

2.6

STUDENT PERFORMANCE AND LEARNING OUTCOMES (2017-2018)

2.6.1 Program outcomes, program specific outcomes and course outcomes for all programs offered by the institution.

DEPARTMENT OF GENETICS AND PLANT BREEDING

Genetics and Plant Breeding

A) M.Sc. (Ag.)

Course Outcome

I Semester-

CO-1: Involves study of genes and their roles in inheritance.

CO-2: Provides knowledge about fundamental of cytology and cytogenetics.

CO-3: Provides essential knowledge about crop improvement through plant breeding.

CO-4: Provides knowledge about various statistical methods used in agricultural sciences.

II Semester-

CO-1: To inculcate knowledge of sustainable utilization and conservation of genetic resources.

CO-2: Provides knowledge about different crop plants diseases and their management.

CO-3: Provides knowledge about DNA, RNA, proteins and associated molecular mechanisms.

CO-4: To inculcate knowledge about various bioinformatic tools.

OE: To teach different physiological mechanisms like photosynthesis, transpiration, gas exchange etc in plants.

III Semester-

CO-1: To teach about various abiotic stresses affecting crop plants.

CO-2: To teach about genetic differences within and between populations and principals that determine changes.

CO-3: To teach about hybrid vigour, and yield of a hybrids over those of parents.

CO-4: To teach about the application of biotechnological tools for improving crop plants.

OE: To provide knowledge about food policy and nutritional security

IV Semester-

CO-1: Provide comprehensive knowledge about advanced genetics.

CO-2: To teach quantitative genetics or genetics of complex traits

CO-3: To teach principals and methods of seed production.

CO-4: To provide foundational knowledge of the field of genomics, transcriptomics and proteomics.

B) B) M.Phil.

Course Outcome

I Semester-

CO-1: Provides knowledge about advanced statistical methods used in agricultural sciences.

CO-2: To teach about the applications of mutations in crop improvement.

II Semester-

CO-1: To provide advanced knowledge about breeding, genomics and biotechnology and their applications in crop improvement.

CO-2: To teach about research ethics, research topic selection, and application of internet and

DEPARTMENT OF SEED SCIENCE AND TECHNOLOGY

computer sciences in research.

Outcome of M.Sc. (Ag.) seed Science & Technology Programme

I Semester

Co1: Statistical Methods in Agriculture: To help them learn the significance and application of statistics in the agricultural research.

Co2: Principles & Practices in Plant Breeding: To make them understand the major/minor techniques of plant breeding .

Co3: Fundamentals of Genetics -: To help them to learn the basic concepts of heredity and variability in the organisms and their flow by one generation to the next.

Co4: Floral Biology, Seed Development and Maturation-: To make them understand the physiology and biochemistry seed development and embryogenesis.

II Semester – Title

Co5: Computer Applications and Bioinformatics -: To help them learn the importance of basic knowledge computers and bioinformatics in the agricultural research.

Co6: Plant Genetic Resources: Conservation and Sustainable Use-: To let them understand the idea of the importance, applicability of conservation of the plant genetic resources.

Co7: Seed Production Technology – I-: To help them understand the techniques for the production of seeds of various cereals crops.

Co8: Principles of Hybrid Seed Production: To help them learn the new technologies for the development, release and multiplication hybrid seeds/varieties.

III Semester – Title

Co9: Seed Production Technology – II: Vegetable crops-1: To help them to learn the different cultivation techniques for seed production in vegetables crops..

Co10: Seed Physiology-: To help them learn the physiology of seeds including the concepts of viability, germination, vigour and dormancy etc.

Co11: Seed Testing and Quality Control-: To help them learn and practices different seed testing methods as per the regulations of ISTA.

Co12: Seed Processing and Storage-: To help them to learn basics principles , techniques and methods of post-harvest processing of the seeds.

IV Semester – Title

Co13: Seed Pathology-: To make them to understand the diagnosis of seed borne diseases and seed health testing and progression of pathogenesis in seeds and importance in Agricultural Sciences .

Co14: Seed Biotechnology -: To help them learn the basic concept of biotechnological tools and techniques especially synthetic seed production, their storage & uses.

DEPARTMENT OF ECONOMICS

2.6.1: Program Outcomes. Program Specific Outcomes and Course Outcomes

MA

Semester-I

Micro Economics I

This paper equip the students in a rigorous and comprehensive manner with the various aspects of consumer behaviour and demand analysis, production theory and behaviour of costs, the theory of traditional markets and equilibrium of firm in modern markets characterised by few sellers.

Macro Economics I

The paper entitled “macro Economics” will equip the students at the postgraduate level to understand systemic facts and latest theoretical developments for empirical analysis.

Statistical Methods for Economic Analysis

This paper will train the students to use the techniques of statistical analysis, which are commonly applied to understand and analyse economic problems. Simple tools and techniques, studied in this paper will help a student in data collection, presentation, analysis and drawing inferences about various statistical hypotheses.

Computer Applications in Economic Analysis (Core Elective)

This paper will train the students to handle the statistical problems through computer software/s.

Basic Economics (Open Elective)

This paper will help the students of non-Economics background to impart the basic concepts of Economics used in day to day life.

Semester-II

Micro Economics-II

The paper will train students about micro and macro theories of distribution, welfare economics, general equilibrium in closed and open systems and analysis of economic behaviour under uncertainty.

Macro Economics II

This paper will help students to be well conversant with monetary and banking operations that facilitate the process of globalisation.

Economics of Growth

This paper will endow students to understand the theories of growth and other important issues in the context of growth such as infrastructure-linkages, role of international trade, importance of domestic macroeconomic policies, investment criteria etc.

Elementary Mathematics for Economic Analysis (Core Elective)

The study of this paper will enhance the understanding of economic concepts with the help of mathematical methods rather than learning mathematics itself.

Semester III

Public Finance

The study of 'Public Finance' will help students to enable them analytical of those policies and operations which involve the use of tax and expenditure measures. Budgetary policy is an important part to understand the basic problems of use of resources, distribution of income, etc.

Economics of Development & Planning

The study of economic development has gained importance because of sustained interest of the developing countries in uplifting their economic conditions by restructuring their economies to acquire greater diversity, efficiency and equity in consonance with their priorities. The study of this paper will develop mature understanding of different aspects of development.

Indian Economic Policy

This Paper at the postgraduate level will help to sharpen the analytical faculty of the student, by highlighting an integrated approach to the functioning aspects of the Indian economy, keeping in view the scope for alternative approaches.

Industrial Economics (Core Elective)

In the contemporary world with globalization and liberalization more and more attention is being given to industry. This course will provide knowledge to the students on the basic issues such as productivity, efficiency, capacity utilization and debates involved in the industrial development of India.

Indian Economy (Open Elective)

The study of this paper will enable students to know about the nature and structure of Indian Economy.

Semester IV

International Economics

The study of the paper under the present era of globalization will train the students about the theories of international trade and policy related issues.

Indian Public Finance

This paper will inculcate students with thorough understanding of fiscal institutions with a careful analysis of the issues which underline budgetary policies in general and Indian experience in particular.

Financial Institution and Markets

This paper will help the student of economics to be well conversant with the theory and practice of different financial institutions and markets to understand and analyse the inter-connection between the monetary forces and real forces.

Econometrics (Core Elective)

The study of this paper will help the students of Economics to develop a reasonable understanding of economic relationships and relevant statistical methods as econometric theory a very powerful tool for understanding of applied economic relationships and for meaningful research in economics.

International Economic Institutions (Core Elective)

The paper will help the students to trace the historical process of globalization by knowing about the various international economic institutions.

Pre-Ph.D.

Research Methodology and Computer Applications

This paper will help to make the student well conversant with entire process of research work.

Selected Issues in the Indian Economy

This paper will train students for discussion on various exogenous and endogenous factors responsible for India's economic reforms.

Seminar / Term Paper

This paper will help students to define a research gap going through the existing literature on a theme.

DEPARTMENT OF SOCIOLOGY

Out Come Of Programme

Sociology

This course will introduce students to new concepts of Sociology discipline. These concepts will enhance the conceptual learning and understanding of the basic concepts used in Sociology. It contributes in enriching the vocabulary and scientific temperament of the students. This is designed to incorporate all the key concepts of sociology which would enable the learner to develop keen insights to distinguish between the commonsense knowledge and Sociological knowledge. The course provides comprehensive understanding of Indian society to the scholars. Its strongly committed to a diverse learning environment, in which respect for dignity and worth of all human beings and understanding of diverse conditions would be practiced. It respects individual uniqueness and offers a professional program to build a foundation for practice with population groups, keeping the larger goal in mind.

Social Work

The main purpose of the Programme in Social Work is to develop and disseminate knowledge, skills and values through education, field training and research necessary for promoting, maintaining and improving the functioning of individuals, families, groups, organizations and communities existing in the society. The programme is strongly committed to a diverse learning environment, in which respect for dignity and worth of all human beings and understanding of diverse conditions would be practiced. It respects individual uniqueness and offers a professional program to build a foundation for practice with population groups, keeping the larger goal in mind. The values and ethics of professional social work practice, the theory guiding the profession, and the skills that are necessary for practice and the ability to be engaged in lifelong learning.

DEPARTMENT OF SANSKRIT

Diploma in Karmakand

1. Students will be trained to study about the ritual services which forms the basis of Indian culture, religion and its philosophy.
2. The students will be able to know the utility of priesthood for the welfare of the nation.
3. They will gain a deeper understanding of the Navagraha Devatas of Jyotisha, and to secure the blessings of these Navagraha Devatas, by their propitiation and worship, through the Hindu Poojas, Abhishekas, Homas, Archanas, etc.
4. 4. They will be able to earn their livelihood.

I SEMESTER Title- Pandit

CO 1- To gain knowledge about Indian priesthood

II Semester Title - Pandit Pravar

CO2- To develop expertise in Indian religion, Jyotish, Yog embedded with technical aspects.

P.G. Diploma Yog Science

1. Students will be benefited from the ancient and scientific knowledge of Indian Yoga Shastra.
2. Know the basic principles of Yoga Shastra and will be familiarised with the importance of Yoga.
3. Understand the true nature of yoga, will get inspired and integrate yoga in life.
4. Learn both theoretical and practical aspects of Yoga asanas equally.
5. Build a healthy society by the application of Yoga and naturopathy.

Course Outcome

Semester-1

CO-1 Tittle- Practicle 1

To help them know about different Asanas and Pranayams

CO-2 Tittle- Practicle 2

To inculcate various meditation techniques, Mudrabandha and Shatkarma

CO-3 Tittle - Practical 3

To equip them with skills of lesson planning and teaching methods

CO-4 Tittle - Fundamentals of Yoga

To help them learn the basic and fundamental concepts of Yoga

CO5- Tittle - Shrimad Bhagavad Gita

To gain knowledge about general introduction & importance of Shrimad Bhagavad Gita and about God's nature and glory.

CO6 Tittle - Patanjali Yog Sutra

To comprehend about Yoga, its definition, Chitta, vrittis of Chitta and measures of their cessation.

CO-7 Tittle - Manav Sharir Rachna, Kriya Vigyan & Ahaar Avm Poshan

To be acquainted with human body, level of organisation, compound diet and nutrition.

CO-8 Tittle- Samany Sanskrit

To develop general knowledge of Sanskrit grammar.

Semester-2**CO-1 Tittle- Practicle 1**

To develop performing skills for different Asanas and Pranayams

CO-2 Tittle- Practicle 2

To expertise in various meditation techniques, Mudrabandha and Shatkarma

CO-3 Tittle - Practical 3

To determine symptoms, causes and compound treatment of various diseases.

CO-4 Tittle - Yoga Avm Swasthay

To help them learn the concept of health, its importance and various diseases

CO5- Tittle - Hathyog Ke Siddhant

To gain knowledge about Hatha Yoga, benefits of various asanas and Shatkarma.

CO6 Tittle - Vaikalpik Chikitsa Ke Siddhant

To comprehend about alternative medication, acupressure, Parana and Panchgavya therapy.

CO-7 Tittle - Bhartiya Darshan

To be acquainted with general knowledge of Indian philosophy

CO-8 Tittle- Samany Sanskrit

To develop general knowledge of Sanskrit grammar and sentence formation.

M.A./M.Sc. Yoga Science

1. Students will be able to gain fundamental knowledge of yoga on the basis of classical texts with a scientific basis.
2. Develop overall personality and create awareness of health among general public.
3. Acquainted with the basic principles of ancient India related to health science
4. Develop possible employment prospects in this field with the establishment of their own Yoga training centers.
5. Establish peace and prosperity in their surroundings.

Course Outcome

Semester-1

CO-1 Tittle- Practical 1

To help them know about kriya yoga, subtle exercise and asanas

CO-2 Tittle- Practical 2

To inculcate them with different mudras, meditation techniques and mantras

CO-3 Tittle- Yog ke Adharbhoot Tatv

To help them learn the basics of Yoga, its history and objectives and principles, usefulness of Yoga in Modern Age.

CO4- Tittle - Manav Sharir Rachna, Kriya Vigyan and Yog ka Prabahv

To be acquainted with the knowledge of human body, level of organisation and influence of Yoga in the human body

CO-5 Tittle- Hath Yog Ke Siddhant

To gain knowledge about Hatha Yoga, Shatkamad, asanas and concept of sound and its research.

CO6- Tittle - Samanya Sanskrit

To help them know about the Sanskrit speaking and general knowledge of Sanskrit grammar.

Semester-2

CO-1 Tittle- Practical 1

To help them know about asanas, Pranayams and monograph

CO-2 Tittle- Practical 2

To inculcate them with different mudras, meditation techniques, mantras

CO-3 Tittle- Patanjali Yog Stura

To help them learn about Samadhi pada yoga, Sadhana Pada yoga, Vibhuti Pada and Kaivalya Pada

CO-4 Tittle Pramukh Upnishad & Shrimad Bhagavad Gita Mein Yog

To classify Form of yoga in Upnishad and Shrimad Bhagavad Gita

CO-5 Tittle- Ahahar & Poshan

To gain knowledge about Health, diet and nutrition

CO-6 Tittle- Smanay Sanskrit

To equip them with general knowledge of Sanskrit grammar

Semester-3

CO-1 Tittle- Practical 1

To comprehend about different postures of asanas, Pranayams, mudras, Yoga Nidra and morning & evening Mantras

CO-2 Tittle- Practical 2

To inculcate them with skills of lesson planning and teaching methods along with Shatkarma

CO-3 Tittle- Chikitsya Yoga

To help them learn about concept of yoga therapy, compound therapy, yogic therapy and its causes and principles.

CO-4 Tittle- Praktik Chikitsa & Ayurveda ka Samanay Parichay

To develop knowledge about naturopathy and different areas of Ayurveda.

CO-5 Tittle- Bhartiya Darshan and Sanskriti

To equip them with knowledge of Indian philosophy, culture and Vedic philosophy

CO 6- Tittle- Yog mein Shikshak Vidhiyan & Path Yojna

To emphasise on concept of yoga, teaching process, methods & principles and on Yoga classroom management

Semester-4**CO-1 Tittle- Practical 1**

To expertise in different postures of asanas, Pranayams, mudras, Yoga Nidra and morning & evening Mantras

CO-2 Tittle- Practical 2

To inculcate them with skills research dissertation, essay presentation.

CO-3 Tittle- Yog mein Sankhiki Anusandhan Vidhiyan

To help them learn about types of research and descriptive statistics.

CO-4 Tittle- Vaikalpik Chikitsa

To develop knowledge about alternative medication and various therapies

CO-5 Tittle- Samany Manovigyan

To equip them with knowledge of yoga psychology and various aspects of brain functioning.

CO 6- Tittle- Yog Upnishad

To relate Yoga with Upnishads.

MA Sanskrit

1. Students will be trained to study of Sanskrit language and literature by developing professional competence in them.
2. The Students will acquire the ability and develop their skills through teaching and research training, and extension programmes with local and national bodies.
3. To gain knowledge in the Sanskrit language by acquainting them with established classics.
4. To help in all round development of students as a human being
5. To generate competent and well-educated man-power for the teaching profession as well as for the positions of research associates in academic institutions.

Course Outcome M.A.

I Semester

Title: Ved, Upnishad, Shiksha & History Vedic Literature

CO-1 To acquire knowledge and importance of Ved, Upnishad, Panni Shiksha & History of Vedic literature

Title: Indian Philosophy(Nyay-Vaisheshik, Sankhy & History)

CO2 - To comprehend basic principles of Indian darshans in Sanskrit through Nyaya Vaisheshik, Sankhy & History.

Title: Natika & Dramaturgy

CO3- To describe the nature and characteristics of the rich Dramatic Tradition in Sanskrit Language.

Title: Geetikavy & Gadykavy

CO4- To equip them with the writings of great Sanskrit poets, their poetics and prose.

Title: Open Elective

CO5- To make the learning process more productive as the will experience the connection between different subjects of the respective curriculum.

II Semester

Title: Sanskrit Epic

CO1- To get acquainted with Sanskrit epic tradition and classical Sanskrit literature

Title: Sanskrit Poetics

CO2- To develop imagination and creative ability through poetics.

Title: Sanskrit Grammer, Essay & Anuwaad

CO3- To develop the pure syntax skills, writing ability and understanding of the content and its expression.

Title: Roopak & Champu-Kavya

CO4- To get acquainted with different elements of poetry, to sense its melody, understand the rasas, verses & its rhetoric use.

Title: Open Elective

CO5- To expose them to diverse disciplines, concepts, thoughts or perspective.

III Semester

Title: Sanhita, Nirukt

CO1- To interpret the Vedic text by the help of these etymologies.

Title: Dhvani Vyanjana Sthapan & Kavyashastriy Shat Prasthan

CO2- To analyse the important concepts in Sanskrit aesthetics as per Kavyashastriy Shat Prasthan

Title: Linguistics & Sanskrit Grammer

CO3- To develop analytical vision for early and present forms of sound and understanding of Sanskrit language & grammar scientifically.

Title: Special Study of Mahakavi kalidas and Bharavi

CO4- To emphasize a narrative resurrection of Primeval reality.

Title: Practical & Viva

CO5- To develop communication and writing skills in Sanskrit

IV Semester

Title: Indian Philosophy(vedant, Yog & Mimansa Darshan)

CO1- To incorporate into practice the objectives and knowledge contained in Indian philosophy.

Title: Dharm Shastr & Arth Shastr

CO2- To learn about the Special features of Sanskrit Smritis & original source of our cultural heritage.

Title: Brahman Pratishakhy & Nirukt

CO3- To familiarise them with the culture of karma-restrain, devotion, sacrifice & would be able to use the

traditional Lexicon.

Title: Sanskrit Grammar & The Philosophy of Grammar

CO4- To understand and get expertise in philosophy of grammar.

Title: Open Elective

CO5- To enrich them with wide range of perspective with the help of combination of different subjects.

Diploma in Jyotish

1. Students will be interested towards Indian oriental knowledge.
2. Gain knowledge of various principles of astrology.
3. Develop skills of observation and construction.
4. Study and analyse horoscope helping them to earn their livelihood.

I SEMESTER Title- MuhurtVid

CO1- To gain knowledge about Astrology in Vedas, Vedang Jyotish, Scientific form of astrology and horoscope.

II Semester Title- JyotirVid

CO2- To be acquainted with the important principles and specific yoga studies of astrology and horoscope analysis.

B A Sanskrit

1. Students will understand the language i.e. Sanskrit that will formulate Students attributes.
2. The students will acquire the ability to understand and demonstrate their skills through oral and written
 1. Sanskrit.
 2. To facilitate Student mobility and to ensure global competitiveness.
 3. Gain specific knowledge on poetry, prose, drama, Neetisasta grammar of the language and literature in

4. the field of Sanskrit.
5. Student will develop confidence, leadership readiness, moral and ethical awareness, reflective
6. reasoning and means of livelihood through courses like Ayurveda, Jyotish, Vastushastra and Karamkand

Course Outcome B.A.

I Semester - Title - Sanskrit Poetry & Grammar

CO-1 To comprehend Sanskrit Poetry with a basic familiarity of Sanskrit Literature & demonstrate enhanced knowledge, understanding and usage of Sanskrit grammar.

II Semester - Title - Sanskrit Prose, Translation & Computer Application

CO - 2 To facilitate Sanskrit learning by making them technically oriented and help them learn basic concept of Sanskrit prose and translation.

III Semester - Title - Sanskrit Drama & Grammar

CO3- To develop articulation of ideas for Sanskrit writing with increased understanding of grammar and enhancement of dramatic and dialogue delivery skills.

IV Semester - Title - Kavyashastra & Sanskrit Writing Skills

CO4- To equip them with traditional learning through Kavya Shastra and ability to express their thoughts effectively via writing skills incorporating various Chands and Alankars.

V Semester –

CO5a- Title - Vedic Literature & Indian Philosophy

To acquire importance of Vedic literature and development of positive attributes, moral values and social concerns through Indian philosophy.

CO5b -Title - Grammar and Linguistics

To build competency in Sanskrit's phonological and morphological structure through Linguistics and familiarity of science behind formation of Sanskrit words.

VI Semester -

CO6a- Title - Modern Sanskrit Literature

To appreciate Modern Sanskrit literature, acquire knowledge & skills that are necessary for participating in learning activities throughout life aimed at personal development.

CO6b- Elective

To acquire knowledge about Yoga, different areas of Ayurveda, Indian Vastushastra, Jyotish and Karmakand.

Jyotish, Vastu and Paurohityakaushal

1. The Students will be able to develop interest towards Indian oriental Science.
1. Get general knowledge of astrology, architecture and priesthood.
2. Know about the practical application of the scriptures in present times.
3. Realise the concept of self-reliant India.

Yog, Ayurveda, Varn Ucharran Shiksha Avm Suktiyan

1. Students will be able to gain Indian oriental knowledge and will be benefited by Yoga and Ayurveda.
2. Create healthy society by prevention and health protection.
3. Inculcate moral and character values in life through reading and reciting Sanskrit hymns.
4. Pronounce correct Sanskrit which will prove usefulness in daily life.

