य संघ, चूरू

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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, भिन्नत 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. 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. सिरिकुम्मापुत्तचरियं (सम्पूर्ण)

- (1) सप्रसंग व्याख्या
- (2) आलोचनात्मक प्रश्न

इकाई 4. रचना एवं अनुवाद

- (1) प्राकृत (भाषा में) कथा रचना
- (2) प्राकृत स्वयं शिक्षक 51-75

उपलब्धियाँ—

1. धातु को होने वाले आदेश जानकर एवं भाव कर्म प्रक्रिया और कृदन्त प्रक्रिया समझकर यथास्थान प्रयोग करेंगे।
2. पाइय संग्रहों की कथाओं से अवगत होंगे।
3. कुर्मापुत्रचरित्र की जानकारी मिलेगी।
4. प्राकृत में रचनाधर्मिता का अभ्यास बढ़ता रहेगा।

पाठ्यपुस्तक / संदर्भ ग्रन्थ :

- 1 प्राकृत मार्गोपदेशिका—पं. बेचरदास जीवराज दोषी, मो. ला. ब. दास, दिल्ली 1968
- 2 प्राकृत व्याकरण (अंग्रेजी)—हेमचन्द्र, प्रकाशक भण्डारकर ओरियण्टल शोध संस्थान, पूना 1980
- 3 तुलसी मंजरी, युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू 1983.
- 4 प्राकृत वाक्य रचना बोध—युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू 1991
- 5 प्राकृत व्याकरण (सिद्धहेमशब्दानुशासनम्—आचार्य हेमचन्द्रकृत) संस्कृत—हिन्दी व्याख्या सहित, व्याख्याकार—ज्ञानमुनि
- 6 सिरिकुम्मापुत्तचरियं, अनन्तहंसकृत, अनुवाद डॉ. जिनेन्द्र जैन, जैन अध्ययन एवं सिद्धांत शोध संस्थान, (जबलपुर, म.प्र.)
- 7 प्राकृत भाषा एवं साहित्य का आलोचनात्मक इतिहास—डॉ. नेमीचन्द्र शास्त्री, ताराबुक एजेन्सी, वाराणसी
- 8 पाइयसंग्रह, संपादक—मुनि विमलकुमार, जैन विश्वभारती, लाडनू 1983

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA502	अहिंसा एवं शांति (अहिंसा और शांति आंदोलन)	A	Core Course (CC)	4	30	70	100

Semester-V

उद्देश्य—

1. शांति आंदोलनों एवं संगठनों की जानकारी देना।
2. विभिन्न संस्थाओं के कार्यों की जानकारी देना।
3. भारतीय व पाश्चात् आन्दोलन को परिचित करवाना।

अ. संस्थान एवं संगठन

इकाई—1 संयुक्त राष्ट्र एवं उसके अभिकरण

ब. आंदोलन

इकाई—2 पगवास आंदोलन, बस आंदोलन, ग्रीनपीस आंदोलन

इकाई—3 भूदान—ग्रामदान, सम्पूर्ण क्रान्ति, सप्तक्रान्ति

इकाई—4 बिश्नोई आंदोलन एवं चिपको, अपिको

उपलब्धियाँ—

1. अहिंसक आंदोलनों की जानकारी प्राप्त कर उनमें सक्रिय सहभागिता का मनोभाव विकसित होगा।
2. भारतीय व पाश्चात्य आन्दोलनों को जानेंगे।
3. संयुक्त राष्ट्रसंघ का विश्व अहिंसा एवं शांति में योगदान को समझेंगे।

पाठ्य पुस्तकें

1. अन्तर्राष्ट्रीय सम्बन्ध—पी. एन. चड्ढा,
2. Stride towards Freedom- Martin Luthar King
3. Encyclopedia of Peace,
4. Politics Survival- Vandana Sinha

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continous Internal Assesment)	Theory	Total
BOA503	हिन्दी साहित्य (आधुनिक काव्य)	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 हिन्दी कविता का उद्भव एवं विकास
2. रामधारी सिंह 'दिनकर' (रश्मिरथी— प्रथम व पंचम सर्ग)
3. दिनकर का सामान्य परिचय एवं काव्यगत विशेषताएँ।

इकाई—II

1. अद्योद्या सिंह उपाध्याय 'हरिऔघ' (कर्मवीर, बृजसंध्या)
2. मैथिलीशरण गुप्त (सखी वे मुझसे कहकर जाते, भरत कैकयी पश्चाताप, नर हो न निराश करो मन को),
3. जयशंकर प्रसाद (अशोक की चिन्ता एवं कामायनी के चिन्ता सर्ग से चयनित अंश),
4. महादेवी वर्मा (मधुर—मधुर मेरे दीपक जल, मधुरिमा के मधु के अवतार),
5. इकाई में वर्णित कवियों का सामान्य परिचय एवं काव्यगत विशेषताएँ

इकाई—III

1. सुमित्रानन्दन पन्त (एकतारा, नौका विहार से चयनित अंश)
2. सच्चिदानन्द हीरानन्द वात्स्यायन 'अज्ञेय' (असाध्य वीणा के चयनित अंश),
3. गजानन माधव 'मुक्तिबोध' (जन—जन का चेहरा एक),
4. नरेश मेहता (समय देवता से चयनित अंश)
5. इकाई में वर्णित कवियों का सामान्य परिचय एवं काव्यगत विशेषताएँ

इकाई—IV

1. धूमिल (अकाल दर्शन, मोचीराम)
2. रघुवीर सहाय (शोकसभा, विदाई),
3. त्रिलोचन (एक पहर दिन आया होगा),
4. रस अवयव और रस निष्पत्ति
5. इकाई में वर्णित कवियों का सामान्य परिचय एवं काव्यगत विशेषताएँ

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 करेंगे।

पाठ्य पुस्तक :

1. आधुनिक काव्य, कैलाश भट्ट, सम्पादक—प्रो. नन्दलाल कल्ला, प्रकाशक—जैन विश्वभारती संस्थान (मान्य विश्वविद्यालय), लाडनूं

संदर्भ ग्रंथ

1. हिन्दी साहित्य का इतिहास—आचार्य रामचन्द्र शुक्ल नागरी प्रचारिणी सभा, काशी
2. जयशंकर प्रसाद, आचार्य नंद दुलारे वाजपेयी, भारती भंडार, इलाहाबाद
3. निराला की साहित्य साधना (भाग 1,2,3) डॉ रामविलास शर्मा, राजकमल प्रकाशन, नई दिल्ली
4. छायावाद : पुनर्मूल्यांकन सुमित्रानंदन पंत, लोकभारती प्रकाशन, इलाहाबाद
5. कविता के नये प्रतिमान—डॉ नामवरसिंह राजकमल प्रकाशन, नई दिल्ली
6. अज्ञेय और आधुनिक रचना समस्या, डॉ रामस्वरूप चतुर्वेदी, लोक भारती प्रकाशन, इलाहाबाद
7. हिन्दी साहित्य का इतिहास—संपादक डॉ नगेन्द्र, मयूर पेपर बैक्स, नोयडा
8. आधुनिक साहित्य की प्रवृत्तियाँ— डॉ नामवरसिंह, लोकभारती प्रकाशन, इलाहाबाद
9. काव्यशास्त्र— भागीरथ मिश्र, विश्वविद्यालय प्रकाशन, वाराणसी
10. हिन्दी काव्य सिद्धान्त— रामबाबू ज्योति, राजस्थान प्रकाशन, जयपुर
11. काव्य प्रदीप— रामबहोरी शुक्ल, हिन्दी भवन प्रकाशन, दिल्ली
12. भारतीय काव्यशास्त्र— निशा अग्रवाल, लोक भारती प्रकाशन, नई दिल्ली
13. साहित्य शास्त्र— डॉ. ओमप्रकाश गुप्त, डॉ. गौवर्धन बंजारा, पार्श्व प्रकाशन, अहमदाबाद

Course Code	Course Title	Croup	Course Category	Credit	C.I.Acontinuous Internal Assessment	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 understand 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. Two Plays by Tagore
The Sacrifice;
The Post Office

Unit II. Poems from Poet's Pen: (Ed.) Homi P.Dustoor.
Rupert Brooke : The Dead
Wilfred Owen : Anthem for Doomed Youth
John Masfield : The West Wind
WB Yeats : The Second Coming
TS Eliot : Journey of the Magi

Unit III. Poems from Indian Poetry in English

Nissim Ezekiel : "Night of the Scorpion"
Nissim Ezekiel : "Very Indian Poem in Indian English"
Gauri Deshpande : The Female of the Species
AK Ramanujan : A River
Keki N Daruwalla : Railroad Riveries

Unit IV: Major Literary Movements

Metaphysical Movement , Oxford Movement , Irish Movement, Renaissance Movement, Reformation, Naturalism , Realism, Modernism, Black Movement, Stream of Consciousness, War Poets

Outcome:

- 1- The students will be able 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. *Poet's Pen*: (Ed.) Homi P.Dustoor. Oxford University Press.
3. *Contemporary Indian Poetry in English*: (Ed.) Saleem Peerandina. MacMillan, New Delhi.
4. *Forms of English Prose*. Oxford University Press, New Delhi.
5. Abraham, M. H. *A Glossary of Literary Terms*. MacMillan, New Delhi.

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	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 स्वरूप 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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 506	संस्कृत व्याकरण एवं साहित्य (कालूकौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA 506 अथवा 507 में से किसी एक पत्र का चुनाव करें।

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 कालू कौमुदी (उत्तरार्द्ध) भ्वादि गण (सूत्र 01 से 199)

1. सूत्रार्थ
2. रूपसिद्धि
3. धातु रूपावली

इकाई-2 निबन्ध रचना बोध

1. अहिंसा
2. महात्मा गांधी
3. ऐतिहासिक महापुरुष – महावीर, बुद्ध, राम
4. मेरा भारत
5. भारत के प्रमुख पर्व

इकाई-3 संस्कृत साहित्य का इतिहास

- (क) वैदिक साहित्य- वेदांग, उपनिषद् साहित्य।
- (ख) महाकाव्य- रामायण (वाल्मीकी) महाभारत वेदव्यास, रघुवंश, शिशुपालवध, किरातार्जुनीय, प्रमुख जैन महाकाव्य- वरांगचरित, वर्द्धमानचरित, पार्श्वनाथ।
- (ग) गद्य काव्य- कादम्बरी, तिलक मंजरी, गद्य चिन्तामणि, शिवराजविजय।
- (घ) नाटक साहित्य- भास, कालिदास।
- (च) स्तोत्र साहित्य- वैदिक, जैन एवं बौद्ध परम्परा के प्रमुख स्तोत्र।

इकाई-4 (क) अश्रुवीणा (श्लोक 1-50)

1. दो श्लोकों की सप्रसंग व्याख्या
2. एक सामान्य प्रश्न

(ख) अभिधान चिन्तामणि छठा काण्ड (श्लोक-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. संस्कृत में रचना करने का नूतन अभ्यास होगा।
3. धातु—रूपों की प्रक्रिया का ज्ञान करेगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थ :

1. कालु कौमुदी, आदर्श साहित्य संघ, चूरु
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 में जैन कवियों का योगदान—डॉ. नेमीचन्द्र शास्त्री

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continous Internal Assessment)	Theory	Total
BOA 507	संस्कृत व्याकरण एवं साहित्य (लघुसिद्धान्त कौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA 506 अथवा 507 में से किसी एक पत्र का चुनाव करें।

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 (वाल्मीकी) महाभारत वेदव्यास, रघुवंश, शिशुपालवध, किरातार्जुनीय, प्रमुख जैन महाकाव्य— वरांगचरित, वर्द्धमानचरित, पार्श्वनाथ।
- (ग) गद्य काव्य— कादम्बरी, तिलक मंजरी, गद्य चिन्तामणि, शिवराजविजय।
- (घ) नाटक साहित्य— भास, कालिदास।
- (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 में जैन कवियों का योगदान—डॉ. नेमीचन्द्र शास्त्री

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 508	राजनीति विज्ञान (प्रमुख पाश्चात्य राजनीतिक विचारक)	B	Core Course (CC)	4	30	70	100

सेमेस्टर- V

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 सिद्धान्त, साम्यवाद का सिद्धान्त, शिक्षा-सिद्धान्त एवं आदर्श राज्य का सिद्धान्त, अरस्तु प्रथम वैज्ञानिक विचारक, दासता, क्रान्ति और नागरिकता सम्बन्धी विचार।

इकाई-2

थॉमस एक्वीनास के प्रमुख राजनीतिक विचार एवं कानून का सिद्धान्त, 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 सिद्धान्त और उनके विचारों का तुलनात्मक अध्ययन।

इकाई-4

जैरेमी बेंथम तथा उसका उपयोगितावाद का सिद्धान्त, जे. एस. मिल के स्वतंत्रता सम्बन्धी विचार और बेंथम के उपयोगितावाद में उसके द्वारा प्रस्तावित संशोधन, कार्ल मार्क्स : इतिहास की आर्थिक व्याख्या, वर्ग संघर्ष का सिद्धान्त। हैरल्ड जे. लास्की के प्रमुख राजनीतिक विचार।

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 ग्रंथ:

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।

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 509	जीवन-विज्ञान (जीवन विज्ञान का आध्यात्मिक एवं मनोवैज्ञानिक आधार)	B	Core Course (CC)	4	30	70	100