Spoken Sanskrit

1. Students will be able to choose Sanskrit as a subject.
2. Generate self-respect for Sanskrit language and culture through Sanskrit speech.
3. Understand the soul and spirituality of India

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

B.A. (Library and Information Science)

Program Outcome

B.A. (Library and Information Science) aims to:

- Train students in modern library administration and prepare them for careers in Academic, Public and Special Libraries.

- Impart education and training for generating budding library professionals in the present scenario of information age.
- Develop manpower for libraries and information centres for effective and efficient services, professional values, dedication and attitude.
- To equip students with competent skills essentially required for carrying out various housekeeping operations of library and Information Centers using ICT.
- To develop LIS students as competent professionals in the field by imparting employability skill based on effective communication, critical thinking, and ethical literacy.
- Enable to become lifelong learners for their personal growth and development.

Year	Semester	Course Code	Paper Title	Course Outcome
1	I	A180101T	Fundamentals of Librarianship (Theory)	After studying this paper, the students shall be able to comprehend the concept, objectives and development of libraries and its importance to the society. Understand the professional ethics of librarianship and the five laws of library science with their implications on various services of the libraries. Understand the importance of Library legislation and features of library acts.
1	II	A180201T	Information Sources and Services (Theory)	After studying the paper, students shall be able to understand the concept of reference and information sources and services provided in libraries. Understand criteria of evaluation of different sources of information. Understand the reference interview and various techniques of searching information. Understand the latest trends in Reference & Information Sources and Services.
2	III	A180301T	Library Management (Theory)	After studying the paper, students shall be able to understand the concept and scope of library management. Elaborate principles and functions of library management. Efficiently carry

				out various operations of Library and Information Centres. Comprehend the concept of financial management and human resource management. Designing of library and information system/ MIS.Maintain the library statistics and prepare annual report
2	IV	A180401T	Information Storage and Retrieval System (Theory)	After studying the paper, the students shall be able to understand the concept and process of Information services in libraries.Understand the types and characteristics of index and indexing including Pre-Coordinate and Post Coordinate indexing.Understand the concept and types of abstract and abstracting services at the National and International Level.Understand the various Library professional associations including NISCAIR, INFLIBNET.
3	V	A180501T	Library Classification (Theory)	After studying this paper, the students shall be able to understand the meaning, purpose, functions, theories and canons of library classification. Analyze the characteristics, merits and demerits of different species of library classificationSchemes. Highlight salient features of major classification schemes. Elucidate various facets of notation and call number. Review five fundamental categories and Mnemonics in Library Classification.
3	V	A180502P	Library Classification and Cataloguing (Practical)	After studying the paper, students shall be able to classify and construct the class numbers simple titles using Dewy Decimal Classification Scheme Edition 19.Synthesize class numbers by using the tables. Understand the preparation of Catalogue entries by Anglo American Cataloguing Rules (AACR-II)
3	V	A180503T	Library Cataloguing (Theory)	After studying this paper, the students shall be able to understand the concept

				and objectives of library catalogue. To know about the normative principles of cataloguing. Comprehend various forms (inner and outer) of library catalogue. Review the features and development of different cataloguing codes. Understand various approaches of deriving subject headings. Understand the concept of co-operative and centralized cataloguing. Examine the current trends in library cataloguing. Understand the complexities in rendering of entries and alphabetization.
3	V	A180504R	Project (Compilation of Bibliography)	After doing this project, students shall be able to compile a subject annotated bibliography on a given subject. Understanding methods of searching sources on a given topic. Compilation of author index, title index, assigning subject headings to various entries and alphabetization.
3	VI	A180601T	Computer Application in Libraries (Theory)	The aim of this course is to understand the various applications of Information Technology in libraries with the concept of library automation, planning and implementation and to study different modules of library management software packages.
3	VI	A180602T	Library, Information and Society (Theory)	After studying the paper, students shall be able to understand the development of civilization, growth of knowledge and information. To know the society and its informational needs. Evolution of libraries and role of library in the development of the society.
3	VI	A180603P	IT Application in Libraries (Practical)	After studying the paper, students shall be able to familiarize with the basic introduction of computers. Understanding different library automation softwares, Creation of databases, Information searching techniques and online searching of

				information on given topics. Generate barcode labels and membership cards. Search online databases.
3	VI	A180604R	Project (Library Survey)	After doing this project, students shall be able to get the practical exposure of different types of libraries. Understanding the various functions of different types of libraries including acquisition, technical processing, management and retrieval of information.

Bachelor of Library and Information Science (BLISc)

Program Outcome

Bachelor's degree in Library and Information Science aims to:

- Train students in modern library administration and prepare them for careers in Academic, Public and Special Libraries.
- Impart education and training for generating budding library professionals in the present scenario of information age.
- Develop manpower for libraries and information centres for effective and efficient services, professional values, dedication and attitude.
- To equip students with competent skills essentially required for carrying out various housekeeping operations of library and Information Centers using ICT.
- To develop LIS students as competent professionals in the field by imparting employability skill based on effective communication, critical thinking, and ethical literacy.
- Enable to become lifelong learners for their personal growth and development.

Year	Semester	Course Code	Paper Title	Course Outcome
1	I	A190101T	Foundations of Library and Information Science	After studying this paper, the students shall be able to comprehend the concept, objectives and development of libraries and its importance to the society. Understand the professional ethics of librarianship and the five laws of library science with their implications on various services of the libraries. Understand the importance of Library legislation and features of library acts. Familiarize with the role of various National and International Library Associations and Organizations.
1	I	A190102T	Library Classification (Theory)	After studying this paper, the students shall be able to understand the meaning, purpose, functions, theories and canons of library classification. Analyze the characteristics, merits and demerits of different species of library classification Schemes. Highlight salient features of major classification schemes. Elucidate various facets of notation and call number. Review current trends in library classification
1	I	A190103T	Library Cataloguing (Theory)	After studying this paper, the students shall be able to understand the concept and objectives of library catalogue. To know about the normative principles of cataloguing. Comprehend various forms (inner and outer) of library catalogue. Review the features and development of different cataloguing codes. Understand various approaches of deriving subject headings. Understand the concept of co-operative and centralized cataloguing. Examine the current trends in library cataloguing. Understand the

				complexities in rendering of entries and alphabetization.
1	I	A190104P	Library Classification (Practical)	After studying the paper, students shall be able to classify and construct the class numbers for titles using Colon Classification Scheme. Synthesize class numbers by using common isolates and 'different devices of CC scheme. Classify and construct the class numbers for complex titles using DDC scheme. Synthesize class numbers by using the tables and 'add to instructions' of DDC scheme. Use of different schedules, manual and relative index of Classification Schemes.
1	I	A190105P	Library Cataloguing (Practical)	After studying the paper, students shall be able to use the AACR-2 and CCC cataloguing codes for cataloguing of printed documents in a library. Preparation of catalogue for single personal author, joint personal author and pseudonymous works. Preparation of catalogue for simple personal name entries in Hindi and Urdu by AACR-2. To Prepare different types of entries in order to fulfill various search approaches of users. Practically identify and describe various bibliographic elements of the documents. Derive subject headings using Sear's List of Subject Headings and Chain Procedure method for subject entries.
1	I		Project Work in LIS (a) Library Survey and (b) Literature Survey	
1	II	A190201T	Management of Libraries and Information Centers	After studying the paper, students shall be able to understand the concept and scope of library management. Elaborate principles and functions of

				library management. Efficiently carry out various operations of Library and Information Centres. Comprehend the concept of financial management and human resource management. Designing of library and information system/ MIS.Maintain the library statistics and prepare annual report
1	II	A190202T	Information Sources and Services	After studying the paper, students shall be able to understand the concept of reference and information sources and services provided in libraries. Understand criteria of evaluation of different sources of information.Understand the reference interview and various techniques of searching information.Understand the latest trends in Reference & Information Sources and Services.
1	II	A190203T	Information Processing and Retrieval	After studying the paper, the students shall be able to understand the concept and process of documentation and its services in libraries.Understand the types and characteristics of indexing languages including the vocabulary Control and information retrieval thesaurus.Understand the concept and types of indexing and abstracting services at the National and International Level.Understand the various categories of users and different methods of providing user studies in libraries.
1	II	A190204T	Library and Information Technology (Theory)	After studying the paper, students shall be able to understand the planning and implementation of automation in various library housekeeping operations and services.Understand and assess the feasibility of various library automation software and their functionalities.Understand the concept and purpose of a digital library and the new concepts of mining and retrieving the data.Understand the computer networks

				and their types, topologies, protocols and Standards. Understand the concept of internet security, its solutions and cyber laws prevalent in India.
1	II	A190205P	Library and Information Technology (Practical)	After studying the paper, students shall be able to familiarize with housekeeping operations using library management software packages. Create database for different categories of documents. Generate barcode labels and membership cards. Search online databases.
			Project Work in LIS (a) Field Survey and (b) Compilation of Annotated Bibliography	

Bachelor of Library and Information Science (BLISc)

Program Outcome

Bachelor's degree in Library and Information Science aims to:

- Train students in modern library administration and prepare them for careers in Academic, Public and Special Libraries.
- Impart education and training for generating budding library professionals in the present scenario of information age.
- Develop manpower for libraries and information centres for effective and efficient services, professional values, dedication and attitude.
- To equip students with competent skills essentially required for carrying out various housekeeping operations of library and Information Centers using ICT.
- To develop LIS students as competent professionals in the field by imparting employability skill based on effective communication, critical thinking, and ethical literacy.

- Enable to become lifelong learners for their personal growth and development.

- **Bachelor of Library and Information Science**

Programme/Class: Certificate	Year: First	Semester: First
Subject: Library and Information Science		
Course Code:	Course Title: Foundations of Library and Information Science (Theory)	
<p>Course outcomes: After studying this paper, the students shall be able to comprehend the concept, objectives and development of libraries and its importance to the society. Understand the professional ethics of librarianship and the five laws of library science with their implications on various services of the libraries. Understand the importance of Library legislation and features of library acts. Familiarize with the role of various National and International Library Associations and Organizations.</p>		

DEPARTMENT OF EDUCATION

Master of Education (M.Ed.)

Program Outcomes (POs)

On successful completion of the two year M.Ed programme, the prospective Teacher Educator will get the opportunity to excel in the field of education with multiple skills. It prepares the individual to introspect into the nature of educational problems and generate diversified knowledge with dynamic educational plans and policies. They shall be dedicated and motivated towards continuous learning with a clear vision and mission.

Program Outcomes (PO) of the M.Ed. degree program are given below.

PO-1: Professional Capacity Building: Apply the knowledge of Philosophy, Sociology, Psychology, Management, and ICT to set the context of teaching profession and advances the capacities in teaching, research and extension work in the field of education in general and Teacher Education Institutes in particular.

PO-2: Academic Integrity and Professional Ethics: Demonstrate academic integrity and professional ethics by keeping self abiding to rules, regulations, values and high standards in

teaching, research, administration at diversified educational setting and Teacher Education Institutes.

PO-3: Resilience and cope up with Complex issues: Demonstrate spirit of work in diversified situations and apply knowledge & skills to cope up educational issues in complex situations with appropriate consideration for the rules, norms and the Social, cultural, and environmental context.

PO-4: Academic Administration and Management Capacities: Apply the knowledge of educational administration & management and other allied subjects like Philosophy, Sociology, Psychology etc. in academic planning, organization, evaluation, decision making, resource management according to predetermined goals, norms and standards.

PO-5: Continuous Academic Development: Identify own educational needs and requirements, keep academic development and learning in an independent way in the context of change in different aspects of education and Teacher Education.

PO-6: Commitment towards Society and National Goals: Recognize areas of commitment, accountability, constitutional values, and national goals and perform accordingly.

PO-7: Sensitivity for Emerging Issues: Apply the knowledge & skills to deal with issues related to population, environment, gender equality, different literacy, Yoga & Health Education etc. and respond to emerging issues by applying critical, constructive and creative thought process.

PO-8: Research and Knowledge Creation: Involve in knowledge dissemination, knowledge creation, research and innovative educational practices related to different stakeholders of education.

PO-9: Independent and Team Work Capacities: Perform Function effectively either in the role of member or leader in diversified educational settings and institutions of Teacher Education.

PO-10: Professional Communication Skills: Use diversified tools & technologies of communications and communication skills to serve the professional purpose and standards expected from classroom to broader zone of educational activities.

Programme Specific Outcomes (PSOs)

PSO-1: Understand the social structure, multiculturalism, socialization and social and education equity. Reform and revamp of teacher education in India. Get involved with the various activities and system of teacher education. To get an insight into various educational policies and practices.

PSO-2: Understand the historical political and economy aspect of education, learn to apply various research methods and academic writing for educational research. To provide research related experiences with the competency to independently develop

dissertation and research work. Enable students for applying ICT in research and teaching methods.

PSO-3: Understand about various philosophies and their role in education. Expose the aims, learning strategies, discipline and experiences of education. Inculcate the entrepreneurship skills and self development. To enable teacher educators for proper understanding and critical perspective about specialized areas of Education.

PSO-4: To build perspective and understanding of concepts, theories, ideas and practices across various fields of Education.

Course Outcomes

Preparing an individual as a Teacher Educator with a reflective outlook by articulating the emerging challenges is the core of M.Ed course. The course specific outcomes of M.Ed. are as follows.

Semester-I

Paper CC 1: Philosophical Foundations of Education

At the end of this course a student will be able to :

- **CO-1:** understand the nature of education as a discipline.
- **CO-2:** examine the philosophical origin of educational theory and practice.
- **CO-3:** understand the nature and functions of philosophical approach of education.
- **CO-4:** interpret and synthesis of various concepts, philosophical assumptions and issues about educational phenomenon.
- **CO-5:** know about various Indian schools of philosophy and their educational implications.
- **CO-6:** appraise the contributions made for education by prominent Indian and western educational thinkers.
- **CO-7:** enable the student to develop a philosophical point of view towards educational problems.

Paper CC 2: Psychology of Learning and Development

At the end of this course a student will be able to:

- **CO-1:** understand psychology of development.
- **CO-2:** develop understanding about school of psychology.
- **CO-3:** develop understanding about theories of learning and its educational implications.

- **CO-4:** understand individual difference and pupils' readiness towards learning.

Paper CC 3: Sociological Foundations of Education

At the end of this course a student will be able to:

- **CO-1:** develop adequate familiarity with social structure, class, caste and culture.
- **CO-2:** help students to make a critical analysis of the social structure.
- **CO-3:** enable them to realize the role of education as an instrument of social, political, economic and technological change.

Paper CC 4: History of Indian Education and Economic Issues

At the end of this course a student will be able to:

- **CO-1:** develop understanding about Indian Education system in social, historical and political economy context.
- **CO-2:** critically analyze the policies and commissions and its implication on the educational system.
- **CO-3:** develop understanding of the implications of various contributions through education for an equitable society.
- **CO-4:** develop understanding of the economic issues in education.
- **CO-5:** develop understanding of the perspectives on political economy of education.

Semester-II

Paper CC 5: Educational Studies and System

At the end of this course a student will be able to:

- **CO-1:** understand the nature of education as a discipline and area of study.
- **CO-2:** examine issues related to education as interdisciplinary knowledge.
- **CO-3:** examine the theories and basic concepts of education drawn from different disciplines.
- **CO-4:** examine the concerns of eminent educators regarding vision of school education.
- **CO-5:** reflect on the multiple contexts in which the schools are working.
- **CO-6:** discuss the emerging trends of school education.

Paper CC 6: Fundamental of Research Methodology

At the end of this course a student will be able to:

- **CO-1:** describe the nature, purpose, scope, areas, and types of research in education.
- **CO-2:** explain the characteristics of quantitative, qualitative and mixed research.
- **CO-3:** select and explain the method appropriate for a research study.

- **CO-4:** conduct a literature search and develop a research proposal.
- **CO-5:** explain a sampling design appropriate for a research study.
- **CO-6:** explain tool, design and procedure for collection of data.
- **CO-7:** explain the importance of documentation and dissemination of researches in education.

Paper CC 7: Perspective, Research and Issues in Teacher Education

At the end of this course a student will be able to:

- **CO-1:** understand the concept of teacher education.
- **CO-2:** acquaint with competencies essential for the teaching profession.
- **CO-3:** acquaint with sense of accountability for the teaching profession.
- **CO-4:** acquaint with the recent trends in teacher education.
- **CO-5:** understand the new trends and techniques in teacher education.

Paper CC 8: Educational Technology and ICT

At the end of this course a student will be able to:

- **CO-1:** develop an understanding of the nature and scope of educational technology.
- **CO-2:** develop an awareness about the recent innovations and future perspectives of education technology.
- **CO-3:** acquaint with the challenges and opportunities emerging in integrating new technology in educational processes.
- **CO-4:** select, use and produce instructional material and media effectively.
- **CO-5:** develop the ability for critical appraisal of the audio-visual media.
- **CO-6:** become a good practitioner of educational technology.

Semester-III

Paper CC 9: Research Designs, Statistics and Report Writing

At the end of this course a student will be able to:

- **CO-1:** understand the tabular, graphical representation of data, measure of central and variability, measure of relationship and normal distribution.
- **CO-2:** understand measures of association, its assumption and uses, regression and prediction.
- **CO-3:** know the concept of population, sample and sampling technique, degree of freedom, standard error, confidence, confidence intervals, null hypothesis and Parametric test.
- **CO-4:** understand of non parametric tests and computer programmes like SPSS.

Paper CC 10: Testing, Measurement and Evaluation in Education

At the end of this course a student will be able to:

- **CO-1:** understand the meaning of testing, measurement and evaluation.
- **CO-2:** understand the general principles of test constructions.
- **CO-3:** understand the interpretation of test scores.
- **CO-4:** plan, prepare, to administer and execute the teacher made test.
- **CO-5:** understand the concept of Grading System.

Paper OC 11A: Issues and Concerns in Elementary Education

At the end of this course a student will be able to:

- **CO-1:** acquaint with perspectives of elementary education.
- **CO-2:** develop understanding about the role of UEE .
- **CO-3:** understand the curriculum and evaluation process of elementary education.
- **CO-4:** understand the role of various commissions, policies and strategies of elementary education.

Paper OC 11B: System and Structure of Elementary Education

At the end of this course a student will be able to:

- **CO-1:** understand the different perspectives and context of elementary education.
- **CO-2:** understand the different policies and programmes of elementary education.
- **CO-3:** understand Universal Elementary Education (UEE) its objective and challenges.
- **CO-4:** understand the system and structure of elementary school education in India.
- **CO-5:** understand the curriculum across different types of school in India.
- **CO-6:** develop the skills and knowledge require for resource management in schools at elementary level.

Paper SC12A: Issues and Concerns in Secondary and Higher Secondary Education

At the end of this course a student will be able to:

- **CO-1:** acquaint with perspectives of secondary and higher secondary education.
- **CO-2:** understand problems and challenges of secondary and higher secondary education in India.
- **CO-3:** develop the skills and knowledge require for resource management in schools at secondary and higher secondary level.

Paper SC12B: System and Structure of Secondary and Higher Secondary Education

At the end of this course a student will be able to:

- **CO-1:** understand the different perspectives and context of secondary and higher secondary education.
- **CO-2:** understand the different policies and programmes of secondary and higher secondary education.
- **CO-3:** understand the curriculum across different types of school in India.

Semester-IV

Paper CC 13: Curriculum Development

At the end of this course a student will be able to:

- **CO-1:** understand the theoretical perspectives of curriculum.
- **CO-2:** develop students analytical ability to assess the relevance of curriculum practice in the context of learner's development in socio cultural context and advancement of knowledge system.
- **CO-3:** develop skills of learners to design curriculum outline for a school programme.

Paper CC 14: Education Management, Administration and Leadership

At the end of this course a student will be able to:

- **CO-1:** become effective manager/administrators of education.
- **CO-2:** become agents of change in various aspects of education i.e. classroom management, curriculum construction, examination systems, educational policies, etc.
- **CO-3:** acquaint with the challenges and opportunities emerging in the management and administration in education.
- **CO-4:** acquaint with the Central and State mechanisms of educational administration and management.
- **CO-5:** acquaint with the various leadership theories and leadership styles.
- **CO-6:** familiar with the new trends of education.

Paper OC 15: Pre-Service and In-Service Teacher Education

At the end of this course a student will be able to:

- **CO-1:** understand the concept of pre- and in service teacher education.
- **CO-2:** understand the teacher education curriculum.
- **CO-3:** get acquainted with knowledge base, reflective teaching and models of teacher education.
- **CO-4:** understand managing practicum in teacher education.

Paper OC 16: Comparative Education

At the end of this course a student will be able to:

- **CO-1:** acquaint the student with concept, scope, need, history and development of comparative education.
- **CO-2:** acquaint the student with the methods of comparative education.
- **CO-3:** study the problems of education in world perspective.
- **CO-4:** understand the factors and forces and forces influencing practice of education.
- **CO-5:** create awareness and develop understanding of system of education in developing and developed countries.
- **CO-6:** develop the sense of international understanding.
- **CO-7:** acquaint the students with the current trends and problems in world education.

Paper OC 17: Guidance and Counseling

At the end of this course a student will be able to:

- **CO-1:** develop understanding of bases meaning, need and types of guidance.
- **CO-2:** get acquainted with the tools and techniques of appraisal of an individual.
- **CO-3:** get acquainted with the need and various ways of collection and dissemination of occupational information.
- **CO-4:** develop understanding of meaning characteristics and types of counseling.
- **CO-5:** get acquainted with process and techniques of Counselling.
- **CO-6:** get acquainted with the importance of placement and follow up services.
- **CO-7:** get acquainted with meaning, purposes and out-line of job-study.
- **CO-8:** develop understanding about Counselling- research,issues and trends.

Paper OC 18: Academic Writing

At the end of this course a student will be able to:

- **CO-1:** develop an understanding of the concept of academic writing.
- **CO-2:** develop understanding of the essential requirements of academic writing.
- **CO-3:** critically analyze the written texts in the respective discipline to identify the characteristics of the discourse community.
- **CO-4:** identify the types of intertextuality from other written texts for developing own text.
- **CO-5:** develop different forms, styles of academic writing including revising, generating, editing independently and collaboratively.
- **CO-6:** understand the academic sources in terms of referring, paraphrasing and acknowledging.
- **CO-7:** edit own academic writing.

Paper OC 19: Yoga and Health Education

At the end of this course a student will be able to:

- **CO-1:** introduce the concept of holistic health.
- **CO-2:** clear the doubt and misconceptions about yoga practices.
- **CO-3:** aware about the benefits of yoga practices.
- **CO-4:** aware of basic health problems in India and their precautions
- **CO-5:** introduce the merits of physical exercises, balance diet and sanitation.

Paper OC 20: Self Development and Communication Skills

At the end of this course a student will be able to:

- **CO-1:** create awareness about the core life skills.
- **CO-2:** develop critical understanding about core life skills for personal and professional development.
- **CO-3:** practice strategies for self development through enhancing core life skills.
- **CO-4:** understand the concept of Service Learning as a pedagogy of access and success.
- **CO-5:** plan and implement a Project for enhancing personal and professional development with an orientation to uplift the marginalized community.
- **CO-6:** create a plan of action for continuing personal, professional and societal development.
- **CO-7:** develop an understanding into significance of communication skill for professional growth of student teacher.
- **CO-8:** appraise the role of core skills in communication amongst groups.
- **CO-9:** examine the difference between the different discussion formats.
- **CO-10:** apply the different discussion formats in classroom situation.

DEPARTMENT OF BOTANY

Program: M.Sc.

Program Specific Outcomes:

PSO-1 Students gain the master knowledge in Traditional, Classical & Advanced Botany

PSO-2: Gain Specific knowledge on Biotechnology, Recombinant DNA Technology & Plant Tissue Culture

PSO—3: Students have expertise & specialized in Biodiversity, Elementary Biotechnology & Algal Biotechnology

I Semester - Title: Phytotechnique & Biostatistics, Microbiology, Algae & Bryophytes and Taxonomy of Angiosperms

Course Outcome.

CO-1: Students learn basics technique related to advanced research in Botany

CO-2: Students learn basics and fundamental concepts of Microbiology, Microbial culture & Technique.

CO-3 : Students learn basics and fundamental concepts of Algae & Bryophytes including production of protein rich food & biofertilizers

CO-4 : To help the student to understand plant classification, Analysis of Phylogenetic relationship & Economic value of plants and their use in Human Welfare. The course is designed to become a mycologist, florist & taxonomist.

CO-5: Students learn International Code of Nomenclature for algae, fungi and plants (ICN)

CO- Students learn plant taxonomy through dissection of flowers, use of Floras and field study and develop skills of handling of plant identification and floristic work independently.

II Semester - Title: Mycology & Plant Pathology; Pteridophytes, Gymnosperm & Paleobotany; Molecular Biology & Biotechnology and Cell Biology & Genetics

The course is designed to become a mycologist, florist & taxonomist. Besides this course is suitable to produce expertise in Molecular biology, Biotechnology, Cell biology & Genetics. Students would gain wide knowledge in following aspects:

CO-1: Cell Signaling & Membrane Transport

CO-2: Molecular biology, recombinant DNA technology, transgenic technology

CO-3: The course is designed to become a mycologist & taxonomist

CO-4: Develop good skills in the laboratory such as observation and evaluation by the use of modern tools and technology.

CO-5: Chromosome structure Chromosomal aberration

CO-6: Principles of Hereditary, Chromosome mapping & Quantitative genetic analysis

CO-7: Students learn for different competitive examination like NET, IFS, IAS etc

III Semester - Title: Plant water Relation: Growth & Development; Phytochemistry & Metabolism; Anatomy & Reproduction in plants and Plant Ecology & Phytogeography

Course Outcome.

CO1: Students learn basics of plant ecology

CO2: Students learn physiology, biochemistry & plant interactions,

CO3: Students learn anatomy, reproduction & developmental biology

CO4: Students learn for different competitive examination like NET, IFS, IAS etc

IV Semester - Title: This semester includes four courses based on internal choice with research project

Course Outcome.

Students would gain wide knowledge in following aspects

CO-1: Recombinant DNA Technology

CO-2: Plant tissue Culture

CO-3: Microbial Biotechnology

CO-4: Environmental Biotechnology

CO 5: Students learn the basics and fundamental concepts of different courses selected by their own choices.

CO 6: To inculcate the research aptitude in students

Program – M.Phil

Program Specific Outcomes: Students would gain wide knowledge in following aspects:

PSO-1 Students learn how to carry out research project and gain research experience

PSO-2 Students learn handling of biological tools

PSO--3 Students learns how to present their research work

ETC.,

First Semester

Title: Advanced Botany

Course Outcome.

Students would gain wide knowledge in following aspects:

CO1: Principles of Microscopy, microtomy, spectrophotometry, electrophoresis etc

CO2: Methodology for revisionary work, floristics studies, Guidelines of IUCN, Conservation of plants, diversity of Plantsetc

CO3: Different data bases & Online tools

CO4: Histone code, RNAi and gene silencing; Histone code; Epigenetic mechanisms, Genome imprinting

Title: Research Methodology & Computer Application

Course Outcome.

Students would gain wide knowledge in following aspects

CO-1: Basic principles of research, types of research, formulation of hypothesis

CO-2: Types & sources of data & Data collectionetc

CO-3: Computer & Internet

CO-4: Data analysis & Display

CO-5: Report writing & writing of research proposal

II Semester

Title: Molecular Systematics & Phylogenomics:

Course Outcome.

Students would gain wide knowledge in following aspects:

CO-1 : Students learnt Molecular Technique & Genome Organization

CO-II Students learnt Molecular Evolution

CO-III Students learnt Phylogenetic Systematics/Cladistics

CO-IV Students learnt Recent Advances in Plant Systematics

Course: Microbiology and Industrial Biotechnology

Course Outcome.

Students would gain wide knowledge in following aspects

CO-1: Obviously the students learn to help in ways to safeguard the public health

CO-2: Students learn to develop of new medicines and treatments like vaccines and antibiotics to combat infectious diseases.

CO-3: Students learn to enhance employment growth in various fields such as agriculture, biotechnology, pharmacology, and industries.

Course: Physiology of Stress in Plants

Course Outcome.

Students would gain wide knowledge in following aspects

CO-1: Types of Stress

CO-2: Mechanism of plant resistance to nutrient deficiency stress

CO-3: Students learn about Stress associated proteins & mechanism of stress resistance

Course: Plant Cell, Tissue and Organ Culture

Course Outcome.

Students would gain wide knowledge in following aspects

CO-1: Techniques of organ, tissue culture

CO-2: Methods of preparation and sterilization of tissue and culture media

CO-3: Somatic hybridization and its application in crop improvement

Course: Applied Phycology:

Course Outcome.

Students would gain wide knowledge in following aspects

- To comprehend general properties, thallus organization, reproduction, life cycle of algae
- To discuss natural products of algae
- To comprehend *Spirulina* and *Chlorella* cultivation methods
- To discuss Polysaccharides, phycobilins, carotenoids, Scytonemin and lipids
- To understand biotechnological application of algae as food, feed, colouring agents, CO₂ sequestration, biomining and phycoremediation of waste water, as biofertilizer and source of energy (biofuel) and development of algal based entrepreneur

DEPARTMENT OF ZOOLOGY

Programme specific outcomes

MSc Zoology

Students are appraised about knowledge of evolution of life and the fundamentals of animal science. They are able to understand complex interactions among living organisms at organisational level. The ultrastructure of cell as a functional unit of life with integral knowledge of complexity of life is understood by students. Students are sensitised to the environment and related issues. A hand on training on techniques helps students make a choice for career. Skill-based training and hand on training to acquire understanding of biodiversity. Students get aware of their own health and are able to mitigate lifestyle disorders through a better understanding of circadian rhythms.

Course specific outcomes

• **Animal Taxonomy and Economic Zoology**

Economic importance of animal pests and their controls and systematic position is understood. life cycles and their positive utilisation of different stages of generation.

• **Evolutionary Biology**

Theory of natural selection and its implications are understood by students

• **Non-chordata**

Understanding how the animal life has evolved over millions of years and how different organ systems evolved into complex organisation systems

• **Cell and Molecular Biology**

For adequate understanding of downstream events it is very important to understand basic ultrastructure of cell and endomembrane organisation

• **Genetics & Biostatistics**

The course of heredity that passes on with mutations and various kind of aberrations to next generation besides the basic laws of gene transmission. To test the reliability of principles adopted for biological world it is very important to realise the importance of bio statistics and learn the calculations

• **Biotechnology & Bioinformatics**

A hand on on technology principle is recombinant DNA methods and working with cyberspace requires understanding of NCBI data besides learning of probes and our DNA this is what students understand in this course

- **Mammalian Physiology**

Student is able to understand comparative mammalian physiology and the conserve mechanisms that have operated during course of evolution

- **Biochemistry**

All downstream events and interactive pathways of catabolism and anabolism and structures of different molecules I studied in this course. Completing this course student is able to appreciate the web of pathways that are involved in overall metabolism.

- **Chordata**

Vertebrate life has travelled from sea to land how different complex processes and organs have adapted to different modes of life is understood in this course

- **Developmental Biology**

Prenatal life with new natal complications besides cleavage and development of zygote into a complete organisms helps student to understand life as a biological process

- **Environmental Biology**

One scientific social responsibility is sensitisation to environment and ability to retain the balance of environment nitty-gritty as a complete ecosystem.

- **Animal behaviour**

Understands the neurobiological mechanisms that make insights and complex life processes with mutual interactions among organisms helping in organism survival

- **Chronobiology**

The beginning of Chronobiology specialisation has acted positively to the ecosystem of MSc Zoology in Chaudhary Charan Singh University on one hand it helps understand processes of nature like migration hibernation and other annual cycles while on other hand it helps understand deterioration of life through a wrong lifestyle and helps in understanding corrective measure that may help making life better. Molecular pathways and neuro mechanisms with adequate knowledge of circadian genes helps student adopt Chronobiology or Chrono medicine as a career.

- **Parasitology**

An old specialisation in the MSc course of soldier department parasitology helps students to understand disease causing organisms and ways to mitigate them besides understanding of their structure and impact assessment. Molecular morphology of parasites is integral part of this course. MPhil MPhil has rendered a lab-based training to students who aspire to take up research as a career

students are able to do extensively literature review and some of them even bring out good data for their forthcoming PhD. in one sense MPhil has always provided hand on training and skill-based career opportunities to the students who want to go into technical lines instead of having long-term research goal

DEPARTMENT OF CHEMISTRY

DEPARTMENT OF CHEMISTRY

PROGRAMS- M.Sc. Chemistry, M.Phil Chemistry (Regular)

PROGRAM- M.Sc. Chemistry

TWO YEARS FULL TIME PROGRAM (FOUR SEMESTER COURSE)

Program Specific Outcomes:

- PSO-1 Demonstrate broad knowledge of descriptive Chemistry, demonstrate the basic analytical and technical skills to work effectively in the various fields of chemistry, demonstrate critical thinking and analysis skills to solve complex chemical problems, e.g., analysis of data, synthetic logic, spectroscopy, structure and modeling, team-based problem solving, etc., demonstrate the ability to calculate the physical properties of chemical reagents, predict outcomes of chemical reactions, and perform critical analysis of data, demonstrate an ability to conduct experiments in the above sub-disciplines with mastery of appropriate techniques and proficiency using core chemical instrumentation and modeling methods.

Course Outcome

M.Sc. Chemistry semester I –

- **CH-1507– Inorganic Chemistry I**
To help them to learn the stereochemistry and bonding in main group compounds, metal ligand equilibrium in solution, reaction mechanism of transition metal complexes and metal-ligand bonding.
- **CH-1508 – Organic Chemistry I**

To develop skills in the identification of nature of bonding in organic molecules, stereochemistry, and reaction mechanism: structure and reactivity, aliphatic nucleophilic substitution and aliphatic electrophilic substitution.

- **CH-1509– Physical Chemistry I**

To help them to learn advance quantum chemistry and thermodynamic.

- **CH-1511 or CH-1512– Mathematics for chemist* OR Biology for chemist***

To develop the skills in vectors and matrix algebra analysis OR To help them to learn the cell structure and functions, carbohydrates, lipids, amino acids, peptides and proteins and nucleic acids.

- **CH-1510– Computers for chemist**

To develop the skills in the area of knowledge of introduction to computers and computing, computer programming in FORTRAN/C/BASIC

- **CH-507: PRACTICAL CHEMISTRY: INORGANIC CHEMISTRY:** Students gain expertise in gravimetric analysis, preparation of inorganic complexes and analysis of their properties.

ORGANIC CHEMISTRY: Gain expertise on basic laboratory procedures involved in purification, identification and preparation of organic compounds.

PHYSICAL CHEMISTRY: It helps them to learn the practical aspects of thermochemistry.

M.Sc. Chemistry semester II -

- **CH-2507: Inorganic Chemistry II**

To develop the knowledge about electronic spectra and magnetic properties of transition metal complexes, metal pi complexes, metal clusters, and nuclear chemistry.

- **CH-2508: Organic Chemistry II**

To develop the knowledge about aromatic electrophilic substitution, aromatic nucleophilic substitution, free radical reactions, addition to carbon carbon multiple bonds, addition to carbon hetero multiple bonds, elimination reactions and pericyclic reactions.

- **CH-2509: Physical Chemistry II**

To develop the knowledge about chemical thermodynamics, surface chemistry and electrochemistry

- **CH-2510: Group Theory, Spectroscopy and diffraction method and Solid state**

To develop the knowledge about symmetry and group theory in chemistry, unifying principles, vibrational spectroscopy, electronic spectroscopy, X-ray diffraction and magnetic resonance spectroscopy.

- **CO-6604: Chemistry in Life-1**

To develop the knowledge about general introduction of materials in daily life, pharmaceutical chemistry and in cosmetics and personal care products.

- **CH-607: PRACTICAL CHEMISTRY: INORGANIC CHEMISTRY:**
Students gain knowledge in the practical field of acidimetric titrations, oxidation reduction titrations, estimate copper nickel in the given solution etc.

ORGANIC CHEMISTRY: Students gain knowledge in the analysis of binary organic mixture and two step preparations.

PHYSICAL CHEMISTRY: To develop practical skills in the determination of surface tension.

M.Sc. Chemistry semester III -

- **CH-3507: Photochemistry**

To help the students gain knowledge in the field of photochemical reactions.

- **CH-3508: Spectroscopy**

To develop the knowledge about inorganic spectroscopy and organic spectroscopy.

- **CH-3511: Bio-organic chemistry**

To develop the knowledge about bioorganic compounds and chemistry

- **CH-3509: Elective Analytical chemistry**

To develop the knowledge about classification of analytical methods, errors and evaluation, radiochemical methods, thermal methods of analysis, chromatographic techniques, electro analytical techniques and atomic adsorption spectroscopy and flame photometry.

- **CO-7604: Chemistry in Life-2**

To develop the knowledge about greenhouse effects, pesticides, cleansing agents and enzymes.

- **CH-707 PRACTICAL CHEMISTRY: ANALYTICAL CHEMISTRY:** To gain the knowledge in the practical field of lamberts beers law, determination of concentration, scan the U.V. visible spectra of unknown compound, viscosity, separation of amino acids etc.

BIO CHEMISTRY: To gain knowledge about qualitative tests, determination of acid values, saponification, iodine no. etc.

M.Sc. Chemistry semester IV -

- **CH-4507: Environmental Chemistry**
To develop the knowledge about environment, hydrosphere, soils, atmosphere, industrial pollution and environmental toxicology.
- **CH-4513: Organic Synthesis**
To develop the knowledge about organometallic reagents, oxidation, reduction, rearrangements and metallocenes, nonbenzenoid aromatic and polycyclic aromatic compounds.
- **CH-4514: Medicinal Chemistry**
To help the students to know about medicinal chemistry, drug design, combinatorial chemistry, computational approaches, biodisposition and implications, neuroactive agents, cardiovascular agents, antineoplastic agents and local anti-infective design.
- **CH-4515: Polymer**
To help the students know about basics of polymer, characterization, structure and properties of polymer, polymer processing, and properties of commercial polymers.
- **CH-807:PRACTICAL CHEMISTRY :ORGANIC SYNTHESIS:** To gain the practical aspects of analysis of ternary organic mixture, three step organic preparation, determine the strength of given aniline solution and determine the percentage of sulphur in the given organic compound.

DEPARTMENT OF CHEMISTRY

PROGRAM- M.Phil (2018-2019)

ONE YEAR FULL TIME PROGRAM (TWO SEMESTER COURSE)

Program Specific Outcomes:

- PSO-1 Students gain the knowledge in the research methodologies, organic and inorganic spectroscopy, and organic synthesis and also in the field of polymer science.

M.Phil semester I -

- **MP-43 Research Methodology in Chemistry**
To develop skills in the writing of specific papers and methods of scientific research, knowledge about literature survey, develop skills in Chemical safety and ethical

handling of chemicals, help them to learn the basics and fundamental concepts of data analysis, to know the different areas of electronics and computer programs.

- **MP-44 Advanced Spectroscopy**

To develop skills in the identification of an unknown compound through a combination of spectra, develop knowledge about advanced spectroscopy methods. To help them grow the knowledge about the electronic spectroscopy, IR spectroscopy, NMR spectroscopy, Mass spectroscopy and also optical spectroscopic methods.

M.Phil semester II -

- **MP-50: Advanced Polymer Science 1**

To develop the knowledge about synthesis and reactions of polymers, structure of polymers and fabrication of polymers

- **MP-51: Selected Topics in Organic Synthesis**

To synthesize and prepare catalyst, zeolites, electro organic synthesis, enzymes and methods of synthesis via green approach

PROGRAMME: M.Sc. Biochemistry

PROGRAMME OUTCOME:

- **PSO-1:**Its aim is to understand the fundamental chemical principles that govern complex biological systems.

COURSE OUTCOME

SEMESTER 1

BCH 101 (Organic Chemistry and Biomolecule)

(**COURSE OUTCOME**) : This course develop skills of students to understand biological processes in broader discipline as Organic chemistry is the study of the structure, properties, composition, reactions, and preparation of carbon-containing compounds which predicts and explain patterns in shape, structure, bonding, hybridization, formal charge, stability, acidity, basicity, solubility, and reactivity for hydrocarbons, halocarbons, alkenes, dienes, and arenes, and biochemistry deals with bio molecules which have carbon, hydrogen, nitrogen and oxygen atoms.

BCH 102 (Physical Chemistry)

(COURSE OUTCOME) It make students to understand and identify the thermodynamic systems and processes, understand the basic principles of thermodynamics and electrochemistry and know how to apply them to explain and interpret the observations in numerous biochemical reactions other and related fields.

BCH 103 (Cell biology and Physiology)

(COURSE OUTCOME)Students will understand the structures and purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and and will understand how these cellular components are used to generate and utilize energy in cells. The objective of this course is to demonstrate significant cell biological principles, quantitative and analytical approaches that enable the students to translate the theoretical foundation in cell biology to be translated into human physiology.

BCH 104 (Bioenergetics and Intermediary Metabolism)

(COURSE OUTCOME)That is, the goal of course is to describe how living organisms acquire and transform energy in order to perform biological work. The study of metabolic pathways is thus essential to bioenergetics. This course develops the skills in student to explain the concept of energy, cite examples and assess its importance to living organisms and relate the concept of entropy to the Laws of Thermodynamics. Students also able to explain the chemiosmotic hypothesis of ATP synthesis

PRACTICAL

ORGANIC CHEMISTRY: The students are exposed to basic practical aspects of organic chemistry

PHYSICAL CHEMISTRY: Gain basic understanding of physical processes in the laboratory.

BIOCHEMISTRY :The students gain hands on knowledge for quantitative and qualitative analyses of Biomolecules

SEMESTER 2

BCH 201(Plant Biochemistry)

(COURSE OUTCOME) This course will provide students with a learning environment to understand important plant biochemical pathways. A theme that underlies this course are the structure and function of enzymes in metabolic pathways and their contributions in plant growth and development. At the end, students will be able to answer the problem-based situations related to plant productivity, stress responses, chemical ecology and the production of secondary metabolites and their importance to mankind.

BCH 202 (Enzymology)

(COURSE OUTCOME) The course is designed to give students an understanding of procedures involved in purification of enzymes, enzyme assays and quantitative evaluation of the influencing parameters such as concentrations of substrate/enzyme, pH, temperature and effect of inhibitors on enzyme activity. The major learning objective of the course is to understand the theories of enzyme kinetics, the mechanisms of enzyme catalysis, and the mechanisms of enzyme regulation in the cell. At the conclusion of the course make students able to describe the principles of enzyme inhibition.

BCH 203 (Immunology)

(COURSE OUTCOME) The course is designed to make students able to describe the roles of the immune system in both maintaining health and contributing to disease by identifying the cellular and molecular basis of immune responsiveness. It develops the skills in students to describe how immunological responses are triggered and regulated through which they could transfer knowledge of immunology into clinical decision-making through case studies presented in class.

Bch 204 (Computer and Bioinformatics)

(COURSE OUTCOME) The course is designed and merged in such a way so that curriculum could impart the basic knowledge to design, develop and analysis of software and hardware used to solve problems in a various scientific and social context. The student would be able interpret the results accurate and meaningfully. They got the skills to organize vast reams of molecular biology data in an efficient manner and can develop tools that aid in the analysis of such data.

PRACTICAL

BIOCHEMISTRY: The practical are ideal to provide opportunity to learn practically about kinetics, inhibitors and factors affecting enzymes also basic reactions between antigen and antibodies. Practicals also help students to observe various processes occurs within plants.

SEMESTER 3

BCH 301 (Biotechnology)

(COURSE OUTCOME)The course outcomes ensure students ability for effective communication within biotech and other interdisciplinary professionals and empower them with the ability to think and solve problems in the field of biotechnology by converting theoretical knowledge into practical. They would be able to acknowledges health, safety and environment (HSE) issues in handling chemicals and biological materials and understands the environmental impacts associated with the activity.