सेमेस्टर –V

सैद्धान्तिक भाग

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 एवं इन्द्रिय : मनोवैज्ञानिक एवं आध्यात्मिक आधार

- * जीवन विज्ञान : स्वरूप
- * शरीर : मनोवैज्ञानिक आधार
- * इन्द्रिय : मनोवैज्ञानिक आधार
- * मनोविज्ञान : स्वरूप
- * शरीर : आध्यात्मिक आधार
- * इन्द्रिय : आध्यात्मिक आधार

इकाई-2 : श्वास, चित्त और मन:मनोवैज्ञानिक एवं आध्यात्मिक आधार

- * श्वास : मनोवैज्ञानिक आधार
- * चित्त और मन : मनोवैज्ञानिक आधार
- * मन : आध्यात्मिक आधार
- * श्वास : आध्यात्मिक आधार
- * चित्त : आध्यात्मिक आधार
- * मानसिक स्वास्थ्य के सूत्र

इकाई-3 : बुद्धि और अवधान : मनोवैज्ञानिक एवं आध्यात्मिक आधार

- * बुद्धि : मनोवैज्ञानिक आधार
- * बुद्धि : आध्यात्मिक आधार
- * अवधान की दशाएँ, महत्त्व, विघ्न एवं प्रेक्षाध्यान
- * बुद्धि : प्रकार, सिद्धान्त, बुद्धि-लब्धि, बुद्धि अभिवृद्धि
- * अवधान : स्वरूप, प्रकार

इकाई-4 भाव एवं संवेग मनोवैज्ञानिक एवं आध्यात्मिक आधार

- * भाव एवं संवेग : मनोवैज्ञानिक दृष्टिकोण
- * भाव : आध्यात्मिक आधार
- * संघर्ष : मनोवैज्ञानिक अवधारणा
- * संवेग : शारीरिक परिवर्तन
- * अभिप्रेरण : मनोवैज्ञानिक अवधारणा
- * संघर्ष समाधान में जीवन-विज्ञान की भूमिका

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, गरुड़ासन
- 2 प्राणायाम— भस्त्रिका, कपालभाति
- 3 बन्ध—मूल बन्ध, जालंधर बन्ध, उड्डीयान बन्ध
- 4 अनुप्रेक्षा— स्वावलम्बन, आत्मानुशासन
- 5 चैतन्य केन्द्र

पाठ्यपुस्तक/ संदर्भ ग्रन्थ:

1. तुम स्वस्थ रह सकते हो— आचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू, 2004
2. व्यक्तित्व विकास और योग— डॉ. समणी ऋजुप्रज्ञा, जैन विश्वभारती संस्थान, लाडनू
3. जीवन विज्ञान की रूपरेखा— संपादक मुनि धर्मेश कुमार, जैन विश्वभारती, लाडनू
4. जीवन—विज्ञान प्रायोगिक— डॉ. अशोक भास्कर, जैन विश्वभारती, लाडनू
5. सामान्य मनोविज्ञान—अरुण कुमार सिंह, मोतीलाल बनारसीदास, दिल्ली

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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.

Suggested 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 मेथोडोलोजी, 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।

Semester V

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory+ Practical	Total
BOA511	Java Programming	C	Core Course (CC)	4	30	50+20	100

Objective:

This paper will familiarize the students with programming language Java and students will be able to write programs in Java.

Unit I

Algorithms and Flowcharts to Solve Problems, Flow Chart Symbols, Basic algorithms/flowcharts for sequential processing, decision based processing and iterative processing. Some examples like: Exchanging values of two variables, summation of a set of numbers, ,GCD (Greatest Common Division) of two numbers, Test whether a number is prime, factorial computation, Fibonacci sequence, sum of a series, , Find largest number in an array,, etc.

Unit II

Introduction to Java: Bytecode, features of Java, data types, variables and arrays, operators, control statements. Objects & Classes: Object Oriented Programming, defining classes, static fields and methods, object construction

Unit III

Inheritance: Basics, using super, method overriding, using abstract classes, using final with inheritance.

Unit IV

Packages and Interfaces: Defining a package, importing package, defining an interface, implementing and applying interfaces. Exception Handling: Fundamentals, exception types, using try and catch.

Outcome:

Students will be able to write programs using JavaScript.

Reference Books/Web Sites

1. Programming with JAVA, E Balagurusamy, McGraw Hill Education, 2019
2. Java 8 Programming Black Book, DT Editorial Services , Dreamtech Press, 2015
3. <https://www.javatpoint.com/java-tutorial>
4. <https://www.tutorialspoint.com/java/index.htm>

Practical:

Writing programs using Java language.

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 513	इतिहास (आधुनिक भारत का इतिहास)	C	Core Course (CC)	4	30	70	100

सेमेस्टर- V

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

पानीपत का तृतीय युद्ध-कारण एवं परिणाम। बंगाल में ब्रिटिश सत्ता की स्थापना। प्रशासनिक परिवर्तन (1772-1793 ई)। आंग्ल मराठा संघर्ष-(महादजी सिधिया व नाना फड़नवीस) मराठों की असफलता के कारण। ब्रिटिश सत्ता के अधीन नवीन भू-राजस्व व्यवस्था-स्थायी बंदोबस्त, महलवाडी व्यवस्था एवं रैयतवाडी 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। 1947 से 1950 तक भारत का एकीकरण व समस्या एवं समाधान।

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 कार्यान्वयननिदेशालय, नई दिल्ली।
4. ग्रोवर, बी.एल. एवं यशपाल—आधुनिक भारत का इतिहास।
5. चन्द्रा, विपिन—आधुनिक भारत।
6. सरकार, सुमित—आधुनिक भारत।

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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, 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 & 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, Pictorial 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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA515	Jainology (ज्ञानमीमांसा और प्रमाणमीमांसा)	C	Core Course (CC)	4	30	70	100

सेमेस्टर- V

उद्देश्य—

1. ज्ञान सिद्धान्त को समझाना।
2. न्याय प्रणाली को समझाना।

इकाई—1 ज्ञान का स्वरूप एवं भेद

मतिज्ञान—स्वरूप एवं भेद, श्रुतज्ञान—स्वरूप एवं भेद

इकाई—2 अवधिज्ञान—स्वरूप, विषय, भेद, मनः पर्यवज्ञान— स्वरूप, विषय, अधिकारी, भेद, केवलज्ञान

इकाई—3 न्याय का स्वरूप एवं उसके अंग, अर्थसिद्धि, लक्षण, लक्षणाभास, प्रमाण का स्वरूप एवं भेद, प्रत्यक्ष प्रमाण—प्रत्यक्ष का लक्षण, समन्वय का फलित रूप, सांख्यवहारिक एवं पारमार्थिक प्रत्यक्ष, प्रामाण्य का निश्चय, प्रमेय, प्रमाता एवं प्रमिति

इकाई—4 परोक्ष प्रमाण—स्वरूप, भेद— स्मृति, प्रत्यभिज्ञान, तर्क, अनुमान और आगम

उपलब्धियाँ—

1. ज्ञानमीमांसा से परिचय होगा।
2. यौक्तिक परीक्षा की क्षमता का विकास होगा।

पाठ्यपुस्तक/संदर्भ ग्रन्थ:

1. जैन ज्ञान एवं प्रमाण मीमांसा— डॉ. समणी ऋजुप्रज्ञा, दूरस्थ शिक्षा निदेशालय, जैन विश्वभारती संस्थान, लाडनू
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. कैलाशचन्द्र शास्त्री, भारतीय ज्ञानपीठ, दिल्ली

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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 (15 से 27)

- (1) सप्रसंग अनुवाद
- (2) सप्रसंग व्याख्या
- (3) आलोचनात्मक प्रश्न
- (4) टिप्पणियां
- (5) लघूत्तरात्मक प्रश्न (प्राकृत में उत्तर दिया जाए)

इकाई 3. प्राकृत स्वयं शिक्षक – 76–90

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 ग्रन्थ:

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, लाडनू 1983
6. पाइयसंगहो, संपादक—मुनि विमलकुमार, जैन विश्वभारती, लाडनू 1983
7. प्राकृत वाक्य रचना बोध—युवाचार्य महाप्रज्ञ, जैन विश्वभारती, लाडनू 1991
8. प्राकृत भाषा एवं साहित्य का आलोचनात्मक इतिहास—डॉ. नेमीचन्द्र शास्त्री, तारा बुक एजेन्सी, वाराणसी
9. आयारो—आचार्य तुलसी, जैन विश्वभारती, लाडनू
10. अंगसुत्ताणि (भाग 1—3), जैन विश्वभारती, लाडनू
11. पाइअ—निबंधा, डॉ. समणी संगीतप्रज्ञा, जैन विश्वभारती संस्थान, लाडनू

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA602	अहिंसा एवं शांति (संघर्ष निराकरण एवं अहिंसा प्रशिक्षण)	A	Core Course (CC)	4	30	70	100

सेमेस्टर-VI

उद्देश्य-

1. अहिंसा- प्रशिक्षण एवं उसके प्रयोग क्षेत्रों की जानकारी देना।
2. अहिंसा- प्रशिक्षण से सामाजिक परिवर्तन सम्भव जानकारी देना।
3. अहिंसा की सार्वभौमिकता को बताना।

इकाई-1 संघर्ष का स्वरूप, विध्वंसात्मक बनाम उत्पादक संघर्ष, संघर्ष के आधार एवं प्रकार, संघर्ष की प्रक्रिया

इकाई-2 संघर्ष निराकरण-अभिव्यक्ति परिवर्तन एवं संघर्ष निराकरण, संघर्ष निराकरण की विधियाँ, संघर्ष निराकरण की कूटनीतिक विधियाँ

इकाई-3 संघर्ष-निराकरण और अनेकान्त, सापेक्षता, सह-अस्तित्व, सहिष्णुता

इकाई-4 अहिंसा प्रशिक्षण-आवश्यकता, स्वरूप, अहिंसा प्रशिक्षण के घटक, हृदय परिवर्तन, दृष्टिकोण परिवर्तन, जीवन शैली परिवर्तन, व्यवस्था परिवर्तन

उपलब्धियाँ-

1. अहिंसा प्रशिक्षण प्राप्त कर विद्यार्थी शान्ति पूर्ण एवं सहवास के लिए भूमिका तैयार करेगा।
2. अहिंसा प्रशिक्षण से अहिंसक समाज रचना करना।
3. सामाजिक जीवन में परिवर्तन होगा।
4. विश्व स्तर पर अहिंसा प्रशिक्षण का विकास होगा।

पाठ्य पुस्तकें

1. नया मानव नया विश्व-आचार्य महाप्रज्ञ,
2. समाज मनोविज्ञान-बी. कुप्पुस्वामी
3. विश्व शांति एवं अहिंसा प्रशिक्षण-डॉ. बच्छराज दूगड
4. जीवन धर्म अहिंसा-भगवानदास केला

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA603	हिन्दी साहित्य (प्रयोजनमूलक हिन्दी)	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 का अभिप्राय, आवश्यकता, स्वरूप एवं व्याख्या, विविध रूप, सीमा व सम्भावनाएँ एवं प्रयुक्तियाँ।

इकाई II

1. पत्राचार,
2. पत्रकारिता

इकाई III

1. संपादन कला,
2. मीडिया लेखन

इकाई IV

1. प्रमुख जनसंचार माध्यम,
2. अनुवाद

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।

पाठ्य पुस्तक :

1. प्रयोजना मूलक हिन्दी, डॉ. ममता खाण्डल, प्रकाशक—जैन विश्वभारती संस्थान (मान्य विश्वविद्यालय), लाडनूं

संदर्भ ग्रंथ—

1. प्रयोजन मूलक हिन्दी— विनोद गोदरे, वाणी प्रकाशन, दिल्ली
2. प्रयोजन मूलक हिन्दी : पारिभाषिक शब्दावली— डॉ. मधु धवन
3. प्रयोजन मूलक भाषा और कार्यालयी हिन्दी— डॉ. कृष्ण कुमार गोस्वामी,
4. प्रयोजन मूलक हिन्दी— डॉ. बालेन्दु शेखर तिवारी, संजय बुक सेन्टर, वाराणसी
5. राजभाषा हिन्दी : विकास के विविध आयाम— डॉ. मलिक मोहम्मद,
6. सृजनात्मक साहित्य का अनुवाद— स्वरूप एवं समस्याएँ, सुरेश सिंहल,
7. प्रयोजन मूलक हिन्दी—कैलाशचन्द्र भाटिया
8. प्रयोजन मूलक हिन्दी—पृथ्वीचन्द्र पाण्डेय

Course Code	Course Title	Croup	Course Category	Credit	C.I.Acontinuous Internal Assessment	Theory	Total
BOA 604	English Literature (Prose and Fiction)	A	Core Course (CC)	4	30	70	100

Semester VI

Objectives:

- 1- To acquaint them with spirituality and psychology.
- 2- To inculcate human values in the students.
- 3- To make students understand the relation between Literature and Media.

Unit I. RK Narayan : **The Guide**

Unit II. Anita Desai : **Cry the Peacock**

Unit III. Mulk Raj Anand : **Untouchable**

Unit IV. Selected Essays

V.S. Srinivas Sastri: The Joy of Freedom

Bertrand Russell: "How to Escape from Intellectual Rubbish"

Acharya Mahapragya: From Religion to Vocation: Limitations of Cravings.

S. Radhakrishnan: An Ideal Before the Youth

Outcome:

- 1- They will understand the relation between literature and Media.
- 2- This will inculcate a sense of Spirituality.