BCH 302 (Molecular Biology)

(COURSE OUTCOME) This course imparts students the ability to demonstrate use of evolutionary theory and related equations. They will understand the central dogma of biology and predict outcomes when the process malfunctions and gain skills required to do effective scientific research. More specifically, students will learn to implement the scientific method by proposing hypotheses to explain biological phenomena, designing and conducting experiments to test these hypotheses, and critically interpreting the resulting data.

BCH 303 (Nutritional Biochemistry)

(COURSE OUTCOME)This course enhances the skill of students to understand the chemical characteristics of different classes of nutrients with reference to their physical properties, and could relate their functions in the body. They further able to understand the processes of digestion, absorption and metabolism of the macronutrients and micronutrients in the context of different meals and would be able to explain how nutrients effect biochemical processes and signal transduction pathways.

BCH 304 (Analytical Biochemistry)

(COURSE OUTCOME)This course is designed to expose Biochemistry students about the analytical skills and practical aspects of biochemistry. The course is particular designed to understand principles underlying the various biochemical techniques. Students will gain the knowledge and skills to interpret and evaluate analytical data in order to communicate the results of biochemical analyses.

PRACTICALS

BIOCHEMISTRY: The practical under this course enhance confidence in students to work with genetic material and make them to understand the basic mechanism of various Analytical Techniques.

SEMESTER 4

Project and Dissertation

(**COURSE OUTCOME**) Students gain the knowledge in research methodology and develop skills for literature survey, protocol designing, Result interpretation, and thesis writing.

Program – M.Sc. Polymer Science & Chemical Technology (2018-19)

Program outcome:

Program Specific Outcomes:

- PSO-1 Students gain in-depth knowledge of polymer science and technology for successful career in the field of polymers.
- PSO-2 Gain specific knowledge of handling basic synthesis, processing, testing and analytical skills for different polymers.
- PSO-3 To develop creative and innovative abilities of students by incorporating Academia- industrial interaction and project activity as crucial component of the curriculum.

Course Outcome

I Semester -

- **PSCT-101 (NAME OF COURSE) -Polymerization**

(**COURSE OUTCOME**) To gain knowledge about history of polymers, properties and application of thermoset and thermoplastic polymers. It helps them to develop knowledge about different types of polymerisation process, and the significance in each of: initiation, propagation, termination, branching; and, for copolymerisation, reactivity ratios and monomer ratio. It also develops knowledge about different types of polymerization techniques.

- **PSCT-102 (NAME OF COURSE) - Properties of Polymers**

(COURSE OUTCOME) It helps them to develop knowledge about the structure-property relationship of polymers and also develop skills in determining the average molecular weights of polymers by different techniques and describe the significance of polymer solubility, melting point and glass transition temperature. It also helps them to develop fundamental understanding of different additives used in plastics.

- **PSCT-103 (NAME OF COURSE) – Polymer Characterization**

(COURSE OUTCOME) It helps them to know about basic principle, instrumentation, application of different spectroscopic techniques (UV-Visible spectroscopy, IR spectroscopy, NMR spectroscopy and optical microscopy) and thermal analysis in the polymer systems.

- **PSCT-104 (NAME OF COURSE) – Polymer Processing**

(COURSE OUTCOME) To gain knowledge about principle and mechanism involved in the mixing and it also help them to develop the detailed knowledge about different types of mixer and processing techniques (extrusion, injection, compression and blow moulding etc.) for the manufacturing of polymeric products.

- **(NAME OF COURSE) – Polymer Practical**

(COURSE OUTCOME) To develop practical skills in the preparation of different polymers through different polymerization techniques such as bulk, solution, suspension and emulsion.

II Semester -

- **PSCT-201 (NAME OF COURSE) –Synthesis and Application of Polymers**

(COURSE OUTCOME) To emphasize on general introduction about industrial polymers, raw material for the polymer industry and It also help them to gain knowledge about preparation, structure, properties and applications of the different polymers and copolymers such as olefin copolymers, polyurethanes, polyesters, polyamides and functional polymers etc.

- **PSCT-202 (NAME OF COURSE) –Chemical Technology**

(COURSE OUTCOME) To gain knowledge about the introduction of different industrial gases, fertilizers, chemicals and their methods of production. It also help them to know

about different ceramic materials, processing of oil and fats and manufacturing of soaps, detergents, perfumes and cosmetics etc.

- **PSCT-203 (NAME OF COURSE) – Polymer Testing & Specifications**

(COURSE OUTCOME) To help them know the methods of standardization & basic concept of sample preparation and it also develop skills to understand about processing, mechanical, thermal, electrical and optical properties of polymeric material & different types of test method.

- **PSCT-204 (NAME OF COURSE) – Polymer Viscoelasticity**

(COURSE OUTCOME) To gain knowledge about the viscoelastic behaviour of polymers, crystalline and amorphous states in polymers and stress-strain relation for ideal solids and ideal liquids. It also helps them to know about linear and dynamic viscoelastic functions, different viscoelastic models and also develop skills in the determination of flow behaviour of polymer melts and solutions.

- **(NAME OF COURSE) – Polymer Practical**

(COURSE OUTCOME) To help them to know practical skills for characterization, testing and processing of different polymers.

III Semester -

- **PSCT-301 (NAME OF COURSE) – Rubber Technology**

To help them know about the additives and compounding of rubber and also to develop knowledge about different types of rubbers (natural and synthetic), their synthesis, properties and applications.

- **PSCT-302 (NAME OF COURSE) – Tyre Technology**

(COURSE OUTCOME) To gain detailed knowledge about different types of tyres and factors to be considered in the designer of tyre safety requirements. It also helps them to develop knowledge about, manufacturing of tyres components and tyre constructions.

- **PSCT-303 (NAME OF COURSE) – Polymer Blends and Composite**

(COURSE OUTCOME) To help them to know about detailed knowledge of polymer blends/composites and their classification, methods of preparation, properties and applications. It also develops knowledge about the enhancement of polymer miscibility, criteria for selection of polymers and utilization of miscible polymers.

- **PSCT-304 (NAME OF COURSE) – Fiber Technology**

(COURSE OUTCOME) To enhance the knowledge about different methods of spinning of fibers, types of fibers and their properties and applications. It also helps them to know about the chemistry of common dyes to natural and synthetic fibers.

- **(NAME OF COURSE) – Polymer Practical**

(COURSE OUTCOME) To develop practical skills for testing of different properties of polymers.

IV Semester-

- **(NAME OF COURSE) – Major Research Project**

- (COURSE OUTCOME) It helps them to develop knowledge about literature survey, research skills, experimental aspects and characterization abilities in the proposed topic of the research work. It also develops writing skills for thesis and research papers and inculcate varieties of learning styles and software tools (Powerpoint presentation, ChemDraw and Origin, etc.).

B.Sc. (H) Chemistry
THREE-YEAR FULL-TIME PROGRAMME
(Six-Semester Course)

Program Specific outcomes:

PSO 1: Students gain systematic and coherent understanding of the fundamental concepts in Organic Chemistry, Physical chemistry, Inorganic Chemistry, Analytical Chemistry and all other related allied chemistry subjects.

PSO 2: Students gain knowledge of basic aspects of physics and mathematics

PSO 3: Students will be able to use the evidence based comparative chemistry approach to explain different chemical processes.

PSO 4: Students will be able to understand the basic principle of equipment's, instruments used in the chemistry, physics and analytical laboratories.

Course outcome:

Semester-1

BCH-101 Inorganic Chemistry-CO-1: Apply the fundamental principles of measurement, matter, atomic theory, chemical periodicity, chemical bonding, general chemical reactivity and solution chemistry to subsequent courses in science

BCH-102 Physical Chemistry- CO-2:To inculcate the detailed knowledge of gaseous, liquid and solid state of matter and ionic equilibria.

BCH-103 English Communication CO-3: To gain basic knowledge in communication and writing skills effectively

BCH 104 General Elective MathematicsCO-4:Gaining basic knowledge on curve sketching, volumes/areas of solid structures using mathematical tools and partial derivatives.

BCHPR-101 Practical Inorganic Chemistry- I CO-5: Facilitate the learner to enhance the skills of titrimetric analysis, acid base titrations and oxidation reduction titrimetry.make solutions of various molar concentrations

BCHPR-102 Practical Physical Chemistry- I CO6:

It helps in developing the key skills in surface tension measurement, viscosity measurement and pHmetry.

Semester-2

BCH-201 Organic Chemistry – I CO-1: To help them learn the basic concepts of organic chemistry such as organic intermediates, electronic effects, stereochemistry, conformations, mechanisms of organic reactions.

BCH-202Physical Chemistry – I I CO-2:To gain the specific knowledge on laws of thermodynamics, chemical equilibrium and solutions and its colligative properties.

BCH-203Physics – I CO-3: To be acquainted with vectors, ordinary differential equations, laws of motion, momentum & energy, rotational motion, gravitational laws, oscillations. Gain basic understanding of speed theory of relativity and elasticity.

BCH-204Environmental Studies CO-4:To be acquainted with the knowledge of ecosystem and its structure, natural resources and their growing needs with case studies. It also helps in developing knowledge of biodiversity and its conservation, environmental pollution and its effects and design and evaluation of environmental policies and institutions.

BCHPR-201Practical Organic ChemistryCO-5: Gain expertise on basic laboratory procedures involved in purification, identification and preparation of organic compounds.

BCHPR-202Practical Physical Chemistry CO-6:It helps them to learn the practical aspects of thermochemistry.

Practical Physics-I BCHPR-203 CO-7: To gain practical knowledge and correlating experimental data with theory.

Semester-3

BCH-301 Inorganic Chemistry – II CO-1: To gain basic understanding of bonding fundamentals for both ionic and covalent compounds, including electro negativities, bond distances and bond energies using MO diagrams and thermodynamic data.

BCH-302 Organic Chemistry – II CO-2: Students are acquainted with synthesis, physical and chemical properties of common functional groups such as alkyl and aryl halides, alcohols, phenols, carbonyl compounds, carboxylic acids and its derivatives.

BCH-303 Physical Chemistry – II CO-3: Students learn depth concepts about electrochemistry, Surface Chemistry, Phase Equilibria.

BCH-304 Physics– II CO-4: It helps them to know about crystal structure, lattice dynamics, magnetic and dielectric properties of materials

BCH-305 Analytical Chemistry II CO-5: To help them to learn analytical tools and methods involved in analysis of soil & water and basic principles of chromatography

BCHPR-302 Practical Organic Chemistry– II CO-6: To learn identification of functional groups, preparation of organic compounds using conventional/green approach

BCHPR-303 Practical Physical Chemistry– II CO-7: To gain the practical knowledge about critical solution temperature and its composition, construction of phase diagram using cooling curves and study of equilibrium by distribution methods.

BCHPR-302 Physics– II CO-8: To have expertise in experimental skills involved in study of magnetic properties of the solids.

Semester – 4

BCH-401 Inorganic Chemistry–III CO 1: It gives insight of coordination chemistry and basic inorganic reaction mechanisms. Also provide outlines of transition elements and inner transition elements.

BCH-402Organic Chemistry – III CO 2: Students learn preparation and properties of nitrogen containing compounds, polynuclear compounds, heterocyclic compounds, alkaloids and terpenes

BCH-403Physical Chemistry – IIICO 3: To gain specific knowledge on quantitative aspects of conductance, chemical kinetics of reactions and role of photochemical reactions in biochemical processes.

BCH-404Analytical clinical BiochemistryCO 4: Students gain knowledge and basic understanding of structure, properties and functions of carbohydrates, lipids, proteins. Mechanism of enzyme action, lipoproteins.

BCH-405MathematicsCO 5:Helps students learn to solve real life problems using Differential equations.

BCHPR-401Practical Inorganic Chemistry – III CO 6: Students gain expertise in gravimetric analysis, preparation of inorganic complexes and analysis of their properties.

BCHPR-402Practical Organic Chemistry – III CO 7: Students learn to identify unknown organic compounds and functional group tests for nitrogen containing functional groups.

BCHPR-403 Practical Physical Chemistry – IIICO 8: To develop practical skills in conductometry and study of kinetics of chemical reactions.

Semester-5

BCH-501Organic Chemistry –CO 1: It helps them to emphasize on interconnection between chemistry and biology.To gain knowledge about nucleic acids, amino acids, peptides, proteins and Enzymes.

BCH-502Physical Chemistry –CO2: Students learnthe use of nuclear magnetic resonance spectroscopy, mass spectrometry and infrared spectroscopy for organic structure elucidation and are exposed to basic concepts ofQuantum Chemistry.

BCH-503Analytical Methods in Chemistry –CO 3: To help them learn analytical tools and methods used in analysis of Inorganic and organic compounds.

BCH-504Inorganic Materials for Industrial Importance –CO. 4: To be acquainted with composition and applications of common industrial materials such as glass, fertilizers, surface coatings, batteries, chemical explosives.

BCHPR-501Organic Chemistry –CO 5: To help them know estimation of amino acids, proteins, action of salivary amylase, isolation and characterization of DNA and determination of saponification and iodine value of an oil or fat.

BCHPR-502 Physical Chemistry –CO6: Students learn verification of Beer-Lambert law and other related experiments using UV/Visible spectroscopy.

BCHPR-503 Analytical Methods in Chemistry –CO 7: Students learn the practical aspects of separation techniques, soil analysis and gain expertise on UV/Visible spectrophotometer.

BCHPR-504 Inorganic Materials for Industrial Importance –CO 8: Students are acquainted with analysis of fertilizers, cement, composition of ores, alloys and preparation of pigments.

Semester-6

BCH-601 Organic Chemistry –CO 1: It helps them to gain instrumentation knowledge of different analytical techniques, synthesis and applications of dyes, polymers and carbohydrates.

BCH-602 Inorganic Chemistry –CO2:

It equips them with the theoretical principles in qualitative analysis and applications of metals in the biological systems and metallic compounds.

BCH-603 Applications of Computers in Chemistry CO 3: It helps them to develop computer skills and using programming language in solving of problems in chemistry.

BCH-604 Polymer Chemistry CO 4: It helps them to gain knowledge about history of polymeric materials, functionality and its importance and polymerization reactions

BCHPR-601 Practical Organic Chemistry CO 5: To develop practical skills for qualitative analysis of unknown organic compounds and their identification by different analytical techniques.

BCHPR-602 Inorganic Chemistry –CO 6: It gives knowledge about chromatographic separation of the metal ions and qualitative semi micro analysis of mixtures containing anions and cations.

BCHPR-603 Applications of Computers in Chemistry CO 7: To enhance the laboratory skills of computer programmes using Q-basic and applications of software products like Scilab, Excel, chemsketch, Arguslab and AccelerysJDraw etc.

BCHPR-604 Polymer Chemistry CO 8: To develop practical skills for the synthesis of polymers by different polymerization processes.

DEPARTMENT OF MATHEMATICS

2.6.1: Program outcomes, program specific outcomes and course outcomes

I Semester

- 1. (M – 101) ABSTRACT ALGEBRA:** After reading this course, the student shall be able to achieve the following two goals:
 - (i) He will learn about the core area of mathematics upon which many other areas of mathematics draw
 - (ii) It will help him to become a sophisticated mathematician.
- 2. (M – 102) REAL ANALYSIS:** The theory behind the concepts of calculus will be studied in depth and with rigor. A great deal of the course is intended to immerse the student into the world of formal/abstract mathematics in which formal proofs and definitions are used in abundance.
- 3. (M–103) DIFFERENTIAL EQUATIONS:** After completing the course, students will be able to formulate and solve differential equations arising from changes in physical world.
- 4. (M – 104) METRIC SPACES:** To be able to work with continuous functions, and to recognize whether spaces are connected, compact or complete.
Metric spaces are vital prerequisite for many mathematics courses including Analysis, Topology, Measure Theory, Complex Analysis etc.

II Semester

- 5. (M – 201) TOPOLOGY:** At the end of the course, students should be able to understand and appreciate the central results of general topology, sufficient for the main applications in geometry, number theory and analysis.
- 6. (M – 202) COMPLEX ANALYSIS:** This course aims to provide an understanding of the basic facts of complex analysis, in particular the nice properties enjoyed by the derivatives and integrals of functions of a complex variable, and to show how complex analysis can be used to evaluate real integrals.
- 7. (M - 203) ADVANCED DISCRETE MATHEMATICS:** The primary goal of this course is to provide an introduction to discrete structures for information technology. Discrete structure is the study of the logical and algebraic relationships between discrete objects. At the end of the course, students will be able to relate

computing theory with applications, understand and design finite state machine, understand the importance of graph algorithms, apply the concepts of Boolean algebra in various areas of computer science.

- 8. (M – 204) OPERATIONS RESEARCH:** Problems in optimization are the most common applications of mathematics. The main aim of this course is to present different methods of solving optimization problems in the areas of linear programming, inventory and queuing theory, In addition to theoretical treatments, there will be some introduction to numerical methods for optimization problems.

III Semester

- 9. (M – 301) MEASURE AND INTEGRATION:** The objective of the course is to give an introduction to Lebesgue measure on the set of real numbers \mathbb{R} and the concept of measure in general, indicating its role in the theory of integration.

On successful completion of this course, students will understand

- how Lebesgue measure on \mathbb{R} is constructed,
- the general concept of measure,
- and how measures may be used to construct integrals.

- 10.(M – 302) MECHANICS:** Mechanics is the oldest branch of the Physics discipline and is as well important in the discipline of Mathematics. It is in fact a course in Classical Mechanics.

The objective of the course is to

- develop the ability to determine the Lagrangian and Hamiltonian of mechanical systems and use these functions to obtain the corresponding equations of motions as well as identify any conserved quantities associated with the system.
- apply fundamental conservation principles to analyze mechanical systems.
- introduce advanced theoretical techniques including variational principles and Hamilton Jacobi theory and develop the capability to apply these techniques to analyze elementary mechanical systems.

- 11.(M – 303(i)) NUMERICAL ANALYSIS:** This course aims to provide students with the techniques for finding approximate numerical solutions to mathematical problems for which exact or analytical solutions are unavailable or inappropriate, Successful students will have an appreciation of the difficulties involved in finding reliable solutions and will gain practical knowledge of how to apply the techniques and methods to specific problems such as finding roots of equations, quadrature and numerical solution of ordinary differential equations,

- 12.(M- 304(i)) MATHEMATICAL METHODS:** After completing the course the students will be able to understand the terminology, scope, main results, and applications of Fourier analysis and integral equations to solve problems in mathematics, science, and engineering. The course covers three important areas. The

objectives of the course are to teach students new techniques namely Fourier series methods, Integral equations methods and methods of Calculus of Variations.

IV Semester

13.(M – 401) NUMBER THEORY: The aim of the course is to give an introduction to elementary number theory, to show how certain number theoretical theorems can be applied within cryptography and to use the theory to solve simple Diophantine equations.

14.(M – 402) FLUID DYNAMICS: Almost everything on this planet either is a fluid or moves within or near a fluid. Fluids have the ability to transport matter and its properties as well as transmit force; therefore, Fluid Mechanics is an important subject that is particularly open to cross fertilization with other sciences and disciplines of engineering. The main objective of the course is

- to develop fundamental knowledge and understanding of the mechanics of fluid at rest and in motion
- to develop the ability to demonstrate and formulate physical problems encountered in different branches of engineering in mathematical form and arrive at useful solutions.

15.(M – 403 (i)) FUNCTIONAL ANALYSIS: This course extends the ideas studied in Analysis and Topology. Many of the topics studied in the course have applications in Approximation theory, Operator's theory and other areas of mathematics.

At the end of the course, students will be aware of interplay of Algebra and Topology.

16.(M–404(i)) FUZZY SETS AND ITS APPLICATIONS: The course presents some fundamental knowledge of fuzzy sets, fuzzy logic and its applications in fuzzy decision making. The aim is to equip students with some state-of-the-art fuzzy-logic technology to prepare them in a better way for the rapidly evolving high-tech information-based modern industry and market.

Objectives: Upon successful completion of this course, students should

- be able to understand basic knowledge of fuzzy sets and fuzzy logic,
- be able to apply fuzzy inferences,
- be able to apply fuzzy information in decision making,
- be able to appreciate the theory of possibility on the basis of evidences.

DEPARTMENT OF STATISTICS

M.Sc. (Statistics)

Programme Outcomes

After completing M.Sc. (with Statistics) the student should have

1. Knowledge of different concepts, principles, methodologies and tools (skills) of Statistics.
2. Ability to collect, tabulate, represent graphically, analyze and interpret data/information by using appropriate statistical tools.
3. Ability to identify and solve a wider range of problems in real life/industry related to Statistics.
4. Familiarity with computational techniques and statistical software including programming language (e.g. R and C++) for mathematical and statistical computations.
5. Capability to use appropriate statistical skills in interdisciplinary areas such as finance, health, agriculture, government, business, industry, telecommunication and bio-statistics.
6. Ability to compete with industrial/private sector demand in the field of data analysis, marketing survey, etc. in professional manner and pursue their future career in the field of Statistics.

DEPARTMENT OF ENVIRONMENTAL SCIENCE

Program – M.Sc.

Program Specific Outcomes:

- PSO-1 Students will integrate knowledge from multiple disciplines representing physical and life sciences perspectives, political and economic perspectives, and social and cultural perspectives on humans' interactions with their environments; and continue learning within the field of Sanskrit language and literature.
- PSO-2 Students will contribute to and facilitate interdisciplinary research and problem solving, through independent and collaborative work.

- **PSO--3 Students will use quantitative and qualitative research tools and techniques to analyze, implement, envision, assess, and report sustainability efforts.**
- **Etc.**

Course Outcome.

I Semester

CO-1: Fundamental of Environmental Sciences

To gain the Knowledge of the environment and the role of human beings in shaping the environment.

CO-2: Environmental Chemistry & Instrumentation

To help them in recognition the physical, chemical, and biological components of the earth's systems and this course is providing hand exposure of the highly sophisticated instruments.

CO-3: Environmental Geosciences & Natural Disasters

To know how geostrophic winds and cyclones are caused in the earth atmospheric system.

CO-4: Natural Resource & Their Management

To understand the complexity of natural resource and issues, and sustainability

II Semester

CO-1: Environmental Microbiology & Biotechnology

To understand the advances in environmental applications of microorganisms and to demonstrate the ability to use various instruments in microbial biotechnology

CO-2: Environmental Economics & Sociology

To understand the key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.

CO-3: Environmental Pollution & Monitoring

To demonstrate an integrative approach to environmental issues with a focus on sustainability

CO-4: Environmental Toxicology & Health

To use critical thinking problem solving and methodological approaches of the social sciences and humanities in environmental solving

III Semester

CO-1: Environmental Policies and Law

To understand the key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.

CO-2: Environmental Management & EIA

Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving.

CO-3: Fundamentals of Remote Sensing & GIS

To understand the transnational characters of environmental problems and various ways of addressing which comprises of interactions from local to global.

CO-4: Environmental Statistics & Computer Applications

To know the application of systems, concepts and methodologies helps in analysis and understanding of interactions between social and environmental processes.

IV Semester

CO-1 Project Work/Dissertation

Demonstrate proficiency in quantitative methods, qualitative analysis, critical thinking, and written and oral communication needed to conduct high-level work as interdisciplinary scholars and/or practitioners.

DEPARTMENT OF POLITICAL SCIENCE

Program – M.A. Political Science

Program Specific Outcomes:

PSO-1 Acquaintance to Indian National Movement & Constitution is indispensable for a student to make a sense of Indian Political System. The course is designed to provide a overview of Indian freedom Struggle and key concepts of the Indian constitution to the student, which would evolve him into a conscientious citizen.

PSO-2 Understanding Political theory is integral and indispensable for a comprehensive and critical study of political science. The course is designed to train a student in the foundational issues of political theory, which is relevant for any in depth study and research political system since independence.

PSO-3 Study of the functioning of Indian Democratic System is essential for a comprehensive understanding of the Indian Political System. The course is designed to train& acclimatize the student with the Indian Political System in action and explain the working relationship between citizens and state and among various units of the state. The student would be able to appreciate the trajectory of the Indian

PSO-4 This course introduces the students to the ancient ,medieval and modern political thinking in the West. This would help them understand the manner in

which ideas pertaining to ideal state, kingship, duties of the ruler and the ruled, rights, liberty, equality, and justice have evolved over a period of time.

Course Outcome.

I Semester -

- **CO-1 : Tradition of Indian Political Thinking**
This course introduces the student to the political thinking tradition of India.
- **CO-2: Comparative Politics**
This course introduces the student to various political System of the world.
- **CO-3 : Indian Political System**
Understanding Indian Political System is essential for learning the nature of Democracy in India.\
- **CO-4 : International Relations**
World now has now boundaries, so understanding of International theories become an integral and indispensable course for learning of Political Science.

II Semester -

- **CO-1 : Administrative Theory**
Role of Public Administration is increasing day by day to understand the role theory plays a major role.
- **CO-2: Ancient Indian Political Thought**
The course is designed to make student acquainted with the Ancient Indian Political Thought.
- **CO-3: Contemporary Political Theory**
Understanding Political theory is integral and indispensable for a comprehensive and critical study of political science.
- **CO-4: Research Methodology**
The role of research is increasing everyday which makes this course an Indispensable part of the syllabus.

III Semester -

❓ **CO-1: Reading Texts**

Six different texts have been included in the course to make student aware of various dimensions of thinking tradition.

❓ **CO-2: Western Political Thought**

This course makes student acquainted with Western Political Thought.

❓ **CO-3: Indian Administration**

The increasing role of administration makes the understanding of administration system important for student. This course will make students aware of the administrative system of India.

❓ **CO-4: State Politics in India**

Functioning of State Politics in India and various dimension of Politics are discussed and deliberated in this course.

IV Semester -

❑ **CO-1 : Modern Indian Political Thought**

Modern Indian Political Thought is a manifestation of our freedom fighters thinking & ideology. This course Introduces students with that.

❓ **CO-2: India and The World**

India is an emerging power, which makes many countries comfortable and many others Uncomfortable. but the complexity of relations is imagined and explored in this course. This course bring students with the understanding of the same.

❓ **CO-3: Local Governance in India**

Third tier of government has been very ambitious idea for incorporation of all the sections of society into the mainstream.

❓ **CO-4: Human Rights**

The idea of Human Rights is broad. Now it is dominating the world its genesis and declaration. This course makes student understanding the concepts of Human Rights.

Program – M.A

Program Specific Outcomes:

- **PSO-1** Administration being essential to every organization, this course aims to acquaint a student with fundamentals of public administration to . This would provide him an insight regarding the principles of administration in general and help him to bring out the best from existing set up. This would help him to prepare for administrative examinations too.
- **PSO-2** It aims to provide interface between public policy and administration in India. The essence of this paper appreciate the translation of governing philosophy into programmes and policies. Students will ab understand Political Process as well as Policy formulation process and the difficulties in impleme Programmes and Policies promised in Manifestoes
- **PSO--3** This paper intends to arm the student with basic digital and legal awareness where by the student can leverage this in the job market. It also intends to make the student aware of his basic legal rights which would help him to stand up and help others.
- **ETC.,**

Course Outcome.

I Semester -

CO-1 : Theories and Practice of Modern Government

After successful completion of this course the student will be able to understand, comprehend and analyze various aspects and dimension of the Theories and Practice of Modern Government

CO-2: Concepts and Principles of Public Administration

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimensions of the Concepts and Principles of Public Administration.

CO-3 Indian Administration

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Indian Administration

CO-4 Administrative Thinkers

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Administrative Thinker

2nd Semester –

CO-1 : Comparative and Development Administration

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Comparative and Development Administration

CO-2: Theory and Practices of Local Governance

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Theory and Practices of Local Governance

CO-3 : Financial Administration

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Financial Administration

CO-4: Personnel Administration

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Personnel Administration.

3rd Semester –

CO-1 Public Policy and Analysis

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Public Policy and Analysis.

CO-2 Research Methodology

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Research Methodology.

CO-3 Rural and Urban Development

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Rural and Urban Development.

CO-4 Organizational Behaviour and Human Resource Development

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Organizational Behaviour and Human Resource Development.

4th Semester –

CO-1 Social Welfare Administration

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Social Welfare Administration.

CO-2 Administrative Law

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Administrative Law.

CO-3 Management of Public Enterprises

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Management of Public Enterprises.

CO-4 Contemporary Information Technology

After successful completion of this course the student will be able to understand comprehend and analyze various aspects and dimension of the Contemporary Information Technology

DEPARTMENT OF BIOTECHNOLOGY

Course Outcomes of M.Sc. Biotechnology Programme (CBCS)

I Semester – Title:

Co1: Fundamentals of Genetics: To help them learn the basic concepts of heredity in the organisms and their flow by one generation to the next

Co2: Cell Biology: To make them understand the basic concepts of cell structure and functions of organelles.

Co3: Tools and Technique in Biotechnology: To help them to learn the basic principles, functions and applications of equipments used in biotechnology.

Co4: Bio-statistical Methods: To help them to learn the significance and application of statistics in biotechnology research.

Dissertation work.

II Semester – Title

Co5: Cytogenetics and Molecular Genetics: To make them understand the concept of molecular and genetics mechanism and their application in life .

Co6-Fundamentals of Biochemistry: To help them to understand various principles and methods of chemical/ biochemical / synthesis mechanism of living cell.

Co7-Recombinant DNA Technology and Genetic Engineering: To help them to learn and practice the techniques of RDT and understand their applications in life science.

Co8Computers application and Bioinformatics: To make them acquainted with InSilco / bioinformatics techniques and their utility in life science.

Co9 (Open Elective)- Trends In Biotechnology— To learn basic and Advance principles a, methods and applications of Biotechnology

Dissertation work.

III Semester – Title

Co10 General Microbiology -: To understand the basic concepts and usefulness of microbial world.

Co11 Animal Biotechnology and Immunology-: To learn the immune-techniques and animal tissue culture

Co12 Biotechnology in Crop Improvement-: To learn the basic concepts and techniques of tissue culture and genetic manipulations for crop improvement.

Co13Plant Genetic Resource – Conservation and Their Sustainable Use -: To let them understand the idea and importance, applicability of conservation of the biological resources.

Co14 (Open elective) Environment Biotechnology -: To learn the biotechnological principles and techniques for the remediation of pollutant from environment.

Dissertation work.

IV Semester – Title

Co15: Advances In Nano-biotechnology: To make them understand about synthesis, characterization nano-particles and their various applications in plant science.

Co16: Genomics and Proteomics: To help them acquainted with the basic concepts of genome and proteome and techniques for study as well as applications.

Co17: Bioethics and Intellectual Property Rights, Biosafety and Research Methodologies: To make them understand the importance of IPR, Bio-ethics and Bio-safety issues in biotechnology.

Co18: Industrial Biotechnology & Bio entrepreneurship -: To help them understand and practice various biotech techniques used in industries for commercial productions.

Dissertation work.

DEPARTMENT OF URDU

Program - B.A.

Program Specific Outcomes:

- PSO-1 - Students gain the master knowledge in communication skills, reading skills effectively as professionals and continue learning within the field of Urdu language and literature.
- PSO-2- Gain Specific knowledge on poetry, prose, drama, grammar of the language and literature in the field of Urdu as a second language.
- PSO--3 -Students have expertise in Grammar, comprehension, translation and short not ETC.

Course Outcome.

I Semester - Title: Urdu Zaban-o-Adab aur Qwaid-o-Insha

- CO-1 : To comprehend literary texts of ancient poetry. Written by great poets.
- CO-2: To inculcate the ethical values of life.
- CO-3 : To emphasize a narrative resurrection of primeval reality through myth.
- CO-4 : To relate thoughts with the given literature.
- CO-5 : To develop skills in Urdu grammar and comprehension in Urdu.

II Semester - Title: Urdu Zaban Aur Computer

- CO-1 : To Improvement in speaking and writing ability
- CO-2: To construct the importance of Urdu grammar and essay for improvement

- CO-3: To be acquainted with glossary of Urdu terminologies.
- CO-4: To introduce knowledge of computer to get best Urdu computer knowledge which will help them in employment.

III Semester - Title: Sahafat Aur Tarjuma Nigari Ka Fun Aur Riwayat

CO-1: To introduce journalism and ethics of journalism.

- CO-1: To help them know the different areas of journalism.
- CO-2: To gain knowledge about journalism.
- CO-3: To get the practical knowledge of journalism and translation for their self employment.
- CO-4: To emphasize the skills in Urdu grammar and translation of Urdu.

IV Semester - Title : Urdu Afsana Aur Drama

- CO-1 : To classify different forms and style used in Urdu drama.
- CO-2: To critically evaluate drama.
- CO-3: To help them know the different areas of dramatic literature.
- CO-4: To equip them with Sarala Urdu vyakarana.

V Semester - Title : Urdu Ghazal Aur Nazm

- CO-1 : To classify different forms and style used in Urdu drama.
- CO-2: To teach and create knowledge of different genre of Urdu poetry and literature
- CO-3: Story, Novel, Fiction, Drama, non- fiction genre, Marsiya, Masnavi, Ghazal, Poem.
- CO-4: To help them know the different areas of dramatic literature.

VI Semester - Urdu Novel

- CO-1 : To help them learn the basics and fundamental concepts of prose.
- CO-2 : To help them know the different areas of prose genres through lesson.
- CO-3 : To teach and create knowledge of different genre of Urdu literature especially Novel
- CO-4 : To make them as strong in language and literature

DEPARTMENT OF MICROBIOLOGY

Outcome of M.Sc. (Applied Microbiology)

In view of the increasing demand of competent microbiologists, this four semester (two year) course of M.Sc. (Applied Microbiology) has been designed to train the students in applied aspects of microbiology. The course contents are designed in such a way that the student may either pursue his career as an academician or may secure jobs in pharmaceutical industry, food

industry, agricultural sector, environmental pollution departments and quality control industries etc.

We aim to give a significant level of theoretical and practical understanding and diagnosis/ identification of various human pathogens. Specialization shall be allowed in the fields of Medical Microbiology/ Industrial Microbiology/ Environmental Microbiology/ Agricultural Microbiology based on 4-6 month practical training in national laboratories of repute or in other Universities engaged in high quality research in microbiology or in industries based on microbiology.

S.N.	Name of the course	Outcome
FIRST SEMESTER		
1	Instrumentation and Microbial Techniques	To develop understanding of principles of a number of analytical instruments and separation techniques as microbiologists for performing various laboratory manipulations.
2	Microbial Diversity- Prokaryotes and Viruses	Differentiation of bacteria by their salient characteristics into groups. The nutritional requirements of bacteria for growth; developed knowledge and understanding about microbes grow under extreme environments. To understand viruses, chemical nature, types of viruses and their harmful effects, bacteriophages.
3	Microbial Diversity- Eukaryotes	To identify and classify commonly available fungi, algae and other microscopic eukaryotes and their characteristics and their applications. Elementary knowledge of plant pathogenic fungi.
4	Biostatistics, Computer Applications and Bioinformatics	To develop skills to use computers for analysis of important biological databases, use tools to retrieve data, and compare the data of the biological macromolecules. To developed basic concepts of statistics and their importance.
SECOND SEMESTER		
6	Microbial Physiology and Biochemistry	Describing the growth characteristics of the autotrophs, heterotrophs, chemolithoautotrophs capable of growing under unusual environmental condition of temperature, oxygen, and solute and water activity. To develop the knowledge of various metabolic pathways to use carbohydrates, proteins and fats.
7	Microbial Genetics, Molecular Biology and Genetic Engineering	To understand genome organization of model organism namely <i>E. coli</i> and the molecular mechanisms those underlie mutations. Hands on skills of isolation of

		genomic and plasmid DNA from bacterial cells and its visualization by agarose gel electrophoresis.
8	Agricultural Microbiology	Developed a clear understanding of the multifarious roles of microorganisms in soil, in association with plants and their role in the field of agricultural process like biofertilizer, biopesticide, biological control agents. Knowledge of important plant diseases, their etiology, salient characteristics and control measures
9	Microbial Environmental Technology	To develop knowledge of different types of environments and habitats like micro biomes of the human gut and animal gut. To identify the important role microorganisms play in maintaining healthy environment by degradation of solid/liquid wastes; sewage treatment plants, significance of BOD/COD and various tests involving use of enumerating fecal <i>E.coli</i> for assessing quality of water.
THIRD SEMESTER		
11	Medical Microbiology	To understand the basic and general concepts of causation of disease by the bacterial, viral, fungal, parasitic microorganisms and the various parameters of assessment of their severity including the broad categorization of the methods of diagnosis.
12	Molecular Immunology	Conceptualized the protective role of the immune system of the host and developed an understanding of the basic components as well as the mechanisms underlying the immune system and its response to pathogenic microorganisms.
13	Food and Dairy Microbiology	To describe the role of microorganisms in the production of food, its spoilage, including their role in homemade fermented foods. To identify the role of microorganisms in the causation of the diseases and how to protect against food-borne pathogens.
14	Industrial Microbiology	To developed an understanding of different types of fermenters used in laboratory, pilot and industrial scale, their processes parameters and separation techniques, detailed knowledge of number of products which are produced by industrial fermentation processes
FOURTH SEMESTER		
15	Project Report including Viva-voce	The project/dissertation works will enable students to learn the basic working of microbiological laboratories, and provide intensive hands-on training to learn new horizons of microbiology and related life sciences field

		and to shape their career towards industries and research organization. This project/ dissertation make the students more industrially competent.
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Outcome of M.Sc. (Medical Microbiology)

The increasing incidence of microbial infections worldwide is being compounded by the rapid evolution of drug-resistant variants and opportunistic infections by other organisms. In response to a high level demand of competent medical microbiologists, this three year course of M.Sc. (Medical Microbiology) has been specifically designed for graduates who wish to develop their skills as medical microbiologists. The programme aims to train the students at a significant level of theoretical and practical understanding which will facilitate those wishing to follow a career in laboratory diagnosis (microscopy, cultural, physiological, biochemical and serological tests including molecular methods) of various pathogen/diseases significant to public health. Our medical microbiology course is unique because the student will spend full one year practical training in a medical college and/or pathological and diagnostic laboratories/centre duly recognized by competent bodies.

We aim to give a significant level of theoretical and practical understanding and diagnosis / identification of various human pathogens e.g. bacteria, fungi, viruses, parasites etc. with the help of various laboratory diagnostic methods including molecular techniques. The course contents are designed in such a way that the student may also pursue his career as academician in medical and industrial microbiologists besides setting up his own diagnostic laboratory. The students will be exposed to recent advances in molecular diagnostics techniques in clinical identification and management of significant diseases of public health.

S.N.	Name of the course	Outcome
FIRST SEMESTER		
1	General Microbiology	Microbes are vitally important to all life on earth in air and soil. As versatile organisms they play a major role in various biochemical process as epidemiology and other clinical aspects of medical science.
2	Microbiological Tools and Techniques	Microbiological techniques are used for the study of microbes including bacteria, microscopic fungi and other microscopic micro- organisms related to medical microbiology.
3	Human Anatomy	Human anatomy is the study of the structure of various organs and part of the human body and understanding of anatomy is the key to the practice of medicine and effect of drug on the body.
4	Human Physiology	In Human physiology students learn the mechanical , physical and biochemical function of humans and serve as the foundation of modern medicine.
SECOND SEMESTER		

6	Systematic Bacteriology	In systematic bacteriology students are concerned with the study of bacteria there classification characteristics and related aspects for human welfare.
7	Medical Mycology	Medical mycology is the branch of natural science involved in studies related to fungi and disease caused by fungi .
8	Human and Animal Virology	Viruses that infect humans and animals are called animal viruses. Viruses are able to infect a host cell and cause acute diseases which are of medical importance in relation to disease and their control.
9	Biochemistry and Haematology	Biochemistry and Haematology are very important in diagnosis , treatment and prevention of disease of various organ of the body and blood,
THIRD SEMESTER		
11	Molecular Immunology	Immunology is the most important branch of the medical microbiology which includes physical, chemical and biological reaction of the organisms in relation foreign substances. Immunity is protective covering for human against infectious disease.
12	Microbial Genetics, Molecular Biology and Genetic Engineering	Microbial genetics give the knowledge of mechanism of heritable information in organisms as bacteria, viruses , fungi and prtozons.
13	Laboratory Diagnosis in Clinical Microbiology	Clinical microbiology lab plays an important role in patient care by providing the cause of infection and antimicrobial susceptibility information to physicians.
14	Biostatistics and Medico-informatics	It provides statistical data in relation to disease to medical research.
FOURTH SEMESTER		
16	Parasitology	It is all about role of parasite in human body both positive and negative aspects of parasite are considered,
17	Epidemiology: Disease Control and Public Health	It is all about epidemiology (origin and spread of diseases) and control of disease.
18	Pharamaceutical Microbiology	It is all about functioning of drug in relation to receptors to cure the disease.
19	Nutritional Therapy	The student learn the role of food in healing of disease rapidly.
FIFTH & SIXTH SEMESTER (Third Year)		
20	Project/Training: Thesis Report	Finally the student represent their project work through presentation and viva voce. It is 1 year project work carried out by students at various esteemed medical research Centre.

Outcome of M.Sc. (Bioinformatics) syllabus, C.C.S. University, Meerut

Bioinformatics is an ultra-modern field of biosciences that applies statistics to molecular biology and emerged scientific branch for the computational analysis and storage of biological data. It is growing at rapid pace in India and abroad. The only thing requires is its awareness in India. Bioinformatics has laid the foundation of proteomics and genomics. It is one of the emerging fields in Biotechnology, Microbiology and other sciences. Most of the Bioinformatics professionals are employed in Biotech, Biomedical Sciences and Pharmaceutical companies. Even students can work with leading Scientific Research Institutes. Biomedical and Biotechnical products manufacturing industries are employing a large number of professionals from Bioinformatics. Some of the top Indian companies hiring in Bioinformatics are Reliance, IBM life sciences, Biomedical Informatics & Silicon Genetics and Tessella. It has very good carrier opportunities for students in India and abroad. Bioinformatics take part in different field like that , Molecular onlised and pers medicine, preventative medicine, Gene therapy, Drug development, Gene and forensic application of microbes, Waste cleanup, Studies of climate change, Antibiotic resistance, Evolutionary studies, Crop improvement, Insect resistance, Vetnary science, Improve nutrition quality, study of drought resistance variety and also use of bioinformatics in comparative studies of different organism.

Our students have obtained jobs in Biotechnology, Pharmaceutical, and Chemical, industries, Reliance, IBM life sciences, Biomedical Informatics and Silicon Genetics and Tessella, Wipro, Cysco System, Ranbaxy, Himalaya Biotech, Charak Pharmaceuticals, Baxal Pharmaceutical, Panacea Biotech, Adarsh Beverages in Government and Private R&D institutions related to agriculture, medical and environmental studies (DRDO, INMAS, CIMAP, CDRI, AIIMS, NII, IGIB, IARI, IITs, CDFD, IMTECH, C-DEC etc.) in central & state govt. departments, universities & colleges and as Research Scientists/ Post-Doctoral Fellows/Research students in abroad such as Germany, USA, UK, Canada, Taiwan, China, France, Spain, UAE, etc.

The future of bioinformatics which help in the experiment which it gives us to the extra-large of information's to be done. On the whole, this technique is defined as the proof of Applications of Bioinformatics that can reduce the search space and also size problem in thousand times. For this reason, Professionals qualified the experiments in computational discovers. The predictive algorithms can use for the available to healthcare professionals. It is developing vast technology field. There is the imperative need is to be annotated.

As long as, the main role of this bioinformatics likes mathematics, computer ability which comes in convenient .Future of this sector is auspicious but there is a defect in it. In order to, it

executes the pipelines or else it is processing the platforms. This field is still a large developing field in India. It is transformational subsector in this computer science and also it helps in support vector machine.