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	C.I.A. (Continuous Internal Assessment)	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 रूपों 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-नरोत्तमदास स्वामी, प्रकाशक-बीकानेर।
- 4 रघुवर जस प्रकाश, संपादक- किसना आढा, प्रकाशक-प्राच्य विद्या प्रतिष्ठान, जोधपुर।

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA606	संस्कृत संस्कृत व्याकरण एवं साहित्य (कालू कौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA 606 अथवा 607 में से किसी एक पत्र का चुनाव करें।

सेमेस्टर—VI

उद्देश्य—

1. गणों का परिचय देना।
2. शुकनासोपदेश और कुमारसंभव के ग्रंथों के चयनित अंशों का अध्यापन करना।

इकाई—1 कालूकौमुदी (उत्तरार्द्ध) अदादिगण से यङ्लुगन्त प्रक्रिया (सूत्र 200 से 414)

- (1) रूपसिद्धि
- (2) सूत्रार्थ
- (3) धातु रूपावली

इकाई—2 (क) वाक्य रचना बोध (पाठ—54 से 59)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

(ख) 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)

दो श्लोक पूर्ति

1. दो शब्दों के संस्कृत में पर्यायवाची
2. पांच शब्दों के अर्थ

1.

उपलब्धियाँ—

1. अनन्त, सनन्त आदि प्रक्रियाओं का ज्ञान होगा।
2. समासबद्ध एवं लघु वाक्यों के निर्माण का अभ्यास होगा।

पाठ्य पुस्तक / संदर्भ ग्रन्थ:

1. कालू कौमुदी, आदर्श साहित्य संघ, चूरू
2. वाक्य रचना बोध, लेखक—आचार्य महाप्रज्ञ, जैन विश्व भारती, लाडनूँ
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	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 607	संस्कृत संस्कृत व्याकरण एवं साहित्य (लघुसिद्धान्त कौमुदी)	B	Core Course (CC)	4	30	70	100

- विद्यार्थी BOA 606 अथवा 607 में से किसी एक पत्र का चुनाव करें।

सेमेस्टर-VI

उद्देश्य—

1. गणों का परिचय देना।
2. शुकनासोपदेश और कुमारसंभवम् के ग्रंथों के चयनित अंशों का अध्यापन करना।
3. जिनन्त आदि दस प्रक्रियाओं का ज्ञान कराना।

इकाई-1 लघु सिद्धान्त कौमुदी के दिवादि गण से लकारार्थ तक (सूत्र 629 से 765), कृदन्त प्रकरण (सूत्र 766 से 887 तक)

इकाई-2 (क) रचनानुवाद कौमुदी (पाठ 51 से 60)

1. संस्कृत से हिन्दी अनुवाद
2. हिन्दी से संस्कृत अनुवाद
3. शब्दार्थ

(ख) 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 छठाकाण्ड (श्लोक 151 से 180)

1. दो श्लोक पूर्ति
2. दो शब्दों के संस्कृत में पर्यायवाची
3. पांच शब्दों के अर्थ

उपलब्धियाँ—

1. जिनन्त, 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	Assignment	Theory	Total
BOA 608	राजनीति विज्ञान (अन्तर्राष्ट्रीय सम्बन्ध)	B	Core Course (CC)	4	30	70	100

सेमेस्टर – VI

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 राजनीति में 1945 के बाद प्रमुख विकास शीतयुद्ध—अर्थ, कारण एवं विश्व राजनीति पर प्रभाव, गुटनिरपेक्ष आन्दोलन, नवीन अन्तर्राष्ट्रीय आर्थिक व्यवस्था, यूरोपीय आर्थिक समुदाय।

इकाई—2 संयुक्त राष्ट्र संघ : संगठन एवं भूमिका का मूल्यांकन, निरस्त्रीकरण : प्रयास, समस्याएँ एवं मूल्यांकन।

इकाई—3 विदेश नीतियाँ—भारत, संयुक्त राज्य अमेरिका, चीन तथा रूस।

इकाई—4 भारत एवं दक्षेस (सार्क), अन्तर्राष्ट्रीय सम्बन्धों में अहिंसा एवं शांति का प्रयोग, पंचशील एवं शांतिपूर्ण सहअस्तित्व के प्रयास एवं चुनौतियाँ, उत्तर—दक्षिण संवाद

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।

प्रस्तावित पुस्तकें :

1. मदन गोपाल—अन्तर्राष्ट्रीय सम्बन्ध
2. पी.डी.कौशिक—अन्तर्राष्ट्रीय सम्बन्ध
3. बी.एल. फड़िया, अन्तर्राष्ट्रीय सम्बन्ध, साहित्य भवन, आगरा
4. पाण्डे तथा शर्मा—अन्तर्राष्ट्रीय सम्बन्ध एवं विदेश नीतियाँ
5. एन.एन. श्रीवास्तव—आधुनिक अन्तर्राष्ट्रीय सम्बन्ध
6. हरगोविन्द पन्त एवं अन्य—अन्तर्राष्ट्रीय सम्बन्ध आधुनिक परिवेश में

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA609	जीवन-विज्ञान (प्रेक्षाध्यान: व्यक्तित्व विकास)	B	Core Course (CC)	4	30	50+20	100

सेमेस्टर –VI

सैद्धान्तिक भाग

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—1 व्यक्तित्व : परिचय

- (क) व्यक्तित्व— अर्थ, परिभाषा, निर्धारक तत्व
- (ख) व्यक्तित्व का विकास, व्यक्तित्व के प्रकार, व्यक्तित्व संगठन और विघटन, अन्तर्द्वन्द्व और व्यक्तित्व

इकाई—2 व्यक्तित्व विकास और समय—प्रबन्ध

- (क) व्यक्तित्व विकास और स्व—प्रबन्धन
सर्वांगीण व्यक्तित्व विकास, व्यक्तित्व की भूमिकाएं और सोपान, अध्यात्म और विज्ञान, प्रेक्षाध्यान और अखंड व्यक्तित्व विकास—अखंड व्यक्तित्व और प्रेक्षाध्यान व्यक्तित्व स्वरूप और संरचना, व्यक्तित्व की कार्य प्रणाली और प्रेक्षा
- (ख) समय प्रबन्धन— महत्व, समय प्रबन्धन के सूत्र, आत्म विकास
स्मृति विकास— महत्व—स्मृति प्रशिक्षण, सुदृढ़ स्मृति और अध्ययन शैली, मस्तिष्कीय क्षमता और प्रेक्षाध्यान

इकाई—3: तनाव—प्रबन्ध और कार्यक्षमता का विकास

- (क) तनाव प्रबन्धन : स्वरूप, कारण शारीरिक, मानसिक और भावनात्मक तनाव, तनाव का उपचार—कायोत्सर्ग
उच्च मानसिक शक्तियां का विकास
शक्ति का स्वरूप, उच्च मानसिक शक्तियां, शक्ति का आधार
शक्ति का ऊर्ध्वारोहण और अन्तर्यात्रा
- (ख) कार्य क्षमता का विकास— कार्य क्षमता और उसका आधार
मानसिक प्रशिक्षण, एकाग्रता का विकास और लयबद्ध श्वासप्रेक्षा
स्वास्थ्य—स्वास्थ्य और उसकी व्यवस्था, स्वास्थ्य प्रबन्धन और शरीर प्रेक्षा,
जीवन शैली का बदलाव और व्यक्तित्व विकास, आहार—प्रबन्धन

इकाई—4 सकारात्मक दृष्टिकोण और भावात्मक विकास

- (क) सकारात्मक दृष्टिकोण और आत्मविश्वास
अर्थ और स्वरूप, सुदृढ़ आत्मविश्वास, आत्मविश्वास और अन्तर्दृष्टि
अन्तःस्रावी ग्रंथितंत्र का संतुलन और दर्शन केन्द्र प्रेक्षा
- (ख) भावात्मक विकास और भावात्मक स्वास्थ्य
भावात्मक विकास और भावात्मक शुद्धि
संवेग प्रबन्धन, भावात्मक रुग्णता, भावात्मक स्वास्थ्य और लेश्याध्यान
प्रवृत्ति – निवृत्ति का संतुलन आसक्ति—अनासक्ति, चारित्र परिवर्तन के उपाय

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, कर्णपीडासन, चक्रासन
3. प्रेक्षाध्यान— लेश्याध्यान
4. अनुप्रेक्षा—स्वास्थ्य, सामन्जस्य

पाठ्यपुस्तक/ संदर्भ ग्रन्थ:

1. व्यक्तित्व विकास और योग— डॉ. समणी ऋजुप्रज्ञा, जैविभावि, लाडनू
2. प्रेक्षाध्यान : व्यक्तित्व विकास— मुनि धर्मेश कुमार, जैविभावि, लाडनू
3. सोया मन जग जाये— आचार्य महाप्रज्ञ, जैविभा, लाडनू
4. जैन योग— आचार्य महाप्रज्ञ, जैविभा, लाडनू
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।

सेमेस्टर –VI

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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 पुरुषोत्तमदास 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, लखनऊ, 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।

Semester VI

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continuous Internal Assessment)	Theory+ Practical	Total
BOA611	Python Programming	C	Core Course (CC)	4	30	50+20	100

Objective:

This paper will familiarize the students with programming language Python and students will be able to write programs in Python.

Unit I

Introduction to Python Python Introduction, Technical Strength of Python, Introduction to Python Interpreter and program execution, Using Comments, Literals, Constants, Python's Built-in Data types, Numbers (Integers, Floats, Complex Numbers, Real, Sets), Strings (Slicing, Indexing, Concatenation, other operations on Strings), Accepting input from Console, printing statements, Simple 'Python' programs.

Unit II

Operators, Expressions and Python Statements Assignment statement, expressions, Arithmetic, Relational, Logical, Bitwise operators and their precedence, Conditional statements: if, if-else, if-elif-else; simple programs, Notion of iterative computation and control flow –range function, While Statement, For loop, break statement, Continue Statement, Pass statement, else, assert.

Unit III

Sequence Data Types Lists, tuples and dictionary, (Slicing, Indexing, Concatenation, other operations on Sequence data type), concept of mutability, Examples to include finding the maximum, minimum, mean; linear search on list/tuple of numbers, and counting the frequency of elements in a list using a dictionary.

Unit IV

Functions: Top-down approach of problem solving, Modular programming and functions, Function parameters, Local variables, the Return statement, DocStrings, global statement, Default argument values, keyword arguments, VarArgs parameters. Library function-input(), eval(), print(), String Functions: count(), find(), rfind(), capitalize(), title(), lower(), upper(), swapcase(), islower(), isupper(), istitle(), Numeric Functions: eval(), max(), min(), pow(), round(), int(), random(), ceil(), floor(), sqrt()

Outcome:

Students will be able to write programs using JavaScript.

Reference Books

1. Python Programming , O-Level Module, T Balajji Publication, 2020
2. The Complete Reference Python, Mc Grow Hill Education, 2018
3. <https://www.w3schools.com/python>
4. <https://www.tutorialspoint.com/python/index.htm>

Practical:

Writing programs using Python

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	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)

10. Measuring the level life satisfaction
11. Measuring the level of Home Environment.
12. Assessment of Values
13. Assessment of Personality by Word Association Test
14. Measuring the level of Adjustment

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
BOA 613	इतिहास (आधुनिक विश्व के इतिहास की रूपरेखा)	C	Core Course (CC)	4	30	70	100

सेमेस्टर-VI

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।

ईकाई-3

जर्मनी का एकीकरण एवं बिस्मार्क का योगदान। इटली का एकीकरण : कठिनाइयां, प्रयत्न, मैजिनी, गैरीबाल्डी एवं काबूर का योगदान। अफ्रीका में साम्राज्यवाद : कारण एवं परिणाम। 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। राष्ट्र संघ की स्थापना- असफलता के कारण। 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 ग्रन्थ:

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—यूरोप का इतिहास, हिन्दी माध्यम कार्यान्वयन निदेशालय, नई दिल्ली।
5. शर्मा, कृष्णगोपाल, शर्मा दिग्विजयसिंह एवं कोठारी, कमलसिंह—आधुनिक विश्व का इतिहास, अजमेरा बुक कम्पनी, जयपुर।
6. Fisher, H.A.L.- A history of Europe, London 1949.
7. Devish, H.A.- An outline history of the world, oxford university press, New yark 1968.

Course Code	Course Title	Group	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory+ Practical	Total
BOA614	Geography (Geographic al 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 & Ptolemy.
- 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. Behaviourism 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. Comparisons can be made about thinking of various thinkers.