S.N.	Name of the course	Outcome
FIRST SEMESTER		
1	Basic of Bioinformatics, Computer system and 'C' Programming	'C' Programming use in bioinformatics tools and software development also use for coding of bio-programming project. BiopLib, a mature C programming library for manipulating protein structure, and BiopTools, a set of command-line tools which exploit BiopLib.
2	Biomathematics	Bioinformatics applications provides a comprehensive format for connecting and integrating information derived from mathematical methods and applying it to the understanding of biological sequences, structures, and networks. It use in genetic code with mathematics, genetic code and matrices, Mathematical sequence analysis, understand the graph theory and network analysis of gene using mathematical algorithms.
3	Biological Database System	These are the databases consisting of biological data like protein sequencing, molecular structure, DNA sequences, etc in an organized form. Several computer tools are there to manipulate the biological data like an update, delete, insert, etc The huge demand for analysis and interpretation of these data is being managed by the evolving science of bioinformatics. Bioinformatics is defined as the application of tools of computation and analysis to the capture and interpretation of biological data. Bioinformatics is essential for management of data in modern biology and medicine.
4	Microbiology & Immunology	Bioinformatics has been used for the microbial biotechnology in many ways: computationally analyzing the wet-lab data, genome sequencing, identification of protein coding segments and genome comparison to identify the gene function and development of genomic. Bioinformatics techniques are used to study differential protein interaction mechanisms across the entire immune cell lineages and the transcriptional activators and modules and are analyzed in the context of exemplars obtained by clustering the PPI network.

SECOND SEMESTER

6	Operating System through Unix/Linux	<p>Most tasks of bioinformatics are processed using the Linux operating system (OS). ... Everything in Linux is either a file/directory or a process. To run most bioinformatics applications, users need to access remote Linux machines, such as supercomputer clusters that provide much larger computing resources. The field of bioinformatics relies heavily on Linux-based computers and software. A lot of good scientific software is written specifically for Linux/Unix. Additionally, Linux has most popular programming languages (e.g. Python, Perl, C) already installed and ready to use.</p>
7	Object Oriented Programming with 'C++'	<p>C++ knowledge is not useless by any means! You can apply lessons in data structures universally as the concepts transfer quite well. And if you ever look into other fields, C++ is quite the gateway language as knowing it well makes learning other languages easier. Bio++, a set of Object Oriented libraries written in C++. Available components include classes for data storage and handling (nucleotide/amino-acid/codon sequences, trees, distance matrices, population genetics datasets), various input/output formats, basic sequence manipulation (concatenation, transcription, translation, etc.), phylogenetic analysis (maximum parsimony, markov models, distance methods, likelihood computation and maximization), population genetics/genomics (diversity statistics, neutrality tests, various multi-locus analyses) and various algorithms for numerical calculus. The bioinformatics library libcov is a collection of C++ classes that provides a high and low-level interface to maximum likelihood phylogenetics, sequence analysis and a data structure for structural biological methods</p>
8	Sequence Analysis	<p>In bioinformatics, sequence analysis is the process of subjecting a DNA, RNA or peptide sequence to any of a wide range of analytical methods to understand its features, function, structure, or evolution. Methodologies used include sequence alignment, searches against biological databases, and others .In bioinformatics, comparison among the molecular sequences to identify regions of similarity is called sequence alignment. It is a key step in data processing in many bioinformatics applications. Its</p>

		<p>basic purpose is to reveal functional, structural or evolutionary relationships in different sequences.</p> <p>In sequence alignment, regions in different sequences with maximum match are identified with some algorithms. Output of the algorithm is analyzed to judge the relationship between the biological properties of the compared sequences.</p>
9	Molecular Biology & Genetic Engineering	<p>In experimental molecular biology, bioinformatics techniques such as image and signal processing allow extraction of useful results from large amounts of raw data. The Laboratory of Molecular Biology applies bioinformatics tools in various research projects, with an emphasis on the analysis of genomic and transcriptomic data.</p> <p>In genetic engineering, bioinformatics tools help in comparing and analyzing genetic and genomic data and understanding of evolutionary aspects of molecular biology. Genetic engineering is based mainly on data mining techniques.</p> <p>Some of the exploration methods have been developed specifically for the purposes of bioinformatics research in a way that has made bioinformatics tools for bio-prospecting two pathways of integrated science and mutually develops each other. Bioinformatics software and tools for exploration have been an effective way to study and analyze chains to explore patterns and decode human genetic engineering, which has contributed to understanding the nature of diseases, discovering new and effective drugs</p>
THIRD SEMESTER		
11	Statistical Analysis and Optimization	<p>The key contributions of statisticians to bioinformatics, focusing on four areas: (1) experimental design and reproducibility, (2) preprocessing and feature extraction, (3) unified modeling, and (4) structure learning and integration. "Statistical Bioinformatics is the art and the science of statistically modeling and analyzing genomic and proteomic data, while keeping the biochemistry context prominent". The primary objective of statistical [biometry] and bioinformatics research in crop sciences is to help biological researchers obtain objective answers through computational data analysis. Statistical research encompasses many types of data, while bioinformatics</p>

		focuses on molecular biology data such as DNA sequences.
12	Biocomputing Programming	<p>The use of bioinformatics in different programming language like that Java language is mostly useful for researcher involved in developing computational methods. It is mostly used bioinformatics applications such as GATK and picardTools. Perl is a general-purpose programming language originally developed for text manipulation and now used for a wide range of tasks including system administration, web development, network programming, GUI development, and more. Perl supports Google Cloud Storage.</p> <p>Traditional HTML interfaces for input to and output from Bioinformatics analysis on the Web are highly variable in style, content and data formats. ... Semantic Web Services allow automated discovery of conceptual links between remote data analysis servers.</p> <p>PHP There is an extremely rich variety of programming languages, web development frameworks, tools and libraries for “general” web development that are perfectly fit to handle Bioinformatics data, Bioinformatics web servers and applications, Bioinformatics and Biological web databases.</p>
13	Structural Biology & Molecular Modeling	<p>The main application of structural bioinformatics in drug discovery field ,it simulate drug- receptor intraction ,morden drug discovery. Structural bioinformatics use of modeling biological structures of proteins, DNA, RNA, ligands etc. and complexes thereof to further our understanding of biological systems.</p> <p>The bioinformatics use in molecular modeling field study of molecular dynamic simulation using different software like that Amber, Gromacs Charm etc. Molecular dynamics simulations have evolved into a mature technique that can be used effectively to understand macromolecular structure-to-function relationships. The Molecular Modeling and Bioinformatics (MMB) research group is part of the Joint BSC-CRG-IRB program in Computational Biology. It understand the behavior of living organisms from the basic rules of physics.</p>
14	Genomics, Proteomics & Systems Biology	Bioinformatics is now being used for a vast array of other important tasks, including analysis of gene variation and expression, analysis and prediction of gene and protein

		<p>structure and function, prediction and detection of gene regulation networks, simulation environments.</p> <p>Studying proteome also includes the profiling of isoforms, mutants, post-translational modifications, splice variants and protein-protein interactions. In this process, bioinformatics methods play a vital role for the analysis of proteomics.</p> <p>Systems Bioinformatics is a relatively new approach, which lies in the intersection of systems biology and classical bioinformatics. It focuses on integrating information across different levels using a bottom-up approach as in systems biology with a data-driven top-down approach as in bioinformatics. Applications of Bioinformatics and Systems Biology in Precision Medicine and Immunooncology. Current applications of systems biology are focused on characterizing the underlying network structure and dynamics of molecular interactions.</p>
FOURTH SEMESTER		
15	Project Report including Viva-voce	<p>The project/dissertation works will enable students to learn the basic working of microbiological laboratories, and provide intensive hands-on training to learn new horizons of microbiology and related life sciences field and to shape their career towards industries and research organization. This project/ dissertation make the students more industrially competent.</p>

Outcome of B.Sc. (Food Microbiology, Safety and Quality Control)

Food microbiology, safety and quality control is the basic requirement of public health and hygiene. Food microbiology is the necessary and essential requirement of every food industry. The consumers, retailers, manufacturers and regulators are greatly concerned about food safety and quality control/management. Changing global pattern of food production; international trade, technological advancement, public awareness and their expectations; health and hygiene; new Food Safety Act of Government of India and many other related factors have created huge demand for trained personnel in food microbiology, safety and quality control.

B.Sc. (Food Microbiology, Safety and Quality Control) has been designed after carefully going through the requirements of various industries like-Food, soft drink, beverages, and the requirements of Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce, Government of India and the newly developed concept of nutritional therapy. This

programme is expected to meet the increasing requirements of human resources for food microbiology, safety and quality control/management professionals in agriculture and food sector.

Main objective of the course is to prepare well qualified professionals for application of microbes in food industry, auditing of Food Safety and Quality control/management system in the country so that India may compete with developed countries in global food safety and quality requirements. It will also ensure consumer safety within and outside the country and will improve public health and reduce medical expenses.

S.N.	Name of the course	Outcome
	FIRST SEMESTER	
1	Instrumentation	To impart the knowledge about Instruments
2	Microbial Techniques in Food& Water Industry	To impart the knowledge about Microbial Techniques
3	Microbial Diversity – Prokaryotes	To impart the knowledge about Diversity of Prokaryotes
4	Microbial Diversity – Eukaryotes	To impart the knowledge Diversity of Eukaryotes
	SECOND SEMESTER	
5	Food and Food Sources	To impart the knowledge about Food & Food Sources
6	Food Microbiology	To impart the knowledge about Food Microbiology
7	Food Chemistry	To impart the knowledge about Food Chemistry
8	Dairy Technology and Microbiology of Dairy Products	To impart the knowledge about Dairy Technology
	THIRD SEMESTER	
9	Biostatistics, Computer Applications& Bioinformatics	To impart the knowledge about Biostatistics, Computer Applications& Bioinformatics
10	Food Processing, Preservation and Packaging	To impart the knowledge about Food Processing, Preservation and Packaging
11	Food Laws & Standards	To impart the knowledge about Food Laws & Standards
12	Principles of Food Safety	To impart the knowledge about Principles of Food Safety
	FOURTH SEMESTER	
13	Principles of Food Quality	To impart the knowledge about Principles of Food Quality
14	Fermentation Technology	To impart the knowledge about Fermentation Technology
15	Water & Food Borne Disease	To impart the knowledge about Water & Food Borne Disease

16	Public Health Engineering & Hygiene	To impart the knowledge about Public Health Engineering & Hygiene
	FIFTH SEMESTER	
17	Microbial Genetics, Molecular Biology & Genetic Engineering	To impart the knowledge about Microbial Genetics, Molecular Biology & Genetic Engineering
18	Nutritional Therapy	To impart the knowledge about Nutritional Therapy
19	Environmental Microbiology	To impart the knowledge about Environmental Microbiology
20	Food Quality Management Systems	To impart the knowledge about Food Quality Management Systems
	SIXTH SEMESTER (Third Year)	
21	Project/Training: Thesis Report	To Acquire the Practical Training in Research Laboratory / Industry

DEPARTMENT OF PHYSICS

M.Sc Physics

Programme Specific Outcomes

Semester-1st

Course-1_Mathematical Physics

Learning Outcomes: On the successful completion of Mathematical physics, the students learn the mathematical models, which are necessary for the description of physical systems and the language of physics. The “Mathematical physics” is used to solve the research aimed problems/predicted puzzles/Advanced Simulations in physics and Engineering or thought experiments within a mathematically rigorous framework, which is an essential tool for physicist to answer questions.

Course-2_Classical Mechanics

Learning Outcomes: On the successful completion of classical mechanics, the students learn and understand the fundamental concepts of dynamics of system of particles, equations of

motion for complicated mechanical systems using the Lagrangian and Hamiltonian formulation of classical mechanics.

Course-3_Quantum Mechanics-I

Learning Outcomes: On the successful completion of Quantum mechanics-I, the students learn the historical aspects of quantum mechanics and understand differences between classical and quantum mechanics. They also learn the idea of wave function/equation, uncertainty relations, Schrodinger wave equations for simple potentials and calculate the eigenvalue, momentum, angular momentum.

Course-4_Electronic Devices

Learning Outcomes: On the successful completion of electronic devices, the students learn the fundamental of electronic materials for the devices fabrication, which is an important part of our day-to-day life. We live in a generation that uses electronics and technologies where robots and artificial intelligence is capable of doing human work with more ease and efficiency.

Course L1: Laboratory Practical

On the successful completion of laboratory work, the students learn hand-on-practice of quantum mechanical phenomenon, and electronic devices, as per the course contents of 1st semester.

Semester-2nd

Course-5 Quantum Mechanics-II

Learning Outcomes: On the successful completion of Quantum mechanics-II, the students learn the basic Hilbert space structures describing all quantum field theories, many-body quantum mechanics, entanglement, bosons and fermions, occupation number notation, theory of open quantum systems, density matrices.

Course-6_Statistical Mechanics

Learning Outcomes: On the successful completion of Statistical mechanics, the students will have basic knowledge of statistical mechanics to describe in details the Canonical, Micro-canonical and Grand Canonical ensembles and their properties. Students are capable to calculate the statistical quantities of various systems. The students will learn about the Maxwell-Boltzmann, Fermi- Dirac and Bose- Einstein Statistics, properties of ideal Bose and Fermi gases, Bose- Einstein condensation. In-addition, they are able to understand the various theories and models of cluster expansion, phase-transition and fluctuations of thermodynamic variables.

Course-7 Atomic and Molecular Physics

Learning Outcomes: On the successful completion of Atomic and Molecular Physics, the students learn the structure and dynamics of atoms and simple molecules, the interaction between atoms, molecules and electromagnetic fields, collision processes involving atoms, charged particles and molecules.

Course-8 Electrodynamics & Plasma Physics

Learning Outcomes: On the successful completion of Electrodynamics & Plasma Physics, the students learn the study of the electromagnetic force and a type of physical interaction of charged particles. It enables us to understand electromagnetic phenomena based on Maxwell's theory. The plasma physics is concerned with the properties of matter in the ionized state and its applications. The students also learn the basic principles on plasmas, waves in plasma, stability analysis of the equilibrium solutions of the equations.

Course L2: Laboratory Practical

On the successful completion of laboratory work, the students learn hand-on-practice of Diode and Transistor phenomenon, principles of the combination of transistors and circuit diagrams for the switches and role of transistor for the CHIP fabrication as per the course contents of 2nd semester.

Semester-3rd

Course-9 Condensed Matter Physics

Learning Outcomes: On the successful completion of Condensed Matter Physics, the students learn the study to correlate the X-ray diffraction pattern of unknown material to a given crystal structure. They will also be able to explain the electronic and magnetic properties. Despite the advanced study, they also learn about the basic concept of super conductivity and its application in various fields.

Course-10 Electronics: Special Paper-I

Learning Outcomes: On the successful completion of Electronics: Special Paper-I, the students learn the fundamental study of digital electronics to acquire the fundamental knowledge/information of digital logic and digital electronics circuits. Students are trained to perform the analysis and design of various digital electronic circuits. Digital systems are used

extensively in computation and data processing, control systems, data storage, communications and measurement.

Course-11 Electronics: Special Paper-II

Learning Outcomes: On the successful completion of Electronics: Special Paper-II, the students learn the designing systems for mobile communication, satellite and RADAR. Since these systems consist of microwave active and passive components, will enable students to use their knowledge in industry as well as in R & D institutions. It gives a path-way to understand the basic concepts of microwaves and propagation through the transmission lines, microwave components and so on.

Course-12 Nuclear and Particle Physics

Learning Outcomes: On the successful completion of Nuclear and Particle Physics, the students learn about the nuclear reactions, named, nuclear fission (nuclear reactor and bombs) and nuclear fusion (energy generation at the sun surface). From the study of nuclear physics, students are learning for the calculation of radiocarbon dating of geology and archaeology sites along with other applications of nuclear power, nuclear weapons, nuclear medicine. Advances in nuclear physics continue to revolutionize our treatment of cancer and other debilitating diseases, food sterilization, nuclear waste transmutation and so on.

Course L3: Laboratory Practical

On the successful completion of laboratory work, the students learn hand-on-practice of logic gates and families, transmission lines, dielectric loss/gain along with the VLSI technology as per the course contents of 3rd semester.

Semester-4th

Course-13 Physics of Nanomaterials

Learning Outcomes: On the successful completion of Physics of Nanomaterials, the students will be able to understand the size, shape, and orientation dependent properties of different materials at the nanoscale (1 - 100 nm). In-addition, the student will also be able to acquire the ability to synthesize, and characterize of different materials for different solid state device applications.

Course-14 Electronics: Special Paper-III

Learning Outcomes: On the successful completion of Electronics: Special Paper-III, the students are able to learn the emerging areas such as GSM, GPS, Bluetooth, Mobile, Ethernet,

RF, Networking, Data Acquisition, Smart city and Smart Card, Internet etc. The knowledge of this subject is an essential requirement in the field of networking and demonstrates the efficiency for stability.

Course-15 Electronics: Special Paper-IV

Learning Outcomes: On the successful completion of Electronics: Special Paper-IV, the students will learn about the integrated circuits (ICs) and technology, theory and experimental background of all the actual process steps used in CHIP fabrication. They also learn about the wafers (Si, GaAs, GaN and so on) and exact deposition of thin films of oxides and photoresists, wet/dry etching, ICP etching and finally the wire binding, testing and packaging. The students are able to design electronic components and devices for semiconductor/microelectronics industry purpose.

Course-16 Computational method and programming

Learning Outcomes: On the successful completion of Computational method and programming, the students learn about the basic knowledge of computer generations, hardware and software, which allow to students to understand the importance of the programming started from the simple FORTRAN language. They also learn about the iteration methods of Newton Rapshon, Bisection and matrix methods for solution of linear algebraic equations and so on.

Course L4: Laboratory Practical

On the successful completion of laboratory work in the fourth semester, the students learn hand-on-practice of transmission lines, waveguides, CHIP and device fabrication for advanced electronic/mobile devices/communication components and role of microprocessors for VLSI technology as per the course contents of 4th semester.

DEPARTMENT OF HORTICULTURE

2.6 STUDENT PERFORMANCE AND LEARNING OUTCOMES (2017-2018)

2.6.1 Program outcomes, program specific outcomes and course outcomes for all programs offered by the institution.

DEPARTMENT OF HORTICULTURE

M.Phil. (Horticulture)

Programme Outcome

Scientific and advanced knowledge of horticultural crop (fruits, vegetables, flowers, spices, medicinal and aromatic plants) and their allied sectors ensure maximum returns to growers with multiple scopes of value addition. Hi-tech horticulture such as micro-irrigation, protected cultivation, high-density planting practices helps in increasing the productivity of horticultural crops. Integrated nutrient management (INM), integrated pest management (IPM) and integrated disease management (IDM) ensure high production with quality produce. Fruits and vegetables, being the rich source of vitamins, minerals, fibers etc are essential to overcome the malnutrition problem. The demand for organic fruits and vegetables is gaining high popularity in Indian society.

Course Outcome

Ist Semester

CO-1 Advances in Floriculture and Landscaping: It involves cultivation and management of flowering and ornamental plants in outdoor & indoor conditions and planting of development of garden.

CO-2 Advanced Pomology: To inculcate advance knowledge about the fruit production and management.

IInd Semester

CO-1 Principles of Vegetable Production: To provide knowledge about cultivation of vegetable crops.

CO-2 Postharvest Technology of Horticultural Crops: To inculcate about the principles and methods followed after harvesting of horticultural crops to minimize post harvest losses.

Ph.D. (Horticulture)

Programme Outcome

Most of the degree holders are preferred to make their future in nursery management, seed production, processing of fruits and vegetables, landscape consultancy, value addition centers, horticulture clinic- nursery etc as self-employment avenue. Beside these, horticulture degree programme creates job opportunities for the unemployed youth and many government and non-government jobs need a degree in the horticulture.

Pre-Ph.D. Course Outcome

CO-1 Research Methodology and Computer Applications: To provide knowledge about the uses of statistical methods in horticultural experimental research.

CO-2 Recent Advances in Horticulture Research: To inculcate recent knowledge about the horticultural research which is helpful to maximize horticultural production by optimum utilization of existing resources.

INSTITUTE OF BUSINESS STUDIES (BBA-HOSPITAL ADMINISTRATION)

Bachelor of Business Administration: Hospital Administration- 3 year course

Course-wise learning outcomes

BHI-101 INTRODUCTION TO HUMAN ANATOMY

Course Objective: The objectives of the course are to enable students to learn and have a good understanding of Human Anatomy as is necessary to understand human body organization and for further understanding of medical subjects as Hospital Administrators.

BHI -102 COMMUNICATIVE ENGLISH IN ORGANIZATION

Objective: To acquire the basic of interpersonal communication and public speaking in English, so as to improve his communication skills and ability to understand others.

BHI – 103: PRINCIPLES AND PRACTICES OF MANAGEMENT

Course objective: This course intends to familiarize and develop understanding of the students of basic principles and practices of management for efficient administration of hospital and delivery of healthcare services.

BHI - 104 BASIS OF MATHEMATICS AND STATISTICS

Course Objective: The objectives of the course are to enable students to learn and to have a good working practice of mathematical & Statistical tools for taking appropriate decisions in managerial situations.

BHI - 105 FUNDAMENTAL OF MARKETING

Objective : To introduce and learn the basic principles of marketing management for the students of hospital administration.

BHI - 106 INTRODUCTIONS TO HEALTHCARE ORGANIZATION

Course Objective: The objectives of this course are to help students to learn and understand Health & Hospital industry so that they get an overview and get oriented to the basics of Health and Hospital Administration.

BHI - 107 FINANCIAL ACCOUNTING

Course Objective : The objective of this course is to help students to acquire basic accounting concepts and use them as a tool of decision making.

BHI - 201 INTRODUCTION TO HUMAN PHYSIOLOGY AND BIOCHEMISTRY

Course Objective : To enable students to learn and to have a good understanding of Human Physiology and Biochemistry as is necessary for Hospital Administrators.

BHI-202 FUNDAMENTALS OF HOSPITAL ADMINISTRATION

Course Objective: The aim of this course is to enable the participants to understand the principles and practice of hospital administration and its application in hospitals, managing hospitals by understanding the complexity, levels and role of hospital administrator & understand the current issues that have an implication in administration.

BHI-203 ORGANIZATIONAL BEHAVIOUR

Objective: To develop understanding of the students- in individual and group behavior in organizational set-up.