Practical-

1. Aerial photographys : Introduction & 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	C.I.A. (Continouns Internal Assesment)	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

धर्म और विज्ञान –जैन आगम के सूक्ष्म सत्य, धर्म और विज्ञान की महानता

प्राणशक्ति का आध्यात्मिक तथा वैज्ञानिक महत्व :- शरीर शास्त्र, अध्यात्म और विज्ञान में शरीर का महत्व, कुंडलिनी का स्वरूप एवं जागरण के मार्ग, प्राणशक्ति की विद्युत का चमत्कार आध्यात्मिक वैज्ञानिक व्यक्तित्व का निर्माण

इकाई-2 :जैन दर्शन एवं परामनोविज्ञान आत्मवाद एवं पुनर्जन्मवाद : जैनदर्शन में आत्मा एवं पुनर्जन्म, जातिस्मृतिज्ञान, विभिन्न दर्शनों में पुनर्जन्म, परामनोविज्ञान, पुनर्जन्म पर अनुसंधान

इकाई-3 : जैन जीवन शैली और विज्ञान

उपवास आदि तप- वैज्ञानिक दृष्टि से उपवास का मूल्य विभिन्न रोग एवं उपवास।

शाकाहार बनाम मांसाहार- मांसाहार रोगों का जन्मदाता, महत्वपूर्ण वैज्ञानिकतथ्य, शाकाहार के गुण।

तम्बाकू वर्जन- जर्दा, धूम्रपान, आत्महत्या का तरीका, जर्दा धूम्रपान क्यों? व्यसन निवारण मद्यपान- मद्यपान, अपराध, वेश्यावृत्ति, तलाक, गर्भस्थशिशु, बाल अपराध स्वास्थ्य, आयु।

इकाई-4 :ईश्वरवाद, कर्मवाद, अनेकान्तवाद

जैन दर्शन में परमाणु और विज्ञान

उपलब्धियाँ-

1. अध्यात्म और किसान के समन्वय की समझ बढ़ेगी।
2. संयम प्रधान जीवनचर्या का विकास होगा।
3. नशामुक्ति की प्रेरणा मिलेगी।

पाठ्यपुस्तक/ संदर्भ ग्रन्थ:

1. जैन दर्शन और विज्ञान- प्रो. मुनि महेन्द्र कुमार, जैन विश्वभारती संस्थान, लाडनूँ
2. अतीन्द्रियज्ञान- डॉ. बच्छराज दूगड़, जैन पब्लिशर्स, उदयपुर
3. कर्मवाद- आचार्यश्री महाप्रज्ञ, आदर्श साहित्य संघ, चुरु



Course Code	Course Title	Course Category	Credit	C.I.A. (Continouns Internal Assesment)	Theory	Total
JUA601	PERSONLITY DEVELOPMENT & YOGA (व्यक्तित्व विकास और योग) (Compulsory Paper)	Core Foundation(CC)	4	30	70	100

Semester-VI

उद्देश्य :

- 1- विद्यार्थियों को व्यक्तित्व के विभिन्न आयामों की जानकारी देना।
- 2- विद्यार्थियों को प्रबन्धन के विभिन्न पहलुओं की जानकारी देना।

इकाई I

व्यक्तित्व का अर्थ एवं परिभाषा, व्यक्तित्व के निर्धारक तत्त्व, व्यक्तित्व के प्रकार।

इकाई II

व्यक्तित्व विकास और प्रबन्धन – लक्ष्य प्रबन्धन, समय प्रबन्धन, स्वास्थ्य प्रबन्धन, तनाव प्रबन्धन, संवेग प्रबन्धन।

इकाई III

व्यक्तित्व और क्षमता का विकास – कार्य-क्षमता का विकास, सकारात्मक सोच का विकास, स्मृति-क्षमता का विकास, नेतृत्व-क्षमता का विकास, अभिव्यक्ति का विकास।

इकाई IV

व्यक्तित्व विकास प्रक्रिया एवं योग – अध्यात्म योग का स्वरूप, अध्यात्म विकास की भूमिकाएं, अध्यात्म योग के सूत्र, आहार-संयम, उपवास

उद्देश्य :

- 1- विद्यार्थी व्यक्तित्व के विभिन्न आयामों की जानकारी प्राप्त करेंगे।
- 2- विद्यार्थी को प्रबन्धन के विभिन्न पहलुओं की जानकारी प्राप्त कर सकेंगे।

संदर्भ ग्रंथ

1. व्यक्तित्व विकास और योग, लेखक – डॉ. समणी ऋजुप्रज्ञा, प्रकाशक : जैन विश्वभारती संस्थान, लाडनूँ-341306 (राज.)
2. व्यक्तित्व विकास और स्व-प्रबन्धन, लेखक – मुनि धर्मेश कुमार, , प्रकाशक : जैन विश्वभारती संस्थान, लाडनूँ-341306 (राज.)

Acharya Kalu Kanya Mahavidhyalaya, Ladnun

B.Com Syllabus

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

Semester I

Objectives -

1. To give primary knowledge of accountancy.
2. Knowledge of principles of accountancy.
3. To tell concepts of accountancy.
4. Checking of accountancy.

Section- A

Accounting : Meaning, Scope and Importance, Branches of Accounting, Accounting Concepts and Conventions, Double Entry System, Preparation of Journal, Subsidiary Books including Cash Book, Ledger, Trial Balance, Preparation of Final Accounts of Sole Traders and Partnership Firms.

Section – B

Distinction between Capital and Revenue items, Introduction with Accounting Standards, Errors and their Rectification; Bank Reconciliation Statement, Depreciation Methods and Accounting including AS-6, Accounts of non-trading concerns including Hospital and Educational Institutions.

Section – C

Accounts relating to partnership : Admission, Retirement and Death of a Partner, Dissolution of Partnership including Garner Vs. Murrar rule, Amalgamation of Firms, Sale of firm to a Company and Conversion of a firm in a company, Gradual Realisation of Assets and Piece Meal Distribution.

Section – D

Branch Accounts, Accounts for Packages and Empties, Insurance Claims, Stock Valuation and AS-2, Farm Accounting, Hire Purchase and Installment.

Real Learning outcomes :-

1. Students will be able to understand the concept and basic knowledge of accountancy.
2. Students will be able to know the principles of accountancy.
3. Students will be able to understand the concept of accountancy.
4. Students will be able to understand checking of accountancy.

Books Recommended

1. Jain Khandelwal Pareek, Book-keeping & Accounting
2. M.C. Shukla & T.S. Grewal : Advanced Accounts
3. R.L. Gupta : Advanced Accounts
4. S.N. Maheswari : Advanced Accounts

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 contract act and sale of Goods Act
3. To make aware of their rights & duties as a seller and as a buyer.

Section – A

Law of Contract (1872) : Nature of contract, Classification; Offer and acceptance; capacity of parties to contract; Free consent; Consideration; Legality of object; Agreements declared void; Performance of contract; Discharge of contract; Remedies for breach of contract.

Section – B

Special Contracts : Indemnity; Guarantee; Bailment and Pledge; Agency.

Sales of Goods Act 1930 : Formation of Contracts of sale; Goods and their classification, price; conditions, and warranties; Transfer of property in goods; Performance of the contract of sales; unpaid seller and his rights, sale by auction; Hire purchase agreement.

Section – C

Negotiable Instrument Act 1881 : Definition of negotiable instruments, Features; Promissory note; Bill of exchange and cheque; Holder and holder in the due course; Crossing of a cheque, Types of crossing; Negotiation; Dishonor and discharge of negotiable instrument.

Section –D

The consumer Protection Act 1986 : Salient features, Grievance redressal machinery.

The Indian partnership act 1932 : Meaning, Characteristics, formations and registration types of partnerships and partners, relation of partners, dissolution of partnership firm.

Real Learning outcomes :-

1. Students will be able to know about the laws enforced for proper regulation of trade and business.
2. Students will be able to the contract act and sale of goods act.
3. Students will be aware about their rights as a consumer.
4. Students will be aware about their rights and duties as a seller and a buyer.
5. Students will be able to know how to form and how to dissolve a partnership firm.

Books Recommended

1. Kuchhal M.C. : Business Law
2. Kapoor, N.D. : Business Law
3. K.C. Garg (Hindi) Kalyani
4. Dr. R.L. Naulakha, Business Law

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.

Section – A

Introduction: definition of business economics its role in business decisions. Inductive & deductive methods, micro & macro economics.

Consumption and demand analysis:- utility analysis law of diminishing marginal utility law of substitution, demand and the law of demand elasticity of demand and its measurements, indifference curves, consumers equilibrium.

Section – B

Production-production function: Laws of return, ISO-product curve least cost combination of factors Expansion path Return to scale Ridge Lines cost concept and classification importance of costs in decision making cost function and determinates of cost law of supply and Elasticity of supply Capital Formation and Theories of population.

Section – C

Exchange- General Theory of value change in the demand and supply and their effects on equilibrium price, Time element in price determination, market-definition and classification, price and output determination under perfect and imperfect competition, monopoly, discriminating monopoly and oligopoly.

Section – D

Distribution : marginal productivity, Theory Distribution Theories of Rent Wages, Interest and profits national income, basic concepts, measurement, National income and economic welfare.

Real Learning outcomes :-

1. Students will be able to know the basic information of economics.
2. Students will be Known The Principles Of Economics.
3. Students will know what the market is and conditions of the market.
4. Students will be able to understand the difference between macro and micro economics.

Books Recommended :

M.L. Seth, Principles of Economics

P.C. Agarwal, M.D. Agarwal, Business Economics

P.C. Agarwal, M.D. Agarwal, Business Economics (Hindi)

Laxminarayan, Nathuramka, Micro Economics

Laxminarayan, Nathuramka, Micro Economics (Hindi)

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.

Marks 70

Section – A

Meaning and definition of statistics, Functions, importance, Limitations & Distrust of statistics, Classification and tabulation of data measure of central tendency.

.Section – B

Measures of dispersion & skewness:- meaning & definitions of dispersion., objective & importance of measuring dispersion absolute & relative measures of dispersion essential characteristics of a good measures of dispersion inter-relationship between different measures of dispersion.

Skewness-meaning test of skewness measures of skewness methods of measuring skewness difference between dispersion & skewness.

Section – C

Correlations and regression: meaning and definition of correlation type of correlation methods of determining correlation measurement of correlation in time series lag & lead in correlation regression analysis concept meaning utility type difference between correlation regression analysis concept meaning utility type difference between correlation & regression linear correlation and regression analysis standard error of estimates methods of computing regression lines conceptual framework & their application in business.

Section – D

Index Number-concept utility methods simple weighted average of relative and aggregative index number.

Analysis of time series theorems of time series decomposition of time series analysis of trend (excluding seasonal variations) Application of time series in business.

Real Learning outcomes :-

1. Students will be able to know about data analysis and interpretation.
2. Students will be able to understand the principles of statistics.
3. Students will know how to apply statistics in different situation.
4. Students will be aware about application of different methods of statistics.

Books Recommended :

1. S. P. Gupta, Statistical Methods
2. Sharma, Jain, Pareek, Statistical Methods

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.

Marks 70

SECTION - A

Introduction: Concept, nature, process and significance of management; Managerial roles (Mintzberg); An overview of functional areas of management; Development of management thought; Classical and neo-classical system; Contingency approaches Departmentation; Planning_Concept. Process, Types, Decision Making-Concept & Process, Bounded rationality.

SECTION - B

Management by objectives; Corporate planning; Environment analysis and diagnosis; Strategy formulation.

Organizing; Concept, nature, process, and significance; Authority and responsibility relationships; Centralizations and decentralization; Departmentation; Organization structure : Forms and contingency factors.

SECTION - C

Motivating and leading people at Work : Motivation : Concept, Theories : Maslow, Herzberg, McGregor and Ouchi, Financial and non-financial incentives Leadership : Concept and leadership styles, Leadership theories (Thannebaum and Schmidit.), Likert's System Management; Communication : Nature, process, networks nad barriers, Effective Communication.

SECTION - D

Management of Change : Concept, nature, and process, of planned change; Resistance to change; Emerging horizons of management in a changing environment, knowledge manager, Time management and Stress management.

Real Learning outcomes :-

1. Students will be able to know about basic principles of management.
2. Students will be aware of new techniques of management.
3. Students will understand the organization structure and skills of communication.
4. Students will be having sufficient knowledge of important theories of motivation and leadership.

SUGGESTED BOOKS

1. Principles of Management : L.M. Prasad
2. Principles of Business Management : Y.K. Bhushan
3. Principles of Business Management : Sharma, Gupta and Bhalla
4. Principles of Business Management : Dharminder Singh and others
5. Principles of Management : R.N. Naulakaha
6. Prabandh ke Siddhantha : R.N. Naulakaha
7. Principles of Management : Dr. B.S. Mathur & Prof. Naveen Mathur

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.
4. To know about RRB & Co-operative Banks.

Marks 70

Section – A

Bank : Definition, importance and functions; Balance Sheet of a bank : Main assets and liabilities and their significance.

Indian Banking System; Structure and organization of banks; Reserve Bank of India; Apex banking institution; Commercial banks; Regional rural banks; Co-operative banks (including private and foreign banks); Development banks.

Section – B

Reserve Bank of India : Objectives; Organizations; functions and working; Monetary Policy; Credit control measures and their effectiveness. Introduction to Banking Sector Reforms.

Section – C

Banking Regulation Act. 1949: History; Social control; banking Regulations Act as applicable to banking companies, public sector banks and co-operative banks.

Section – D

Regional Rural and Co-operative Banks in India: their functions and role in rural development; Progress and performance.

Real Learning outcomes :-

1. Students will be aware about importance and functions of Banks.
2. Students will be able to understand the current changes in Banking system.
3. Students will be known the types of Bank of India.
4. Students will be able to understand role of RRB and Co-operative Bank.

Reference Books:

1. Indian Banking System -Trivedi
2. बैंकिंग विधि एवं व्यवहार – वार्ष्णेय पी.एन.
4. भारत में बैंकिंग विधि एवं व्यवहार-बी.एल. ओझा

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.

Marks 70

SECTION - A

Issue forfeiture, and re-issue of Shares, Redemption of preference shares; Issue and redemption of debentures; Issue of bonus shares and rights shares; Underwriting of shares and debentures, Accounts of underwriters.

SECTION - B

Final accounts including computation of managerial remuneration and disposal of profit; Profit prior to and after incorporation, Consolidated Balance Sheet of holding companies with one subsidiary only, AS.

SECTION - C

Amalgamation, absorption/merger and reconstruction, Accounting for, amalgamation of companies as per Indian Accounting Standard 14; Accounting for internal reconstruction.

SECTION - D

Valuations of goodwill and shares.

Accounting for internal reconstruction, Valuations of goodwill and shares.

Real Learning outcomes :-

1. Students will be having basic knowledge of company.
2. Students will be able to understand the Process of issuing, forfeiting and redemption of shares and debentures.
3. Students will be able to know how to create a company and data base.
4. Student will get important information regarding final accounts and valuations of goodwill.

SUGGESTED BOOKS

1. Advance Accounts : R.L. Gupta
2. Advanced Accounts : Jain & Narang
3. Advanced Accounts : Shukla & Grewal
4. Corporate Accounting : Jain, Khandelwal, Pareek

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.

SECTION - A

Company -Meaning, Features, Types of Company, Promotion and registration, Preliminary contracts, Memorandum of Association, Articles of Association, Prospectus, Shares and Shares capital.

SECTION - B

Formation of a Company function and duties and Promoters Memorandum of Association: contents and alteration Articles of Association.

SECTION - C

Prospectus, share capital, Type of share and debenture membership.

SECTION - D

Directors Qualification and Disqualification, Appointment and removal, Power and duties, Borrowing powers (including debentures), Members, Meetings (including Board Meetings), Majority powers and minority right, Winding-up of the company.

Real Learning outcomes :-

1. Students will be able to understand the new companies Act., 2013.
2. Students will be known the process of formation and winding up of the company.
3. Students will be able to understand important and basic documents of a company.
4. Students will be known about directors and various meetings of a company.

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.

Marks 70

Section – A

Financial Management : Financial goals; Profit Vs wealth maximization; Finance functions; investment, financing and dividend decisions; Financial planning.

Capital Budgeting : Nature of investment decisions, investment evaluation criteria, payback period, accounting rate of return, net present value, internal rate of return profitability index; NPV and IRR comparison Capital rationing.

Section – B

Cost of Capital : Significance of cost of capital ; calculating cost of debt. Preference shares, equity capital and retained earnings, Combined (weighted) Cost of capital.

Capital Structure : Theories and determinants.

Section – C

Operating and Financial Leverage : Their measure; Effects on profit, analyzing alternate financial plans, combined financial and operating leverage.

Dividend policies : Issues in dividend policies; Walter's model; Gordon's model; M.M. Hypothesis, forms of dividends and stability in dividends, determinants.

Section – D

Working Capital : Nature of working capital, significance of working capital, operating cycle and factors determining of working capital requirements. Management of working capital; Management of cash, Management of receivables, Management of inventories.

Real Learning outcomes :-

1. Students will be understand what the financial management is all about.
2. Students will get the concept of capital budgeting.
3. Students will know about working capital and cost of capital.
4. Students will be aware about capital structure and the policies of dividend and its important models.

Reference Books:

1. Financial Management -M.R. Agrawal
2. Financial Management : Khan & Jain

Semester-IV

Course code	Course title	Course category	Credit	CIA	Theory	Total
BOC 401	INCOME TAX LAW AND PRACTICES	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.

Marks 70

SECTION - A

Definition, Distinction between capital and revenue, Basis of charge, Incidence of tax, Exempted incomes, Computation of income from salaries and house property.

SECTION - B

Profit and gains from business and profession, Capital gains, Income from other sources. Depreciation, Carry forward and set off of losses, Income of other persons to be included in assessee's total income.

SECTION - C

Deduction out of gross total income, Computation of total income in regard to income of individual.

SECTION - D

Advance payment of tax. Deduction of tax at source, Income tax authorities and administration of the Act, Assessment procedure, Appalls, Reminds.

Real Learning outcomes :-

1. Students will be able to to know about income tax.
2. Students will know how to compute the income from salaries and house properties.
3. Students will be aware about different rates of tax.
4. Students will be able to know the application of different heads as sarary, house property.

SUGGESTED BOOKS

1. Income Tax Law : Bhagawati Prasad.
2. Income Tax Law : Gaur and Narang
3. Income Tax Law : H.C. Mchrotra
4. Income Tax Law : Dr. S.K. Nayar & Mahesh Joshi.

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.

Marks 70

SECTION - A

Human Resource Management: Meaning, nature, Scope, functions, Need, and Importance, Context of Human Resource management, Integrating HR Strategy with business strategy.

SECTION B

Human Resource Planning, Recruitment: meaning, sources & factor affecting, Selection: Meaning & process, Placement and Induction: Meaning, Objectives and Importance.

SECTION C

Job Analysis: Meaning, Process & Techniques of Job Analysis.

Job Designing: Meaning, Objectives & Techniques.

Training & Development: Meaning and Methods.

SECTION D

Employee Compensation: Meaning, Objects and Factors affecting employee Compensation.

Performance Appraisal: Meaning, Importance and Techniques.

Real Learning outcomes :-

1. Students will understand the concept and need of HRM.
2. Students will be able to understand the function of HRM-HRP, recruitment, selection, placement & Induction.
3. Students will be aware about methods of training and development.
4. Students will understand techniques of performance appraisal.

SUGGESTED BOOKS

1. Human Resource Management, G.S. Sudha.
2. मानव संसाधन प्रबंध- सी.बी. मेमोरिया
3. Human Resource Management: Ashwathappa.

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.

Marks 70

SECTION - A

Indian Business Environment: Concept, components, and importance. Economic Trends (overview): Income, savings and investment; Industry; Trade and balance of payments.

SECTION B

Problems of Growth: Unemployment, Poverty; Regional imbalances; Social injustice; Inflation; Parallel economy; Industrial sickness.

SECTION C

Role of Government : Monetary and fiscal policy; Industrial policy, Industrial Licensing; Recent economic policy of liberalization, privatization and globalization and its impact on Indian economy; Regulation of foreign investment and collaborations in the light of recent changes, Export import policy. Devaluation, Niti Aayog .

SECTION D

International Environment : International trading environment (overview); Trends in world trade and the problems of developing counties; Foreign trade and economic growth: International economic grouping; International economic institutions - World Bank, IMF, WTO.

Real Learning outcomes :-

1. Students will understand the business environment and its different aspects.
2. Students will understand the problems of growth like poverty, unemployment, inflation etc.
3. Students will be aware about different policies like-monetary, fiscal, export and import policy.
4. Students will be able to understand international economic institutions like- world bank, IMF, WTO.

SUGGESTED BOOKS

1. Sundaram & Black : The International Business Environment ; Prentice hall, New Delhi.
2. Agarwal A.N. Indian Economy; Vikas Publishing House, Delhi
3. Khan Farooq A : Business and Society ; S Chand, Delhi
4. Misra S.K. and Puri Vc.K. Indian Economy; Himalya Publishing House, New Delhi
5. Hedge Ian : Environment Economics : Mac Millan, Hempshie.
6. Vevaysayik Vatavaran : Gupta Swami
7. Vevaysayik Vatavaran : Upadhyay Swami
8. Economics and Environment in India : N.D. Mathur

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 502	Goods and Services Tax	Core Course	4	30	70	100

Semester-V

Objective :

1. To give knowledge of GST.
2. To give relevant knowledge of CGST and SGST.

Section –A

CGST/SGST - Important terms and definitions under Central Goods and Service Tax Act, 2017 and State Goods and Service Tax Act, 2017, Basic of GST, Meaning and scope of supply, Levy and collection of tax.

Section –B

CGST/ SGST - Time and Value of Supply of goods and / or services, Input Tax Credit, Transitional Provisions, Registration under CGST/SGST Act, Filing of Returns and Assessment, Payment of Tax including Payment of tax on reverse charge basis, Refund under the Act.

Section –C

CGST/SGST - Maintenance of Accounts and Records, Composition scheme, Job work and its procedure, Various Exemptions under GST, Demand and recovery under GST, Miscellaneous provisions under GST.

Section –D

IGST – Scope of IGST, Important terms and definitions under Integrated Goods and Service Tax Act, 2017, Levy and collection of IGST, Principles for determining the place of supply and Place of supply of goods and services, Zero rated Supply.

Real Learning outcomes :-

1. Students will get the basic knowledge of GST.
2. Students will be known about CGST and SGST.
3. Students will know about maintenance of accounts and records.
4. Students will be able to understand custom duty Act.

Book Recommended-

1. Abhishek Rastogi: Professionals guide to GST Ideation to reality (2017)
2. Datey V.S.: GST Ready Reckoner, Taxman Publication, New Delhi

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	Principles of Marketing	Core Course	4	30	70	100

Semester-VI

Objectives-

1. Concept of Marketing and selling.
2. Marketing Mix, Market Segmentation & Marketing Environment.
3. Distribution Channels.
4. Product Planning & Development.

Marks 70

Section – A

Introduction : Nature and scope of marketing; Importance of marketing as a business function and in the economy; Marketing concepts ; traditional and modern; Selling vs. marketing; Marketing mix; Marketing environment.

Consumer Behaviour and Market Segmentation; Nature, scope, and significance of consumer behaviour; Market segmentation concept and importance ; Bases for market segmentation.

Section – B

Product: Concept of product, consumer, and industrial goods; Product planning and development; Packaging-role and functions; Brand name and trade mark; After-sales service; Product life cycle concept.

Section – C

Price : Importance of price in the marketing mix; Factors affecting price of a product/service; Discounts and rebates.

Distributions Channels and Physical of Distribution; Distribution Channels – concept and role ; Types of distribution channels; Factors affecting choice of a distribution channel; Retailer and wholesaler; Physical distribution of goods; Transportation; Warehousing; Inventory control; Order processing.

Section – D

Promotion : Methods of promotion : Optimum promotion mix, Advertising media-their relative merits and limitations; Characteristics of an effective advertisement; Personal selling; Selling as a career; Classification of a successful sales person; Functions of salesman.

Real Learning outcomes :-

1. Students will get the concepts of marketing and its need.
2. Students will know about market segmentations and consumer behaviour.
3. Students will be able to understand the planning of product.

Reference Book,

1. Dr. R.L. Naulakha-Principle of Marketing
2. Kothari, Mehtra, Sharma : Marketing Management
3. Porwal : Principal of Marketing

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

जैन विश्वभारती संस्थान, लाडनूँ
(मान्य विश्वविद्यालय)



आचार्य कालू कन्या महाविद्यालय

पाठ्यक्रम

बी.एससी. स्नातक विज्ञान वर्ग

सी.बी.सी. सिस्टम

Edition : 2017 Price : 60 Rs.

**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 different 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 :Periodicity of p-block elements & Chemistry of noble gases

Comparative study of p-block elements: group trends, electronic configuration, atomic and ionic radii, ionization energy, electron affinity, electronegativity, oxidation states, inert pair effect.

Introduction of noble gases, Chemical properties of the noble gases, compounds of noble gases, chemistry of xenon, structure and bonding of xenon compounds.

Unit 3 :Chemical Bonding Part I

Introduction of chemical bonding, properties of covalent bond, valence bond theory and its limitations, directional characteristics of covalent bond, hybridization, energetics of hybridisation and shapes of different molecules and ions, Valence shell electron pair repulsion (VSEPR) theory to SnCl_2 , H_3O^+ , NH_3 , H_2O , TeCl_4 , ClF_3 , ICl_2^-

Unit 4 : Chemical Bonding Part II

Linear combination of atomic orbitals, types of molecular orbitals, MO theory for homonuclear molecules and ions (H_2 to Ne_2), molecular orbital theory for heteronuclear molecules (CO , NO) multicentre bonding in electron deficient molecules, bond strength and bond energy, dipole moment, percentage ionic character from dipole moment and electronegativity difference.

Learning Outcomes: After completion the course student would be 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 of chemical 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 alkynes.

Unit-I : Mechanism of organic reaction

Homolytic and heterolytic bond breaking, Types of reagents, electrophiles and nucleophiles. Types of organic reactions, energy considerations, reactive intermediates—Carbocations, carbanions, free radicals, carbenes, arynes and nitrenes with examples. Assigning formal charges on intermediates and other ionic species. Method of determination of reaction mechanism (product analysis, intermediates, isotope effect, kinetic and stereochemical studies)

Unit-II : Alkanes & Cycloalkanes

IUPAC nomenclature of branched and unbranched alkanes. The alkyl group. Isomerism in alkanes sources, methods of formation (with special reference of Wurtz reaction, Kolbe reaction, Corey House reaction and decarboxylation of carboxylic acids.) Physical properties and chemical reactions of alkanes, Mechanism of free radical halogenation of alkanes, orientation, reactivity and selectivity. Nomenclature, method of formation, chemical reactions, Baeyer strain theory and its limitations. Ring strain in small rings (cyclopropane and cyclobutane), theory of strainless rings.

Unit-III : Alkenes & Cycloalkenes

Nomenclature of alkenes, method of formation, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides, regioselectivity in alcohol dehydrations. The Saytzeff rule, Hofmann elimination. Physical properties and relative stabilities of alkenes. Chemical reactions of alkenes—mechanism involved in hydrogenations, Markownikoff's rule, hydroboration–oxidation, oxymercuration–reduction. Epoxidation, ozonolysis, hydration, hydroxylation and oxidation with KMnO_4 , polymerization of alkenes. Substitution at the allylic and vinylic position of alkenes. Industrial applications of ethylene and propene. Method of formation, conformation and chemical reactions of cycloalkenes.