BHI-204 INTRODUCTION TO INFORMATION TECHNOLOGY

Objective : To provide basic concepts of information technology and its applications so as to enable them to make more efficient use of IT.

BHI-205 HOSPITAL OPERATIONS- CLINICAL SERVICES

Course Objective : The subject is to acquaint the HA student with the day today working and the working environment of hospitals. The student should be familiarized with the hospital clinical services which are one of the key issues in hospital administration. Case Study shall be discussed on the classrooms.

BHI-206 INTRODUCTION TO ECONOMICS

Course Objective : To introduce the economic concepts and familiarize students with the importance of economic approaches in managerial decision making also to understand the applications of economic theories in business/Administration decisions.

BHI -301 Introduction of Preventive and Social Medicine

Course Objectives : The objectives of the course are to enable students to learn preventive and social medicine necessary for hospital administrators.

BHI - 302 BIO-MEDICAL INSTRUMENTATION

Course Objective: The objective of the course is to enable students to have a good understanding of Bio-medical instrumentation as is necessary for a hospital administrator.

BHI- 303 HOSPITAL PLANNING

Course Objective : The aim of the course is to enable students to have a better understanding of various planning systems in the hospitals. The students can gain and understand of the event which occur in day to day working of healthcare organisations. Students are expected to develop a diagnostic and problem solving approach.

BHI- 304 SERVICES MANAGEMENT

Course Objective: The course are to expose students the nature of industrial and service market and develop abilities to help them apply marketing concept in these markets.

BHI -305 Vyavsaik Sangathan me Hindi Samprekshan

BHI -305: O;olkf;d laxbu esa fganh lizs'k.k

BHI -306 Human Resource Management in Hospitals

Objective: To develop understanding of the students of concepts, techniques, oral and practices of Human Resource Management in hospital.

BHI-307 Cost and Management Accounting

Course Objective: The aim of the course to enable students to know understand the the various facets of accounting procedure and And practices used in business management.

BHI -401 Introduction To Pathology and microbiology

Course Objective: The aim of the course is to students to have a good understanding of Pathology and microbiology for hospital administration

BHI -402 Management of Quality

Course Objective: The objective of the force are to help the students gain and understanding of the events and problems which occur in day to day working of Healthcare organisations. It is expected to develop a Diagnostic and problem solving approach. It will help the students to sharpen his comprehension, analytical, descriptive and international skills.

BHI -403 Indian Ethos and Ethics in Healthcare

Course Objective: The objective of the force is to acquaint the students with Indian ethos and its relevance to managerial decision making

BHI -404 FUNDAMENTAL OF FINANCIAL MANAGEMENT

Course Objective: The objectives of this course are to help the students learn the concepts, tools and skills of financial management and its application in the efficient conduct of business.

BHI-405: Medical Laws

Course Objective:

The aim of this course is to enable the students to have an understanding of all those laws which are applicable for Healthcare delivery systems and hospital and a good understanding of medical ethics.

BHI-406: System analysis and designs

Course objectives: The objective of this course is to have wooden to understand the basics of information systems, and issues related to design and development of information systems.

BHI -501 INTRODUCTION TO PHARMACOLOGY

Course Objective: proper selection of drugs, it is essential to have a basic knowledge about the disease and the drugs available for its treatment. The series of lectures will provide the student basic knowledge about the drugs used for the treatment of various diseases commonly encountered in clinical practice.

BHI-502:

Course objective: The objective of this course is to help student to learn and to acquire themselves with all the facets of marketing of hospital services.

BHI-503: HUMAN RESOURCE DEVELOPMENT

Objective: to understand- need, methods, insights, design development and delivery of HRD programs.

BHI- 504 Business Process Engineering

BHI - 505 Disaster Management

Course Objective: the objective of the course is to enable the students to have a good understanding of disaster management

BHI 506 Employee Relation And Labour Laws

BHI -507 Capital Budgeting and Working Capital Management

Course objective: The objectives of this course are to help the students learn the concepts, tools and skills of financial management and its application in the efficient conduct of business.

BHI - 508 Comprehensive Viva-Voce

BHI- 601 forensic medicine and toxicology

Course objective : The objective of the course are to enable students to learn and appreciate the significance of forensic medicine and toxicology, e necessary for hospital administrators.

BHI-602 customer relationship management

Course Objective : The objective of this course is to introduce customer centric operations form and applications of CRM.

BHI-603 logistic and supply chain management

Course Objective: Objective of this course is to help students to understand the basics of logistics and Supply Chain Management.

BHI-604 Relational Database Management System

Course Objective: The objective of this course is to help students to understand the basics of relational database Management system, and back-end tool using Oracle and their use organisation and processing complex business information.

BHI-605 health policy and administration

Course Objectives: Objective of the course is to enable student to have a good understanding of health administration.

INSTITUTE OF LEGAL STUDIES

PROGRAMME OUTCOMES OF Ph.D. IN LAW

PO1. Equip the student with skills to analyze problems, formulate a hypothesis, evaluate and validate results, and draw reasonable conclusions thereof.

PO2. Prepare students for pursuing research or careers in teaching and research in law and allied fields.

PO3. Imbibe effective legal and/or technical communication in both oral and writing.

PO4. This course will enhance the understanding of research scholar regarding various social issues and their response through legal process and improvises the legal knowledge and research for the general societal welfare.

PROGRAM OUTCOMES OF LL.M.

PO1. Explore and explain the substantial & procedural laws in which they are made/ drafted and how students think and understand the legislative setup.

PO2. Interpret And Analyze the legal and social problems and work towards finding solutions to the problems by application of laws and regulations.

PO3. Students are equipped with the knowledge of teaching methods through the subject on Teaching Pedagogy thereby enabling them to enter the teaching profession.

PO4. Apply ethical principles and commit to legal professional ethics, responsibilities and norms of the established legal practices.

PO5. Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broader context of legal change.

Course Outcome

LL.M. Ist Semester

1. Constitutional Law of India - I (Fundamental Rights) (L-1001)

COURSE OUTCOME:- This course will enhance the aptitude of post graduate students regarding analytical view of rights enshrined in the Indian constitution for the people of India along with alien persons too.

2. Jurisprudence-1 (Theories of Law) (L-1002)

COURSE OUTCOME:- This course will amplify the knowledge of post graduate students regarding the various theories of law which lay down the foundation of legal system.

**3. Legislative Oughts, Interpretation and Judicial Process
(L-1003)**

COURSE OUTCOME:- This course will augment the understanding of post graduate students regarding the development of principles of law governing legislation and the Judicial process working for effective implementation of laws.

**4. Legal Education and Research Methodology
(L-1004)**

COURSE OUTCOME:- This course will enhance the understanding of law students regarding the evolution and development of legal education in India and develops the aptitude of legal research.

LL.M. IInd Semester

**1. Constitutional Law Of India-II
(L-2001)**

COURSE OUTCOME:- This course will supplement the understanding of post graduate law students regarding various principles of constitutional law of India and the analytical view regarding functioning of various constitutional offices in India.

**2. Jurisprudence- II (Legal Concepts)
(L-2002)**

COURSE OUTCOME:- This course will help to develop the analytical view of post graduate students regarding the important legal concepts that have been helpful in developing the law.

**3. Law And Social Transformation In India
(L-2003)**

COURSE OUTCOME:- This course will augment the analytical of view of post graduate law students regarding the role of transformation in society and development of law.

**4. Human Rights
(L-2004)**

COURSE OUTCOME:- :This course will enhances the qualified view of post graduate students of law regarding the international/municipal legal framework for the protection of human rights.

LL.M. III" Semester

Group A

**1. Constitutionalism and Constitutional Development in India and England.
(L-3001)**

COURSE OUTCOME:- This course will supplements the comparative analytical view of post graduate law students regarding the concept of constitutionalism, development of constitutional law in India and England.

**2. Comparative and Cooperative Federalism India, America and Australia
(L-3002)**

COURSE OUTCOME:- This cause will supplement the understanding of post graduate law students regarding the comparative understanding of federalism.

**3. Civil and Political Rights:- Comparative Study of select Constitutions (India, United States of America and United Kingdom)
(L-3003)**

COURSE OUTCOME:- This course will augment the comparative understanding of civil and political rights ensured under various constitutions,

**4. Local Self Government Law
(L-3004)**

COURSE OUTCOME:- This course will acquaint the post graduate law students regarding analytical view of prevailing legislations regarding local self government.

LL.M. III" Semester

Group B

(Business Law Group)

**1. Contract -I (General Principles of Contract)
(L-3005)**

COURSE OUTCOME:-This course will augment the analytical understanding of post graduate law students regarding the general principal that are governing contractual relations.

**2. Contract -II (Specific Contract, Sales of Goods and Law of Partnership)
(L-3006)**

COURSE OUTCOME:- This course will further supplements the analytical understanding of post graduate law students regarding kinds of specific contracts, sales of goods and law relating to partnership & limited liability partnership.

**3. Company Law
(L-3007)**

COURSE OUTCOME:- This course will augment the understanding of post graduate students by developing an analytical views regarding various principles and practices governing corporate structure in India.

**4. Banking Law
(L-3008)**

COURSE OUTCOME:-This course will enhances the understanding of post graduate law students regarding the functioning & regulatory mechanism of governing banking sector in India.

LL.M. IIIrd Semester

Group C

(Criminal Law Group)

**1. History and Basic Principles of Criminal Law
[L-3012(A)]**

COURSE OUTCOME: This course will argument the understanding of post graduate law students regarding the historical development and introduction to the principles governing the criminal law system

**2. Penology and Treatment of offenders
(L-3010)**

COURSE OUTCOME:- This course will enhance the understanding of postgraduate students regarding the conceptual development of punishment system and the ways to handle offenders.

**3. Criminology and Privileged Class Deviance
(L-3011)**

COURSE OUTCOME:- This course will supplement the knowledge of postgraduate law students regarding the conceptual developments of crime, theories of crimes, developing trends in crime and privilege class deviance

**4. General Principles of Tort
(L-3012)**

COURSE OUTCOME: This course will augment the - analytical view of postgraduate law students regarding the general principles that are governing torts.

LL.M. IV th Semester

(Group A)

**1. Administrative Law of India- I
(L-4001)**

COURSE OUTCOME: This course will enhance the analytical view of postgraduate students regarding the principles that are helpful in the administration of system in India

**2. Administrative Law in India- II
(L-2002)**

COURSE OUTCOME: This course will augment the analytical view of post graduate students regarding the various kinds of remedies prevalent in case of violation of rights and the principles helpful in governance of administration

LL.M. IV Semester
Group B
(Business Law Group)

1. Insurance Law
(L-4003)

COURSE OUTCOME:- This course will augment the understanding of post graduate students regarding principles that are governing Insurance laws.

2. International Trade Law
(L-4004)

COURSE OUTCOME:- This course will augment the understanding of post graduate law students regarding the international and national initiatives and institution in protection and promotion of trade.

3. Economics Laws
[L-4004 (A)]

COURSE OUTCOME:- This course will supplements the understanding of students regarding foreign exchange management, competition laws, essential commodities and other spheres of economic laws.

LL.M. IVth Semester
Group C

(Criminal Law Group)

1. Specific Principles of Criminal Law (L-4005(A))

COURSE OUTCOME:- This course will develop the analytical understanding of post graduate students regarding various concepts, stages and kinds of liabilities under criminal law.

2. Specific Torts (L-4006)

COURSE OUTCOME:- This course will help the students to develop an comparative analytical view regarding the various kinds of torts.

PROGRAM OUTCOMES OF B.A.LL.B.

PO1. Legal Knowledge : To acquire & apply legal knowledge to the complex Socio-legal problems.

PO2. Professional Practice: to make students eligible to practice in Courts, Industries, Companies as legal practitioner.

PO3. Professional Skills: To possess professional skills required for legal practice such as Argument, Pleading, drafting, conveyancing etc.

PO4. Professional Ethics: To understand and apply principles of professional ethics of legal profession.

PO5. Legal research & legal reasoning: to develop legal research skills & legal reasoning and apply it during programme & in Legal practice.

PO6. Self-reflection & lifelong learning : To develop an attitude of self-reflection while learning & Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of changing legal contexts.

PO7. Self-employability: To provide a platform of self-employability by developing professional skills in legal industry.

PO8. Leadership skills: To develop leadership qualities amongst students.

PO9. Lifelong Learning: To make awareness about Constitutional legislative & societal transformation in society & to develop clinical abilities.

PO10. Lawyering skills: Every graduate will become skilled in legal research, written and oral communication, teamwork, advocacy, and problem-solving.

Course Outcome

B.A LL.B Ist Semester

(1) General English -I

(BL-1001)

COURSE OUTCOME:- This course will enhance the writing skills of student in law.

(2) Sociology -I

(BL-1002)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding society, Social Institution, legal system and social stratification.

(3) Political Science -I (Political Theory)

(BL- 1003)

COURSE OUTCOME:- This course will enhance the knowledge of students regarding conceptualization of political institutions of state.

(4) Economics - I

(BL-1004)

COURSE OUTCOME:- This course will develop the understanding of law students regarding the basic principles of economics and the concepts governing the Indian economics and various sectors responsible for development of nation.

(5) Indian History-I (Ancient and Modern Indian History)

(BL-1005)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding ancient and medieval ages of Indian history and various aspects of political and public administration in those ages.

B.A LL.B IInd Semester

(1) English- II (English Language and Legal Writing)

(BL-2001)

COURSE OUTCOME:- This course will develop the reading skills of law students and also enhance the knowledge of Latin Maxims and their usages in law.

(2) Sociology- II (Legal System and Society)

(BL-2002)

COURSE OUTCOME:- This course build up the understanding of law students regarding the various social institution, occupations, professions, social changes and relationship between law and society.

(3) Political Science –II (International Relations)

(BL-2003)

COURSE OUTCOME:- This course supplements the understanding of law students regarding various international institution and relations of India with other nations and international organization.

(4) Economics- II (Economic Problems and Politics in India)

(BL-2004)

COURSE OUTCOME:- This course will develop the understanding of law students in Indian economy and economic institutions.

(5) Law of Torts and Consumer Protection

(BL-2005)

COURSE OUTCOME:- This course will augment the knowledge of law students regarding the concept of civil wrong and remedies available.

B.A LL.B IIIrd Semester

(1) General English-III (Communication Skills)

(BL-3001)

COURSE OUTCOME:- This course will enhance the literary knowledge of law students through short stories and improve the knowledge of various types of sounds in English language.

(2) □□□□□□ - 1 (□□□□ और □□□□□□) (Optional Paper)

(BL-3002)

COURSE OUTCOME:- This course will supplement the knowledge of law students regarding evolution of national language and object of Hindi literature.

Law and Media-I (Optional Paper)

(BL-3002) (A)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the different types of media,

theories of communication, constitutional frame work, legal dimensions and self regulations of media.

(3) Political Science –III (Public Administration)

(BL-3003)

COURSE OUTCOME:- This course will augments the knowledge of law students regarding public administration, planning and policy of Indian government.

(4) Contract-I (General Principles of Contract)

(BL-3004)

COURSE OUTCOME:- This course will amplify the understanding of law students regarding the general principles of contract, law relating to certain relations resembling those created by contracts and different remedies in the form of compensation.

(5) Indian Legal and Constitutional History

(BL-3005)

COURSE OUTCOME:- This course will provide the wholistic development of legal system through various stages of legal & constitutional history.

B.A LL.B IVth Semester

(1) General English-IV

(BL-4001)

COURSE OUTCOME:- This course will enhance the literary reading and further supplement the writing skills of law students.

(2) **English-2** (Optional Paper)

(BL-4002)

COURSE OUTCOME:- This course will mature the understanding of law students regarding Hindi grammar, Hindi writing techniques and legal glossary.

Law and Media –II (Optional Paper)

(BL-4002)(A)

COURSE OUTCOME:- This course will amplify the understanding of law students regarding various legal efforts for stimulation of media and the various legislations regulating broadcasting and press in India.

(3) **Political Science -IV (Indian Government and Politics)**

(BL-4003)

COURSE OUTCOME:- This course will supplement the understanding of law students regarding the functioning and making of Indian political system.

(4) **Indian History –II (Modern Indian History)**

(BL-4004)

COURSE OUTCOME:- This course will enhance the knowledge of law students in the field of modern Indian history by acquainting law students through various renaissance

movements and contribution of various personality in national freedom movement.

(5) Law of Human Rights

(BL-4005)

COURSE OUTCOME:- This course will amplifies the knowledge of law students by making them understand the International/Municipal Legal framework for the protection of human rights.

B.A.LL.B. Vth Semester

1. Law of Crimes (Indian Penal Code)

[BL-5001]

COURSE OUTCOME:- This course will provide the understanding of Indian Penal System.

2. Family law –I (Hindu law)

[BL-5002]

COURSE OUTCOME:- This course enhances the knowledge of law students regarding the codified law for Hindus.

3. Constitutional Law of India -I (Nature of the Constitution and Fundamental Rights)

[BL-5003]

COURSE OUTCOME:- This course will provide the knowledge about the constitutional framework for the welfare of citizens.

4. Contract-II (Specific Contract and Law of Partnership)

[BL-5004]

COURSE OUTCOME:- This course will amplify the knowledge of law students regarding the specific contracts and law of Partnership.

5. Jurisprudence-I (Legal Theory)

[BL-5005]

COURSE OUTCOME:- This course will provide the knowledge of law students regarding various legal theories/schools that laid down the foundation of Legal System.

B.A.LL.B VIth Semester

1. Environmental Law

(BL-6001)

COURSE OUTCOME:- This course will amplify the knowledge of law students about the environmental protection and preservation through various legislations in India.

2. Family law –II (Muslim Law)

[BL-6002]

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding laws of Muslims in India.

3. Constitutional Law of India –II (Structure And Working of The Indian Constitution)

[BL-6003]

COURSE OUTCOME:- This course will amplify the understanding of law students regarding the functioning of various organs of State in India.

4. Public International Law

(BL-6004)

COURSE OUTCOME:- This course will make students eligible for understanding the relations of states at International level.

5. Jurisprudence-II (Legal Concepts)

[BL-6005]

COURSE OUTCOME:- This course will enhance the knowledge of law students through making them understand the conceptual development of Jurisprudence on which a legal system is based.

B.A LL.B. VIIth Semester

1. Labour and Industrial Law

(BL-7001)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding evolution and development of labour welfare laws in India.

2. Company Law

(BL-7002)

COURSE OUTCOME:- This course will augment the knowledge of law students regarding formation and governance of companies and corporations in India through various legislation .

3. Interpretation of Statutes

(BL- 7003)

COURSE OUTCOME:- This course will amplifies the understanding the law students regarding the interwoven interpretation of various legislation to achieve the ends of justice.

4. Insurance Law and Accident Claims (Optional Paper)

(BL-7004)

COURSE OUTCOME:- This course will enhances the knowledge of law students regarding the prevalence and regulations of various types of insurances in India.

Criminology and Penology (Optional Paper)

[BL- 7004 (A)]

COURSE OUTCOME:- This course will enhances the knowledge of law students regarding conceptual development of criminology and penology.

5. Professional Ethics, Accountancy of Lawyers And Bar Bench Relation (Practical Training)

BL-7005

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the code of conduct that regulates the profession of advocacy and relationship between bar and bench in India.

B.A LL.B. VIIIth Semester

1. Administrative Law

(BL-8001)

COURSE OUTCOME:- This course will amplify the understanding of law students regarding the governance of various principles of administration.

2. Law of Property and Easement

(BL- 8002)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the legislation that are regulating the various kinds of properties in India.

3. Intellectual Property Law (Optional Paper)

(BL-8003)

COURSE OUTCOME:- This course will supplement the knowledge of law students regarding conceptual development and protection available for Intellectual Property.

Law Relating to Women And Child (Optional Paper)

[BL-8003 (A)]

COURSE OUTCOME:- This course will enhance the acquaintance of law students regarding rights of women and children under various legislation in India.

**4. Banking Law Including Negotiable Instrument Act
(BL-8004)**

COURSE OUTCOME:- This course will supplement the knowledge of law students regarding the functioning and regulation of banking sector in India.

**5. Arbitration, Conciliation and Alternate Dispute Resolution
(Practical Training)**

BL- 8005

COURSE OUTCOME:- This course will expose the law students to practical training in the field of alternate dispute resolution mechanism accompanied with theoretical understanding.

B.A LL.B. IXth Semester

**1. Code of Criminal Procedure
(BL-9001)**

COURSE OUTCOME:- This course will enhance the understanding of procedural aspects regarding governance of criminal Justice system in India to students of law.

2. Civil Procedure Code and Limitation Act

(BL- 9002)

COURSE OUTCOME:- This course will enhance the understanding of procedural aspects regarding governance of civil law in India to students of law

3. Law of Evidence

(BL-9003)

COURSE OUTCOME:- This course will enhance the understanding of law students regarding relevance and usages of various kinds of evidence in the Indian legal system to meet the ends of justice.

4. Consumer Protection Law and Competition Act

(BL-9004)

COURSE OUTCOME:- This course will enhance the knowledge of students regarding the laws protecting and promoting consumer rights in India.

5. Drafting of pleading and Conveyancing (Practical Training)

[BL-9005]

COURSE OUTCOME:- This course will expose students to the practical training of drafting legal documents and preparing the pleading and observing Court- Proceedings.

B.A LL.B. Xth Semester

1. Land Laws

(U.P Revenue Code, 2006)

(BL-9006)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the various legislations governing the Agriculture land use and other kinds of issues relating to Agriculture land.

2. Law of Taxation

(BL-9007)

COURSE OUTCOME:- This course will augment the knowledge of law students regarding the prevalence of various of direct tax legislation in India.

3. Indian Judicial System (Optional Paper)

(BL-9008)

COURSE OUTCOME:- This course will enhance the understanding regarding administration of justice, judicial hierarchy, issues in judicial systems developed over a period of time.

Law of Trust, Equity and Fiduciary Relation (Optional Paper)

[BL-9008 (A)]

COURSE OUTCOME:- This course will supplement the knowledge of student regarding laws, principles and practices governing trust, equity and fiduciary relation in India.