Unit-IV Dienes & Alkynes

Nomenclature and classification of dienes, isolated, conjugated and cumulated dienes, Structure of allenes and butadiene, method of formation, polymerization, chemical reactions, 1,2 and 1,4-additions, Diels-Alder reaction. Nomenclature, structure and bonding in alkynes, method of formation. Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions, Hydroboration-oxidation, metal–ammonia reduction, oxidation and polymerisation.

Learning Outcomes: After completion the course student would be 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 reactivity and theories.
- ❖ Apply the mechanism of chemical reaction for explaining 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.Qualitativel discussionoftheMaxwell'sdistribution ofmolecular velocities,collisionnumber,meanfreepathandcollisiondiameter.Liquificationofgases.

Unit-IV :Liquidstate

Intermolecularforces,structureofliquids(aqualitativel description).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

Qualitative Analysis: Semimicroanalysis; separation and identification of three cations and three anions in the given inorganic mixture, specific tests for some typical combination of acid radicals.

Physical chemistry

Viscosity, Surface Tension

1. To determine the percentage composition of a given mixture (non-interacting systems) by viscosity method.
2. To determine the relative viscosity of given unknown organic liquid by viscometer.
3. To determine the relative surface tension of given unknown organic liquid by stalagmometer.
4. To determine the percentage composition of a given binary mixture by surface tension method.

Viva-Voce and Record

Suggested Reading:

1. कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, पीकी 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 between different frames of reference involving translation. Galilean transformation and invariance of Newton's law. Noninertial frames, fictitious or pseudo forces, Transformation of displacement, velocity and acceleration between rotating 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, Time dilation 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 motion under conservation forces. Discussion of potential energy curves and motion of a particle. Conservation of angular momentum about an arbitrary point, Precessional motion of spinning top, Spin precession in constant magnetic field.

UNIT-IV Rigid Body Dynamics:

Equation of motion of a rotating body, inertial coefficients, case of J not parallel to ω , kinetic energy of rotation and idea of principle axis. Calculation of moment of inertia of a disc, spherical shell, hollow and solid spheres and cylindrical objects (cylindrical shell, solid cylinder) about their symmetric axis through centre of mass.

Learning Outcomes: On completion of the course students would be 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 Lectures on Physics, Vol. 1, R.P. Feynman R.B. Leighton 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 of energy and linear momentum, Collision of two particles in one and two dimensions (elastic and inelastic), Analysis of collision in centre of mass frame. Slowing down of neutrons in moderator. System with varying mass. Angular momentum 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 under 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 completion 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 Lectures 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 in differential form, Gauss law from inverse square law, physical meaning of divergence of a vector, The Laplacian operator. Poisson'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 difference and potential function. Potential energy of a system. Application: energy required to build a uniformly charged sphere. Classical radius of the electron, potential and field due to a short dipole, torque and force on a dipole in an external field.

UNIT -III The Field of Moving Charge:

Magnetic force, Measurement of charge in motion, Invariance of charge. Electric field measured in different frames of reference, Field of a point charge moving with constant velocity, Force on a moving charge, Interaction between a moving 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. Poisson's equation for vector potential. Field of any current carrying wire and deduction of Bio-Savart law.

Learning Outcomes: After completion the course student would be able to:

- ❖ Describe the basic mathematical concepts related to electromagnetic vector fields.
- ❖ Discuss about the principles of electrostatics.
- ❖ Applies the principles of magnetostatics.
- ❖ 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 power transfer theorem.
2. To study the variation of charge and current in a RC Circuits with different time constant (using a DC source).
3. To study the behaviour of an RC Circuits with varying resistance and capacitance using AC mains as a power source and also to determine the impedance and phase relations.
4. To study the rise and 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 reverse resistances.
7. To study the magnetic field along the axis of a current carrying circular coil. Plot the necessary graph and hence find the radius of the circular coil.
8. To determine the specific resistance of a material and determine difference between two small resistances using 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 \mathbb{Z} , Congruences, Chinese Remainder Theorem, Euler's function, primitive roots.

Unit 4: Logic and Propositional Calculus, Propositions, Simple and compound, Basic Logical operations, Truth tables, Tautologies and contradictions Propositional Functions. quantifiers.

Learning Outcomes: After completion 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 completion 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, I. 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 completion 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 Dimensions, Pothishala Pvt. Ltd., Allahabad, 1992.
2. P.K. Jain and Khalil Ahmed, A Text Book of Analytical geometry of Three Dimensions, 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 Jenner), 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 Archaeobacteria 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 completion 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: Phaeophyceae and Rhodophyceae:

Phaeophyceae: 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 completion 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. Gilbert, M. S. 1985. Cryptogamic Botany. Vol. I and II second edition. Tata McGraw 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 (Alexopoulos 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 and MLOs (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 *Alternaria* (early blight of potato disease), sex degeneration in fungi and economic importance of fungi.

Learning Outcomes: After completion 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.
- ❖ Learn 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*, *Voucharia*, *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 in Coelenterates

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 completion 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:

2.2 Mollusca:

General characters and outline classification up to classes with examples.

Type Study: Pila: External characters, Skeletal, Digestive, Respiration, & Reproductive systems.

Unit III:

3.1 Echinodermata:

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 completion the course student would be 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 the reproductive system of Leech.
- ❖ Classify the salient features of Balanoglossus

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 and 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 completion of the course student would be 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 reticulum structure.
- ❖ Students 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 larva of Taenia solium, Scolex of Taenia, Mature and gravid proglottids of Taenia 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, Cysticera/Locust, Dragonfly, Queen Termite, Cymax, Moth/Butterfly,
- II. Mollusca : Chiton, Dentalium, Cypraea, Pila, Aplysia, Mytilus, Pinctada, 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. Majumuria 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 Genetics, College Book Center, Jaipur
10. K.C. Soni, 2008, Cell Biology and Genetics, College Book Center, Jaipur

Semester-II

Course Code	Course Title	Course Category	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 :Ionic Solids

Ionic structures (AB and AB₂ type), packing of ions, Radius ratio and coordination number, calculation of limiting radius ratio for tetrahedral, octahedral and cubic crystal structure, limitations of radius ratio rules, Polarizing power and polarisability of ions, Fajans rule, lattice energy and Born-Landé equation, Born-Haber cycle and its applications, solvation energy and solubility of ionic solids.

Unit-II :Metallic Bond & Weak interactions

Introduction of metallic bond, properties of metals, theories of Metallic bond - free electron theory, valence bond theory, limitations of valence bond theory, molecular orbital or band theory, lattice defects in ionic solids, semiconductors.

Hydrogen bonding and Vander Waals forces.

Unit-III :s-Block Elements

Comparative study, diagonal relationships, salient features of hydrides, solvation and complexation tendencies including their function in biosystems and introduction to alkyls and aryls.

Unit-IV :Some important compounds of p-block elements

Hydrides of boron, diborane and higher boranes, borazines, borohydrides, fullerenes, carbides, fluorocarbons, silicates (structural principle), tetrasulphur tetranitride, basic properties of halogens, interhalogens and polyhalides.

Learning Outcomes: After completion the course student would be 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 related to geometrical structure, reactions and configuration of various compounds.

Unit I : Stereochemistry of organic compounds

Concept of isomerism, types of isomerism. Optical isomerism; elements of symmetry, molecular chirality - allenes and biphenyl, Enantiomers, stereogenic centre, optical activity, properties of enantiomers. Chiral and achiral molecules with two stereogenic centres, diastereomers Threo, and erythro diastereomers, meso compounds. Resolution of enantiomers, inversion, retention and racemisation. Relative and absolute configuration, sequence rule, D&L and R&S system of nomenclature.

Unit-II : Geometrical, Conformational isomerism & Arenes

Determination of configuration of geometric isomers, E&Z- system of nomenclature, geometric isomerism in oximes and in cyclic compounds.

Conformational analysis of ethane and n-butane. Newman projection and Sawhorse formulae. Fischer and flying wedge formula. Difference between configuration and conformation

Nomenclature of benzene derivatives. The aryl group, aromatic nucleus and side chain. Structure of benzene, molecular formula and Kekule structure. Stability and carbon-carbon bond length of benzene, resonance structure, MO picture.

Unit-III : Aromaticity & Aromatic electrophilic substitution

The Huckel's rule, aromatic ions.

General pattern of the mechanism, role of sigma and pi complexes. Mechanism of nitration, halogenations, sulphonation, mercuration and Friedel-Crafts reaction with energy profile diagrams.

Activating and deactivating substituents, orientation and ortho/para ratio. Side chain reactions of benzene derivatives. Birch reduction.

Unit-IV : Alkyl and aryl halides & Polyhalogen compounds

Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanism of nucleophilic 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 nucleophilic 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 completion the course student would be able to:

- ❖ Explain about elements 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 preparation and determinants.

Unit I:Solidstate

Definition of space lattice, Unit cell. Law of crystallography (i) law of constancy of interfacial angles (ii) law of rationality of indices (iii) law of symmetry. Symmetry elements in crystals. X-ray diffraction by crystals. Derivation of Bragg's equation, Determination of crystal structure of NaCl, KCl and CsCl (Laue's method and powder method).

Unit II :Colloidalstate

Definition of colloids, classification of colloids. Solids in liquids (sols): properties- kinetics, optical and electrical. Stability of colloids, protective action, Hardy-Schulze law. Gold number. Liquids in solids (gels): classification, preparation and properties, inhibition, general application of colloids. Liquid in liquid (emulsions): types of emulsions, preparation, Emulsifiers.

Unit-III :ChemicalKinetics

Chemical kinetics and its scope, rate of reaction, factors influencing the rate of reaction, Concentration dependence of rates, mathematical characteristics of simple chemical reaction- zero order, first order, second order, pseudo order, half-life and mean life. Determinations of the order of reaction- differential method, method of integration, method of half-life period and isolation method. Theories of chemical kinetics, Effect of temperature on the rate of reaction, Arrhenius concept of activation energy. Simple collision theory based on hard sphere model, transition state theory (equilibrium hypothesis). Expression for the rate constant based on equilibrium constant and thermodynamic aspects.

Unit-IV :Solutions,Dilute solutions & Colligative properties

Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient. Raoult's law, relative lowering of vapour pressure, molecular weight determination. Osmosis law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure, Elevation of boiling point and depression of freezing point. Thermodynamic derivation of relation between molecular weight and elevation of boiling point and depression in freezing point. Experimental methods for determining various colligative properties. Abnormal molar mass degree of dissociation and association of solutes.

Learning Outcomes: After completion the course student would be able to:

- ❖ Draw and interpret symmetries and structures of crystals and colloids.
- ❖ Compare among various forms of crystals, order and transition state of compounds.
- ❖ Measure and calculate the mathematical characteristics of simple chemical reactions and determinants.

Practical's

Inorganic chemistry:

Quantitative analysis: Volumetric analysis

- Determination of acetic acid in commercial vinegar using NaOH.
- Determination of alkaline content of an acid tablet using HCl.
- Estimation of calcium content in chalk as calcium oxalate by permanganometry.
- Estimation of hardness of water by EDTA.
- Estimation of ferrous and ferric by dichromate method.
- Estimation of copper using thiosulphate.

Organic chemistry:

(A) Laboratory techniques

- Determination of m.p. of naphthalene, benzoic acid, urea etc. OR
- Determination of b.p. of ethanol, methanol, cyclohexane, etc

(B) Qualitative analysis

- Detection of extra elements (N, S and halogens) and functional groups e.g. (phenolic, alcoholic, carboxylic, carbonyl, ester, carbohydrate, amine, amide and nitro) in simple organic compounds

Viva voce and record

Suggested Reading:

- कार्बनिक रसायन, सुरेश आमेटा, एच.के. पाण्डे, एच.एस. शर्मा, हिमांशु पब्लिकेशन्स, उदयपुर
- अकार्बनिक रसायन, ओझा, भोजक, कोठारी, चतुर्वेदी, रमेश बुक डिपो, जयपुर
- प्रायोगिक रसायन, भार्गव, लवानिया, ओझा, रमेश बुक डिपो, जयपुर
- भौतिक रसायन, शर्मा, भार्गव, गुप्ता, रमेश बुक डिपो, जयपुर
- कार्बनिक रसायन, विजयश्री मनोज छंगाणी, अल्का पब्लिकेशन, अजमेर
- अकार्बनिक रसायन, विजयश्री कोठारी छंगाणी, अल्का पब्लिकेशन, अजमेर
- प्रायोगिक रसायन, छंगाणी, विजयश्री, खण्डेलवाल, अल्का पब्लिकेशन, अजमेर
- भौतिक रसायन, वी.के. गोयल, आर.एस. पीतलिया, कॉलेज बुक हाउस, जयपुर
- अकार्बनिक रसायन, जी.के. रस्तोगी, यशपाल सिंह, कॉलेज बुक हाउस, जयपुर
- 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 in differential 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 completion 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, simple pendulum 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-mechanical system-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 completion 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 dimensional mono-atomic and diatomic lattice, acoustic and optical modes, dispersion relations. Concept of group and phase velocities.

UNIT – II Electrical Transmission Line:

Electrical transmission line, propagation velocity, losses, characteristic impedance, standing waves, effect of termination.

UNIT –III Wave Motion:

Wave motion – Elastic waves in a solid rod. Pressure waves in a gas column. Transverse waves in a string, waves in three 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 of free space. EM waves in dispersive media (normal case). Spectrum of electromagnetic radiations.

Learning Outcomes: After completion 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 Determining damping coefficient and Q of the oscillator.
(b) To study the electromagnetic damping of a compound pendulum and to find the variation of damping coefficient with the assistance of the conducting lamina.
7. To find J by Callender and Barne's Method.

8. To determine Young's 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 the period 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 completion 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 completion 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 Organelles

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 completion 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, pleiotropy, 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 *Paramecium*.

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 completion the course student would able to:

- ❖ Understand 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 *Funaria*.
- ❖ 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* and *Marchantia*.

UNIT III:

Habitat, structure, reproduction and life cycle of the following: Anthocerotopsida; *Anthoceros*. Phylogenetic relationship with hepaticopsida and Bryopsida.

UNIT IV:

Bryopsida: Habitat, structure, reproduction and life cycle of *Funaria*. Sterilisation of sporogenous tissues in Bryophytes.

Learning Outcomes: After completion 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 *Funaria*.
- ❖ 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. Cryptogramic 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 completion 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 Mendel's 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 of Chromosome 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 completion the course student would be 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 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 completion 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 synthesis.
- ❖ 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: Molecular 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 reprinting : 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 aqueous solvents and separation methods.
- ❖ To give information about various characteristics & laws related 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. NH₃ and liq. SO₂

Unit IV : Separation 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 completion 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 [$\text{Pb}(\text{OAc})_4$ and HIO_4] 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 substitutions, 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 Knoevenagel 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 completion the course student would able to:

- ❖ Classify the various organic compounds on the basis of mechanism and structure.
- ❖ Apply the knowledge of processing derivatives for synthesize various products.
- ❖ Describe and discuss about technical terminology related to alcohols, ketones & ethers etc.
- ❖ 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 Thomson 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 : Thermochemistry

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 K_a of acids, determination of solubility product of a sparingly soluble salt, conductometric 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 Clausius- Clapeyron equation, application

Learning Outcomes: After completion 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 $\text{Zn}_3(\text{PO}_4)_2$

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 interaction; 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 relations and 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 Discussion of Superconductivity.

Learning Outcomes: After completion 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 सांख्यिकीय 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 using cardinal 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 wavelength and refractive index by Newton ring. Michelson Interferometer, Measurement of wavelength and refractive index by Michelson Interferometer.

Unit-IV Polarization:

Polarization states of electromagnetic (EM) waves, reflection and refraction of plane EM wave at plane dielectric surface, boundary conditions, derivation of Fresnel's relations. Huygen's theory, Theory of double refraction using Fresnel's ellipsoidal surface (no mathematical derivation). Production and analysis of plane, circularly and elliptically polarized light, quarter and half wave plates.

Learning Outcomes: After completion 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 of any four terminals network. Input, Output and mutual impedance 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 of charge 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: shunt inductors, shunt capacitor, L sections and π sections filters. Voltage regulation and voltage stabilization by Zener diode, Voltage multiplier circuits.

Learning Outcomes: After completion 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, इलेक्ट्रॉनिक्स 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 polarimeter.
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 completion 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 completion 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. जांगीड़. 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, Trapezoidal rule. Simpson's one-/ third, Simpson's three-eighth and Gauss's quadrature formulae.

Learning Outcomes: After completion 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. जांगीड़. जांगीड़, जितेन्द्र सैनी, संख्यात्मक विश्लेषण, आर.बी.डी. पब्लिशिंग हाउस, जयपुर-दिल्ली, 2015-16
2. जी.सी. गौखरु 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, Nuclosome model.
- Structure and types of RNAs (mRNA, tRNA and rRNA)

UNIT –II DNA Replication

- Concept, Types and process of DNA Replication.
- Meselson 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 synthetase, pre RNA Processing, capping, 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 completion the course student would be 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 Upadhyaya, 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 completion 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 Upadhyaya, 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

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, its 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 completion 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 CO_2 , light and chlorophyll is essential for photosynthesis (Moll's half experiment).
15. Study C_3 and C_4 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

Objectives:

- ❖ 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**:Classification 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 completion 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

Objectives:

- ❖ 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. Leeuwenhock, 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 completion 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

Objectives:

- ❖ 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; Renin- Angiotensin System, Micturition, Regulation of Body Fluids & Acid Base balance

Learning Outcomes: After completion 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:** Ichthyophis, Cryptobranchus, Ambystoma (Tiger Salamander), Axolotl Larva, Salamandra, Proteus, Siren, Alytes, Pipa, Hyla, Rhacophorus (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 of Scoliodon.
- 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 Society 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 Publishing 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 aqueous 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 differential migration, Adsorption phenomenon, nature of the adsorbent, solvent systems, R_f 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 silicones, 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⁺, Ca²⁺ and Mg²⁺, nitrogen fixation.

Learning Outcomes: After completion the course student would able to:

- ❖ Differentiate between oxidation& reduction and structures of silicones .
- ❖ 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 acquaint the various reactions on the basis of their mechanism.

Unit I : Carboxylic acids & Dicarboxylic acids

Nomenclature, 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 aldehydic and ketonic compounds. Gabriel- Phtalamide 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 completion the course student would able to:

- ❖ Classify the various organic compounds on the basis of mechanism and structure.
- ❖ Apply the knowledge of processing derivatives for synthesize 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 entropy, electrolytes dipole moment etc.
- ❖ To develop analytical view about evaluation of absolute entropy, activity coefficient and magnetic properties 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 potentiometric 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, diamagnetism and ferromagnetics.

Learning Outcomes: After completion 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. $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$ / $\text{SrCl}_2 \cdot 2\text{H}_2\text{O}$).

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, entropy and thermodynamic probability; Monoatomic ideal gas; Barometric equation; Specific heat capacity of diatomic gas; Heat capacity of solids.

UNIT IV Quantum Statistics:

Black body radiation and failure of classical statistics, Postulates of quantum statistics, indistinguishability, wavefunction and exchange degeneracy, a priori-probability; Bose Einstein statistics and its distribution function; Planck distribution 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 completion 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 सांख्यिकीय 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, and determination of slit size, two slit diffraction and its intensity distribution with missing orders. Diffraction due to N slits 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 straight edge, thin and thick wire, rectangular slit. Rayleigh's criterion, resolving power of prism, telescope, microscope and plane transmission grating.

Unit-III Optical Activity and Holography:

Optical activity, Specific rotation, biquartz and half shade polarimeters. Basic concepts of holography, construction of 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. Types of lasers, construction, working and energy level schemes of He-Ne and Ruby laser. Properties and uses of lasers.

Learning Outcomes: After completion the course student would be 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 their equivalent circuits. Analysis of transistor amplifiers using hybrid parameters and its frequency response. Fixed emitter 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 negative feedback- stabilization of gain by negative feedback, Effect of feedback on output and input resistance. Reduction of nonlinear distortion by negative feedback. Effect on gain- frequency response.

UNIT-III Operational Amplifier & Oscillators:

Differential amplifier, DC level shifter, operational amplifier, input and Output impedances, input offset current. Application: Unity gain buffer, Adder, Subtractor, Integrator and Differentiator. Feedback requirements for oscillations, circuit requirement for oscillation, basic oscillator analysis. Colpitt and Hartley oscillators. R-C oscillators, 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 completion the course student would be able to:

- ❖ Identify characteristics of transistor (common base configuration, common emitter 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, इलेक्ट्रॉनिक्स एवं ठोस प्रावस्था युक्तियाँ, 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 common collector configurations)
5. Determination of band gap using a junction diode.
6. Determination of power factor ($\cos \phi$) 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 completion 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 metric 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 n th 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 differntial equations, of n th 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 completion the course student would able to:

- ❖ Calculate the exact linear differential equations of n th 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. गौखरु 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 completion 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 homosporous and heterosporous 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 completion 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 characteristics of Ephedrales: Morphology, anatomy, reproduction and life cycle of *Ephedra*. Palaeobotany: Geological time scale, fossil types and their formation, technique of study 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 completion 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 Palaeobotany 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, gibberellins.

UNIT II:

Structure, biosynthesis and physiological role of Cytokinin and Ethylene. Growth inhibitors: Abscissic 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, Molecular Structure and Function of monosaccharides, oligosaccharides and polysaccharides. Glycosidic linkage and Glycoprotein.

Lipids–Structure and classification of lipids, fatty acids- saturated and unsaturated, Alpha Oxidation, Beta 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 completion the course student would be 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* (Vegetative and reproductive).
3. **Gymnosperm:** *Cycas* (coralloid root, T.S. of coralloid root, T.S. of leaflet, petiole, male cone 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 female cone, 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 and C4 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 completion 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.
- ❖ Interpret 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 Lipid Disorders: 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 completion the course student would able to:

- ❖ Interprets the function of Carbohydrates and other metabolism.
- ❖ Explain the function of Lipids and metabolism
- ❖ Interpret the importance of Bio molecules
- ❖ Understand the function of Proteins and metabolism
- ❖ Explain the Types of Endocrine glands

Zoology-Paper-III:Physiology- II

Objectives:

- ❖ 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; Acromegaly

Learning Outcomes: After completion 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), Ornithorhynchus (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 Medulla, 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 Physiology 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 Physiology 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

Semester-V

Course Code	Course Title	Course Category	Credit	C.I.A.	Theory	Practical	Total
BSC 501	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 coordination compound, lanthanides and actinides.
- ❖ To aware about the conceptual knowledge of valence 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.

Unit I: Coordination Compounds

Werner's coordination theory and its experimental verification, effective atomic number concept, chelates, nomenclature of coordination compounds, isomerism in coordination compounds, Valence bond theory of transition metal complexes with reference to tetrahedral, octahedral and cubic complexes, back bonding, Limitations of valence bond theory.

Unit II: Chemistry of elements of first transition series

Characteristic properties of d-block elements, properties of the 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 of magnetic moment.

Unit III: Chemistry of lanthanide elements

Position in periodic table, occurrence and isolation, Electronic structure, oxidation states and ionic radii, lanthanide contraction and its consequences, complex formation, spectral properties, magnetic properties, Separation of lanthanides Application of lanthanides.

Unit IV: Chemistry of actinides

Occurrence, electronic configuration, General features and chemistry of actinides, oxidation states and stereochemistry, spectral properties, magnetic properties, chemistry of separation of Np, Pu and Am from U, comparison of lanthanide and actinide.

Learning Outcomes: After completion the course student would be 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 transition 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 acquaint about various laws of spectroscopy and methods of synthesis related to organometallic and heterocyclic compounds.
- ❖ To aware about laws related to IR spectrum, types of transitions and preparation of heterocyclic compounds.
- ❖ To develop understanding about effects of solvents, structural features and basicity of pyridine, piperidine and pyrrole.

Unit I Electromagnetic spectrum: Absorption spectra (UV) & Infrared IR absorption spectroscopy

Ultraviolet absorption spectroscopy- absorption laws (Beer- Lambert Law) molar absorptivity, presentation and analysis of UV spectra, types of electronic transitions, effect of solvents on transitions, effect of conjugation, concept of chromophore and auxochrome. Bathochromic, hypsochromic and hyperchromic and hypochromic shifts, UV spectra of conjugated enes and enones. Molecular vibrations, Hooke's law, selection rules, intensity and position of IR bands, measurement of IR spectrum, fingerprint region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds

Unit II : Organometallic compounds

The Grignard reagent- formation, structure and chemical reaction, organozinc compound: formation and chemical reactions. Organolithium compounds- Formation and chemical reactions.

Nomenclature, structural features, methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamide and sulpha guanidine.

Unit III : Heterocyclic compounds- I

Introduction, molecular orbital picture and aromatic characteristic of pyrrole, furane, thiophene and pyridine. Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution. Mechanism of nucleophilic substitution reaction in pyridine derivatives. Comparison of basicity of pyridine, piperidine and pyrrole

Unit IV : Heterocyclic compounds- II:

Introduction to condensed five and six membered heterocycles. Preparation and reaction of indole, quinoline and isoquinoline with special reference to Fischer indole synthesis, Skraup synthesis and Bischler-Napieralski synthesis, mechanism of electrophilic substitution reaction of indole, quinoline and isoquinoline.

Learning Outcomes: After completion of the course student would be able to:

- ❖ Classify 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 orbital picture and aromatic characteristics of organometallic and heterocyclic compounds.
- ❖ Define various derivatives 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 entropy, electrolytes dipole moment etc.
- ❖ To develop analytical view about evaluation of absolute entropy, activity coefficient and magnetic properties of compounds.
- ❖ To give information about carnt theorem, mixing of gases, overvoltage and refrectivity.

UnitI: PhaseEquilibriumI

Statementandmeaning of the terms-phase,componentand degree of freedom, thermodynamicderivationofGibbsphaserule,phaseequilibriaofonecomponentsystem-water,CO₂ andS systems.

Phaseequilibriaoftwocomponentsystem:Solid-liquidequilibria,simpleeutecticBi-Cd,Pb-Ag systems, desilverisationofflead.

Solidsolutions:Compoundformationwithcongruentmelting point(Mg-Zn)andincongruentmeltingpoint, (NaCl-H₂O),(FeCl₃-H₂O) and CuSO₄-H₂O) system. Freezingmixtures,acetone-dryice.

UnitII :PhaseEquilibriumII

Liquid-Liquidmixtures- Idealliquidmixtures.Raoult's andHenry's law.Nonideal system-azeotropes-HCl-H₂Oand 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's radiationlaw,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 completion 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 entropy, 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 of sodium trioxalato ferrate (III), $\text{Na}_3[\text{Fe}(\text{C}_2\text{O}_4)_3]$ (b) preparation of Ni-DMG complex $[\text{Ni}(\text{DMG})_2]$
2. Preparation of copper tetraammine complex $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4$
3. Preparation of cis- and trans-bisoxalato diaquachromates (III) ion
4. Preparation of sodium tetrathionate

Organic Chemistry

Qualitative analysis: Analysis of an organic mixture containing two solid components using water, NaHCO_3 , and NaOH for separation and preparation of suitable 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 हाउस, 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 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) Laplace equation in three dimensional Cartesian coordinate system- line charge between two earthed parallel plates
- (ii) Helmholtz equation in circular cylindrical coordinates – cylindrical resonant cavity,
- (iii) Wave equation in spherical polar coordinates – the vibrations of a circular membrane,
- (iv) Diffusion equation in two dimensional Cartesian coordinate system – heat conduction in a thin rectangular plate,
- (v) Laplace equation in spherical coordinate system – electric potential around a spherical surface.

Learning Outcomes: After completion 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 quantum theory
Electromagnetic Radiation: Black Body Radiation, qualitative discussion of spectral distribution of energy, limitation of classical theory, Planck's radiation law, photoelectric effect, Compton effect, Matter Waves: 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, its application 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 Hermitian operator, state function. Expectation value of dynamical variable-position, momentum and energy, Fundamental postulates of quantum mechanics, Eigen function and eigen values, Degeneracy. Orthogonality of eigenfunction, Commutation relations, Ehrenfest's theorem and complementarily wave packet, group and phase velocities, 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 completion 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 discrete 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 and Crystal Structure, Bravis Lattice, Miller Indices and Crystal Structure, Spacing of Planes in Crystal Lattice, Determination of different crystal properties for SC, FCC, BCC, HCP and perovskite structure, X-ray Diffraction and Bragg's Law, Laue equation of X-ray diffraction, Debye Scherer and Laue Camera.

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 the internal Energy hence to the Specific Heat of Metals, Thermal Conductivity of the lattice. Electrical Conductivity: Drude-Lorentz Theory of Electrical Conductivity, Boltzmann Transport Equation, Sommerfeld Theory of Electrical Conductivity, Mathiessen's Rule, Thermal Conductivity and Wildemann-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 Bloch Theorem, Density of states , Kronig Penny Model, Velocity of the Bloch electrons and Dynamical Effective Mass, Momentum, Crystal Momentum and Physical Origin of the Effective Mass, Negative Effective 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 In Magnetic 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 completion 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. 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 characteristics 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 impedance of the amplifier.
9. To Design and study of an R-C phase shift oscillator and measure output impedance (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 completion 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. जांगीड, 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. गौखरु 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 completion 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. जांगीड, जितेन्द्र सैनी, बीजगणित, आर.बी.डी. पब्लिशिंग हाउस, जयपुर-दिल्ली, 2015-16
2. जी.सी. गौखरु 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 flowering 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 form in 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 completion the course student would able to:

- ❖ Understand the basic plan of flowering 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, Secretory 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, dendrochronology, periderm, bark and lenticels. Anomalous secondary growth in dicot stem, in monocot stem in dicot roots.

Learning Outcomes: After completion 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 completion 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 and permanent 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 Behaviour
- 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 completion 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 completion 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.
- 1.3 Mechanism 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 completion 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 Edition CBS Pub. New Delhi.
2. Bergman, N. H. Comparative Genomics. Humana Press Inc. Part of Springer Science+BusinessMedia, 2007.
3. Baxevanis, A. D. Ouellette, 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. Shroff Publishers and 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 metal 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 selection rules, trans effect and substitution reactions.
- ❖ To give information about spectrochemical series, kinetic stability and bonding application of alkyls and aryls.

Unit I : Metal– ligand bonding in transition metal complexes

An elementary idea of crystal-field theory, crystal field splitting in octahedral, tetrahedral and square planar complexes, factors affecting the crystal– field parameters, colour of transition metal ions, limitations of crystal field theory.

Unit II : Spectral properties of transition metal complexes

Types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states and Spectroscopic terms (L-S Coupling), spectrochemical series, Orgel- energy level diagram for d and d states, the electronic spectrum of $[Ti(H_2O)_6]^{+3}$ complex ion.

Unit III : Thermodynamic and kinetic aspects of metal complexes

Thermodynamic and kinetic stability, thermodynamic stability and factors affecting the stability, substitution reactions of square planar complexes, types of substitution reactions and trans effect.

Unit IV : Organometallic chemistry

Definition, nomenclature and classification of organometallic compounds, preparation, properties, bonding and application of alkyls and aryls of Li, Al, Hg, Sn and Ti, a brief account of metal– ethylenic complexes and homogeneous hydrogenation, mononuclear carbonyls and the nature of bonding in metal carbonyls.

Learning Outcomes: After completion the course student would be 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 industrial uses of fat, oil and detergents.

UnitI :Nuclear magneticresonance(NMR)spectroscopy

Protonmagneticresonance ^1H -NMR spectroscopy, nuclear shieldinganddeshielding, chemicalshiftandmolecularstructure, spinspin splittingandcouplingconstant, areas ofsignals, interpretation ofPMR spectraofsimpleorganic moleculessuchasethylbromide, ethanol, acetaldehyde, 1,1,2tribromoethane, ethylacetate, tolueneandacetophenone. Problemspertaining to thestructure elucidation ofsimple organic compounds usingUV, IRand PMR spectroscopic techniques.

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 reactionof α 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 completion 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.

Unit I: Photochemistry:

Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry: Grothaus-Draper law, Stark-Einstein law, Jablonski diagram depicting various processes occurring in the excited state, qualitative description of fluorescence, phosphorescence, non radiative process (internal conversion, intersystem crossing) quantum yield, photosensitized reaction-energy transfer process (simple examples)

Unit II: Spectroscopy I

Introduction: Electromagnetic radiation of the spectrum, basic features of different spectrometers, statement of the Born Oppenheimer approximation, degree of freedom.

Rotational spectrum: Diatomic molecules, Energy levels of rigid rotator, (semiclassical principles) selection rules, spectral intensity, distribution using population distribution (Maxwell Boltzmann distribution), determination of bond length, qualitative description of nonrigid rotator, isotope effect.

Electronic spectrum: Concept of potential energy curves for bonding and anti bonding molecular orbitals, qualitative description of selection rules and Frank-Condon principle.

Unit III: Spectroscopy II

Vibrational spectrum: Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, intensity, determination of force constant, qualitative relations of force constants and bond energy, effect of anharmonicity and isotopes on the spectrum, idea of vibrational frequencies of different functional groups.

Raman spectrum: Concept of polarizability, pure rotational and pure vibrational Raman spectra of diatomic molecules, selection rules.

Unit IV: Quantum Mechanics II:

Molecular orbital theory: Basic idea as criteria for forming M.O. from A.O. construction of M.O. by LCAO- H_2^+ ion, calculation of energy levels from wave functions, physical picture of bonding and antibonding wave functions, concept of σ , σ^* and π , π^* orbitals and their characteristics. Hybrid orbitals sp , sp^2 , sp^3 , calculation of coefficients of atomic orbitals used in these hybrid orbitals.

Learning Outcomes: After completion the course student would be 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 describe 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

- Jobs
- Mole ratio method

Adulteration –food stuffs
Effluent analysis water analysis.

Physical Chemistry

Electrochemistry

- (a) To determine the strength of the given acid conductometrically using standard alkali solution
- (b) To determine the solubility and solubility product of a sparingly soluble electrolyte conductometrically
- (c) To study the saponification of ethyl acetate conductometrically
- (d) To determine the ionization constant of a weak acid conductometrically
- (e) To titrate potentiometrically the given ferrous ammonium sulphate solution using KMnO_4 / $\text{K}_2\text{Cr}_2\text{O}_7$ as titrant and calculate the redox potential of $\text{Fe}^{++}/\text{Fe}^{+++}$ system on the hydrogen scale.

Molecular weight determination:

- 1. Determination of molecular weight of a non volatile solute by Rast method/Beckmann freezing point method.
- 2. Determination of the apparent degree of dissociation of an electrolyte (e.g. NaCl) in an aqueous solution at different concentrations by ebullioscopy.

Colorimetry:

To verify Beer-Lambert law $\text{KMnO}_4/\text{K}_2\text{Cr}_2\text{O}_7$ and determine the concentration of the given solution of the 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 Thomson 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, longitudinal 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 an example of four force, transformation of four frequency vector, longitudinal and transverse Doppler's effect.

UNIT – III Transformation between Lab and CM:

Transformation between laboratory and center of mass system. Four momentum conservation, kinematics 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 completion 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 transmission coefficient, Qualitative discussion of the application to alpha decay (tunnel effect), square well potential problem, calculation of transmission coefficient.

UNIT II Bound State Problems- II:

Particle in one dimensional infinite potential well and finite depth potential well, energy value and 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 energy states. Schrodinger equation for a spherically symmetric potential, Schrodinger equation for a one electron atom in spherically coordinates, separation of variables, Orbital angular momentum and 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 Bohr Correspondence Principle. Stern and Gerlach experiment, spin and magnetic moment. Spin orbit coupling and qualitative explanation of fine structure. Atoms in magnetic field Zeeman splitting.

UNIT – IV Molecular Spectroscopy:

Qualitative features of molecular spectra: Rigid rotator discussion of energy, eigen values and eigen function, rotational energy levels of diatomic molecules, Rotational spectra, vibrational energy levels of diatomic molecules, vibrational spectra, vibrational rotational spectra.

Learning Outcomes: After completion 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 and Nuclear Ellipticity, Quadrupole Moment and Nuclear spin, Parity and Orbital angular momentum, Parity and its conservation, Nuclear Mass and Mass Spectroscopy, Nuclear Energy, Discovery of neutron and proton-neutron hypothesis, Neutron to proton Ratio (n/z), The nuclear potential, 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 mass distribution of fission products, Charge distribution of fission products, ionic charge of fission products, Fission cross Section and threshold, Neutron emission in fission, The prompt neutron and delayed neutrons, Mechanism for the emission of delayed neutrons. Energy of fission Neutrons, Theory of nuclear fission and Liquid Drop Model, Barrier Penetration-Theory of Spontaneous fission, Nuclear Energy Sources, Nuclear Fission as a source of Energy, The Nuclear 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: The sources 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-Walton High Voltage Generators, Van De-Graff Generators, Drift Tube Linear Accelerators, Wave Guide Accelerator, Magnetic Focussing In cyclotron, Synchrocyclotron, Betatron, The Electromagnetic Induction Accelerator, Electron Synchrotron, Proton Synchrotron.

Learning Outcomes: After completion 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 Iodine 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 temperature 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 charge 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 completion 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, Rouché's theorem, Casorati - Weierstrass theorem.

Unit 3; Residue at a singularity, Cauchy's residue theorem. Argument principle. Rouché's eorem. Fundamental theorem of Algebra.

Unit 4: Conformal mapping. Bilinear transformation and its properties. Elementary mappings: $w(z) = \frac{1}{2}\left(z + \frac{1}{z}\right)$, z^2 , ez , $\sin z$, $\cos z$, and $\log z$.

Evaluation of a real definite integral by contour integration. Analytic continuation. Power series method of analytic continuation.

Learning Outcomes: After completion 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. जांगीड़. 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 common catenary force in the three dimensions.

Learning Outcomes: After completion 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, microsporogenesis, 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, megagametogenesis (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 completion 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 Subrahmanyam, 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 mutualism.

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 completion 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-Haldane concept 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; palaeontological, 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 completion the course student would able to:

- ❖ Understand the process of evolution.
- ❖ Understand the Lamarkism, Darwinism and Neo-Darwinism.

- ❖ Interpret Geological time scale.
- ❖ Explain Palaeontology 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 interpret 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 Honey Bees, Types of hives, 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, Carbamate 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 domestica*
 - 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, mantle & 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 Animal husbandry: Introduction to common dairy animals; Techniques of dairy management
- 4.3 Vermiculture: Vermitechnology, Bio-Fertilizers

Learning Outcomes: After completion the course student would able to:

- ❖ Discuss the various concepts in Sericulture, Lac culture 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 Economics 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 (Quadrant method Transect method, plotless method:

Unit III: Biodiversity & Conservation

- 3.1 Various Aspects of Biodiversity, Degree of Diversity,
- 3.2 Ex situ and In situ Conservation; Alpha, Beta and Gamma 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 completion 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 quadrat 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 CO₂ 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. Strickerberger, M.W. Evolution. Jones& Bartlett, USA 1996
4. Hall and Hallgrímsson: Strickerberger'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 Montgomery, John Wiley and Sons.
4. Principles of Biostatistics by M. Pagano and K. Gauvreau: 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, Biostatistics 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 Associates Inc.*
2. Chapman, J. L. And Reiss, M. J. (1992). Ecology, principles and applications. *Cambridge University Press.*
3. Verma, P. S. & Agarwal, V. K. (1983). Environmental biology (principles of ecology). *S.Chand & Co.*
4. Singh, J. H. *et 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