4. Law Relating to Right to Information (Optional Paper)

(BL-9009)

COURSE OUTCOME:- This course will supplement the understanding of students regarding the various legislations of transparency and accountability in India.

Information Technology and Cyber Laws (Optional Paper)

[BL-9009(A)]

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the law governing the cyber sphere and information technology in India.

4. Moot Court, Pre-Trial Preparation and Participation in Trial Proceedings (Practical Training)

[BL-9010]

COURSE OUTCOME:- This course will give exposure to law students regarding the practices and procedure of court process through the practical training.

**B.A LL.B Ist Semester
Old Course**

(1) General English -I

(BL-101)

COURSE OUTCOME:- This course will enhance the writing skills of students in law.

(2) Sociology -I

(BL-102)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding society, Social Institution, legal system and social stratification.

(3) Political Science -I Political Theory

(BL- 103)

COURSE OUTCOME:- This course will enhance the knowledge of students regarding conceptualization of political institutions of state.

(4) Economics-I

(BL-104)

COURSE OUTCOME:- This course will develop the understanding of law students regarding the basic principles of economics and the concepts governing the Indian economics and various sectors responsible for development of nation.

(5) Indian History-I

(BL-105)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding ancient and medieval ages of Indian history and various aspects of political and public administration in those ages.**B.A LL.B IInd Semester**

Old Course

(1) English- II English Language and Legal Writing-I

(BL-201)

COURSE OUTCOME:- This course will develop the reading skills of law students and also enhance the knowledge of Latin Maxims and their usages in law.

(2) Sociology- II Legal System and Society

(BL-202)

COURSE OUTCOME:- This course build up the understanding of law students regarding the various social institution,

occupations, professions, social changes and relationship between law and society.

(3) Political Science –II International Relation

(BL-203)

COURSE OUTCOME:- This course supplements the understanding of law students regarding various international institution and relations of India with other nations and international organization.

(4) Economics- II Economics Problems and Politics in India

(BL-204)

COURSE OUTCOME:- This course will develop the understanding of law students in Indian economy and economic institutions.

(5) Law of Torts

(BL-205)

COURSE OUTCOME:- This course will augment the knowledge of law students regarding the concept of civil wrong for which the remedy is a common law action for unliquidated damages.

B.A LL.B IIIrd Semester

Old Course

(1) General English-III Communication Skills

(BL-301)

COURSE OUTCOME:- This course will enhance the literary knowledge of law students through short stories and improve the knowledge of various types of sounds in English language.

(2) □□□□□□ - 2 □□□□ और □□□□□□ (Optional)

(BL-302)

COURSE OUTCOME:- This course will supplement the knowledge of law students regarding evolution of national language and object of Hindi literature.

Law And Media-I (Optional)

(BL-302) (A)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the different types of media, theories of communication, constitutional framework, legal dimensions and self-regulations of media.

(3) Political Science –III Public Administration

(BL-303)

COURSE OUTCOME:- This course will augment the knowledge of law students regarding public administration, planning and policy of Indian government.

(4) Contract-I-General Principle of Contract (Section- 1 to 75)
(BL-304)

COURSE OUTCOME:- This course will amplify the understanding of law students regarding the general principles of contract, law relating to certain relations resembling those created by contracts and different remedies in the form of compensation.

(5) History of Courts and Legislature
(BL-305)

COURSE OUTCOME:- This course will supplements the understanding of law students regarding the history of courts and law making bodies in India.

B.A LL.B IVth Semester

Old Course

(1) General English-IV
(BL-401)

COURSE OUTCOME:- This course will enhances the literary reading and further supplements the writing skills of law students.

(2) □□□□□-2 □□□□□ □□□□□ □□□ □□□□□ □□□□ □□
□□□□□ (Optional)
(BL-402)

COURSE OUTCOME:- This course will supplements the knowledge of law students regarding evolution of national language and object of Hindi literature.

Law and Media –II (Optional)

[BL-402(A)]

COURSE OUTCOME:- This course will amplify the understanding of law students regarding various legal efforts for stimulation of media and the various legislations regulating broadcasting and press in India.

(3) Political Science -IV Indian Government & Politics

(BL-403)

COURSE OUTCOME:- This course will supplement the understanding of law students regarding the functioning and making of Indian political system.

(4) Human Rights (Protection and Remedies)

(BL-404)

COURSE OUTCOME:- This course will amplify the knowledge of law students by making them understand the International/Municipal Legal framework for the protection of human rights.

(5) Modern Indian History –II

(BL-405)

COURSE OUTCOME:- This course will enhance the knowledge of law students in the field of modern Indian history by acquainting law students through various renaissance movements and contribution of various personality in national freedom movement.

B.A.LL.B. Vth Semester

Old Course

1. Jurisprudence

[BL-501]

COURSE OUTCOME:- This course will provide the knowledge of law students regarding various legal theories/schools that laid down the foundation of Legal System.

2. Contract-II

[BL-502]

COURSE OUTCOME:- This course will amplify the knowledge of law students regarding the specific contracts and law of partnership.

3. Constitutional Law of India -I

[BL-503]

COURSE OUTCOME:- This Course will provide the knowledge about the constitutional framework for the welfare of citizens.

4. Hindu Law (Codified Law)

[BL-504]

COURSE OUTCOME:- This Course enhances the knowledge of law students regarding the codified law for Hindus.

5. Law of Crimes

[BL-505]

COURSE OUTCOME:- This Course will provide the understanding of Indian Penal System.

B.A.LL.B VIth Semester

Old Course

1. International Law

(BL-601)

COURSE OUTCOME:- This course will make students eligible for understanding the relations of states at International level.

2. Environmental Law

(BL-602)

COURSE OUTCOME:- This course will amplifies the knowledge of law students about the environmental protection and preservation through various legislations in India.

3. Constitutional Law of India –II

[BL-603]

COURSE OUTCOME:- This course will amplifies the understanding of law students regarding the functioning of various organs of State in India.

4. Muslim Law

[BL-604]

COURSE OUTCOME:- This course will enhances the knowledge of law students regarding laws of Muslims in India.

5. Transfer of Property and Easement

(BL- 605)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the legislation that are regulating the various kinds of properties in India.

**B.A LL.B. VIIth Semester
Old course**

1. Company Law

(BL-701)

COURSE OUTCOME:- This course will augment the knowledge of law students regarding formation and governance of companies and corporations in India through various legislation.

2. Labour Laws

(BL-702)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding evolution and development of labour welfare laws in India.

3. Interpretation of Statutes & Principles of Legislation

(BL- 703)

COURSE OUTCOME:- This course will amplify the understanding of law students regarding the interwoven interpretation of various legislation to achieve the ends of justice.

4. Insurance Law and Accident Claims

(BL-704)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the prevalence and regulations of various types of insurances in India.

5. Professional Ethics, Accountability for lawyers and Bar-Bench Relation

BL-705

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the code of conduct that regulates the profession of advocacy and relationship between bar and bench in India.

B.A LL.B. VIIIth Semester

Old Course

1. Administrative Law

(BL-801)

COURSE OUTCOME:- This course will amplify the understanding of law students regarding the governance of various principles of administration.

2. Arbitration Conciliation and ADRS

(BL- 802)

COURSE OUTCOME:- This course will expose the law students to practical training in the field of alternate dispute resolution mechanism accompanied with theoretical understanding.

3. Intellectual Property Law

(BL-803)

COURSE OUTCOME:- This course will supplement the knowledge of law students regarding conceptual development and protection available for Intellectual Property.

4. Banking Laws and Negotiable Instrument Act

(BL-804)

COURSE OUTCOME:- This course will supplement the knowledge of law students regarding the functioning and regulation of the banking sector in India.

5. Drafting of Pleading & Conveyancing

[BL-805]

COURSE OUTCOME:- This course will expose students to the practical training of drafting legal documents and preparing the pleading and observing Court- Proceedings.

B.A LL.B. IXth Semester

Old Course

1. Law of Evidence & Limitation Act

(BL-901)

COURSE OUTCOME:- This course will enhance the understanding of law students regarding relevance and

usages of various kinds of evidence in Indian legal system to meet the ends of justice.

2. Criminal Procedure Code

(BL-902)

COURSE OUTCOME:- This course will enhance the understanding of procedural aspects regarding governance of criminal Justice system in India to students of law.

3. Civil Procedure Code

(BL- 903)

COURSE OUTCOME:- This course will enhance the understanding of procedural aspect regarding governance of civil law in India to students of law

4. Consumer Protection Laws & Competition Act

(BL-904)

COURSE OUTCOME:- This course will enhance the knowledge of students regarding the laws protecting and promotion consumer rights in India.

5. Moot Court, Pre- Trial Preparations and Participation in Trial Proceedings

[BL-905]

COURSE OUTCOME:- This course will give exposure to law students regarding the practices and procedure of court process through the practical training.

**B.A LL.B. Xth Semester
Old Course**

1. Land Laws of U.P. (Uttar Pradesh Zamindari Abolition Act L.R. Act 1950 (U.P. LR Act 1901) (U.P. Imposition of Ceiling as Land holding Act 1960)

(BL-911)

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the various legislations governing the Agriculture land use and other kinds of issues relating to Agriculture land.

2. Law of Taxation

(BL-912)

COURSE OUTCOME:- This course will augment the knowledge of law students regarding the prevalence of various of direct tax legislation in India.

3. Cyber Laws

[BL-913]

COURSE OUTCOME:- This course will enhance the knowledge of law students regarding the law governing the cyber sphere and information technology in India

4. Indian Judicial System - Problems & Solutions

(BL-914)

COURSE OUTCOME:- This course will enhance the understanding regarding administration of justice, judicial hierarchy, issues in judicial systems developed over a period of time.

5. Public Interest Lawyering, Legal Aid and Para Legal Services

(BL-915)

COURSE OUTCOME:- This course will enhance the knowledge of law students through class room lectures including simulating exercise and party through extension programme like: Lok-Adalat, Legal Aid Camp, Legal Literacy Camp and Para Legal Training.

DEPARTMENT OF GEOGRAPHY

M.A./M.SC Geography Course

Semester	Course No.	Course Title
I	I	Geomorphology
	II	History of Geographical Thought
	III	Advanced Geography of India (Physical & Regional)
	IV	Natural Resource Management
Practical	V	Statistical Techniques in Geography
II	VI	Climatology and Oceanography
	VII	Laws, Models & Theories in Geography
	VIII	Advanced Geography of India (Socio-economic)
	IX	Regional Planning and Development
Practical	X	Advanced Cartography
III	XI	Recent Issues in Geography
	XII	Interdisciplinary Research Methods and Techniques
	XIII	Ecology and Environment
	XIV	Advanced Geography of Uttar Pradesh

Practical	XV	Advanced Surveying
IV	XVI	Population Geography
	XVII	Agricultural Geography
	XVIII	Urban Geography
	XIX(A)	Geography of Tourism OR
	XIX (B)	Geography of Rural Settlement OR
	XIX (C)	Dissertation
Practical	XX	Remote Sensing, GIS and GPS

Course outcomes of M.A./M.Sc Geography:

- ✓ Prepare students to demonstrate proficiency in theoretical and applied realms of geography.
- ✓ Make the students understand the contemporary environmental issues and underlying cause-effect relationships.
- ✓ Provide the ability to evaluate as well as solve geographic problems effectively through geospatial technologies.
- ✓ Students will be efficient in understanding the spatial problems and working towards sustainable environment through both an independent and collaborative system.
- ✓ Students will be prepared to apply their skills in professional careers for their career advancement.
- ✓ Explain the planet's physical processes and human interactions at varying spatiotemporal scales.
- ✓ Demonstrate proficiency in handling geospatial tools and techniques.
- ✓ Appreciate the relevance of geographical knowledge to everyday living and provide geographic insights on important societal issues.
- ✓ Identify current research trends within the breadth of geography and produce meaningful scholarly contribution.
- ✓ Create community awareness and demonstrate ethics in conducting geographical research.

Post Graduate Diploma in Remote Sensing and Geographical Information System Course

Semester – 1

Course Code	Title of The Paper
GIS – 1001	Principles of Remote Sensing & Image Interpretation
GIS – 1002	Photogrammetry and Cartography
GIS – 1003	Digital Image Processing
GIS – 1004	Aerial Photographs and Satellite Image (Practical)
GIS – 1005	Digital Image Analysis (Practical)

Semester – 2

GIS – 2001	Geographical Information System and Global Positioning System
GIS – 2002	Thematic Application of Remote Sensing and GIS
GIS – 2003	Geographical Information System (Practical)
GIS – 2004	Thematic Cartography (Practical)
GIS – 2005	Project Report

Course outcomes of P.G. Diploma in Remote Sensing & GIS:

- ✓ To gain knowledge about the different satellites, their basic characteristics and their application in various fields of remote sensing.
- ✓ Learn about the applications of remote sensing in geological mapping, environmental assessment, archeology, soil mapping and water resources management.
- ✓ Learn about the applications of GIS in e-Governance, telecommunication, transportation, facilities and asset management.
- ✓ Acquire skills to rectify, enhance satellite imageries and use them to generate land use land cover maps.
- ✓ Comprehend methods for data modelling, DEM generation and use in remote sensing applications.
- ✓ To augment the knowledge and expertise gained at UG and PG levels.
- ✓ To enhance employment opportunities and career prospects in industry and academia.
- ✓ To acquire additional training simultaneously in multiple fields.
- ✓ To gain insight into the functioning of RS-GIS in the public sector and corporate world

DEPARTMENT OF TOXICOLOGY

M.Sc. Toxicology (2017-18)

Course Outcome:

Study of poisons is known as toxicology. There is old saying that “the dose makes the poison” everything is toxic at some level which makes the study of toxicology relevant to a number of areas including human health, the environment, drug development and human safety. Toxicology is the science of chemical safety and to identify potential harmful effects of chemical compounds to humans, animals, and environment. Appropriate experimentation and expert judgment allows to minimize the probability of occurrence of adverse effects. Toxicology is a multidisciplinary science based upon physiology, biochemistry, molecular biology, chemistry, pharmacology, pathology, epidemiology and several others. This course provides the knowledge of toxicological science in sixteen courses divided in four semesters as follows:

Ist Semester:

CH- 1582 - Principles of Toxicology: It involves the different principles of toxicology, different chemical, poisons, toxicity mechanisms, their prevention aspects, case studies etc.

CH- 1583 - Environmental Toxicants: To teach different chemicals of domestic, industrial and agricultural practices their environmental persistence, biomagnifications in ecosystems, ecotoxicology. This course includes different types of pollutions as Air, water, soil, radioactive pollution, Bio medical wastes. Different waste decomposing techniques etc. also teach in this course.

CH- 1584 - Systemic Toxicology: This course gives outcome of body systems against toxic occupational, industrial and domestic chemicals, poisons, environmental pollutants. Body defends itself and perform the function of detoxification by vital organs of Respiratory, circulatory, digestive and excretory systems.

CH- 1585- Cell and Molecular Toxicology: It provides knowledge about cellular and molecular toxicity. The chemicals which cause toxicity in cell and gene expression.

IInd Semester:

CH- 2582- Immunotoxicology: Provides knowledge of immune system of body and effects of chemicals and poisons on immune system.

CH- 2583- Biochemical Toxicology: Provides knowledge of effects of chemicals, xenobiotics and poisons on biochemical system of body and essential biochemical of body as carbohydrate, protein and fats.

CH- 2584- Toxicants and Carcinogenesis: To teach about chemicals which cause mutation in gene expression which ultimately lead to cancer in different organs.

CH- 2585- Forensic Toxicology: This course provides knowledge about chemicals and poisons of ancient and modern time which are used in crime and intentional uses as in suicidal cases. The exposure of chemicals in short and prolonged time causes toxicity and ultimate death as doses increase. This course also performs knowledge about various tests in criminal investigations, disputed cases of paternity and maternity, suicidal cases, murder cases etc. (Physical parameters and chemical tests).

III Semester:

CH- 3582- Toxicology of Heavy Metals: It provides knowledge of heavy metals like arsenic, lead, mercury, cadmium and copper toxicity in various practices of human life, animals and environment.

CH- 3583- Toxicology of Pesticides and Insecticides: This course includes study of various types of pesticides and insecticides. It includes pesticides of ancient time to modern time as inorganic pesticides to organic pesticides.

CH- 3584- Toxicology of Organic Solvents: This paper gives information about some organic solvents used in various industries. Especially organic solvents used in paint industry, cosmetic industry and petroleum products etc. The toxicity of solvent chemicals and their adverse effects on animals humans and environmental systems.

CH- 3585- Regulatory Toxicology: It includes the regulatory aspects of different agencies of international and national levels. These agencies regulate the uses and their toxicity aspect of different chemicals.

IV Semester:

CH- 4582-Tools and Techniques: This course provides the knowledge of instruments and techniques used in these all courses of toxicological sciences.

CH- 4583-Applied Toxicology: It includes the applied aspects of toxicity of different chemicals and poisons. It also provides knowledge of about veterinary toxicology, medical toxicology and cosmetic toxicology.

CH- 4584-Occupational and Industrial Toxicology: To teach about chemicals of different occupations and practices. There are manufacturing of various chemicals in different industries and their exposure in workers and other non target humans and animals.

CH- 4585-Experimental Design and Biometry: Provides knowledge about to set experiments to observe the chemicals adverse effects at different doses in various animals. It provides the optimum dose that may cause toxicity or may be non toxic to animals. It also provides the significance of test and errors in experiments.

INSTITUTE OF BUSINESS STUDIES, SRIET

(Ch. Charan Singh University Campus, Meerut-250 005)

Tel. : 0121-2770083, 2774974



“INSTITUTE OF BUSINESS STUDIES” (2017-18)

Vision

To achieve this ideal of the MBA graduate, consider a two-year program that develops students at four levels. These four levels are listed in rising order of "value-added" to the student, and to corporate partners.

Level 1. Basic understanding of core tools and concepts. The task of the student here is to acquire "the basics" of the Areas. The intellectual challenge is one of induction: to assemble a working grasp of core knowledge from its various parts.

Level 2. Applying good practice. The task of the student here is to develop sound judgment about the efficient and effective application of core knowledge. To "apply" means not only to use the tools correctly, but also to extract practical insights and actionable recommendations from the results of those tools. In our current program, this is as high a level of development as many of our students achieve.

Level 3. Modification and reinvention of practice: building critical judgment. The task of the student here is to develop an inquiring and challenging mind-set. Skills of advanced problem identification, clinical probing, capacity for independent and original learning, and systems thinking are evidence of attaining this level. Critical thinking *should* be a desideratum of any excellent university education.

Level 4. Creating new ways of thinking and new analytical tools. This highest level is characterized by an ability to invent: to take creative leaps from a base of commonly understood core knowledge, which has been applied well through an inquiring and challenging mind-set.

Mission

Developing sensible, responsible and insightful leaders among the students by fostering excellence in the classroom through activity-based learning that provides exposure and instills employability.

- ❖ Providing Quality education, student centered teaching learning process and state of the art infrastructure for professional aspirants hailing from both rural and urban areas.
- ❖ Evolving this organization into a centre of Academic and Research Excellence.
- ❖ Imparting Technical Education that encourages independent thinking, develops strong domain knowledge and positive attitude towards holistic growth of young minds.

Out come of MBA Programme 2017-18

- Increase in perceived value.
- A good chance to change your career path.
- Learn essential skills to start on your own business.
- Jump on the corporate ladder.
- A large number of opportunities and increased earning.
- Acquired knowledge.
- Integrative experience and experiential learning.
- Strategic and innovative thinking and analysis skill to enable effective opportunity identification, problem solving and decision making.

Course out come of Marketing specialization

- Outcome of marketing course is a step beyond performance based marketing. It is not just about finding a qualified customer, but a customer who is actually going to use your product and enjoy it.
- Student will demonstrate strong conceptual knowledge in fundamental area of marketing.
- Student will demonstrate effective understanding of relevant functional area of marketing.

Course out come of Finance specialization

- Finance specialization which will enhance your knowledge about financial skills business, increased knowledge about economy of the country.
- MBA in finance will open your way into different industries like corporate sector, banking, real estate business, investment service etc.

Course out come of Human Resources specialization

- Effectively manage and plan key human resource function within organization, examine current issues, trends, practices and processes in HRM.
- Contribute to employee performance management and organizational effectiveness.
- Demonstrate an understanding in key terms, theories / concept and practice within the field of HRM.

Provide innovative solution to problems in the field of HRM.

Course out come of International Business.

1. Explain the concept in international business with respect to foreign trade / international business.
2. Apply the current business phenomenon and to evaluate the global business environment in terms of economic, social and legal aspects.
3. Analysis the principle of IB and strategies adopted by firm to expand globally.
4. Integrate concept in international business concept with functioning of global trade.

S.No.	YEAR (2017-18)	SUBJECT NAME	COURSE OUTCOME	Mapping of course outcome with PO and PSO
1	2017-18	Principles & Practice of Management	<ul style="list-style-type: none"> • Imparting understanding on nature of managerial job in terms of principles, skills and roles. • Familiarizing students with the basic elements of management process. • Helping learners evolve an integrated perspective of the discipline of management and interlinkages of this course with other core and functional area courses. 	
2	2017-18	Managerial Economics	<ul style="list-style-type: none"> • To create an understanding of the relevant concepts and analytical tools of economic theory. • To develop economic way of thinking. • To enable the learners apply the economic concepts and tools in managerial decision – making 	
3	2017-18	Accounting for Managers	<ul style="list-style-type: none"> • To provide a comprehensive treatment of accounting principles, technique and practices. • To get the students acquainted with fundamental concepts and processes of accounting so 	

			that they are able to appreciate the nature of item presented in the annual accounts of an organization. • To have a basic understanding of significant tools and techniques of financial analysis, which are useful in the interpretation of financial statements	
4	2017-18	Quantitative Techniques	. To compute and understand the measures of central tendency, symmetrical and asymmetrical distribution, patterns. . To understand the time series analysis and to compute index number. . Performing Correlation & Compute the equation of simple regression line from a sample data and interpret the slope and the intercept of the equation . To understand the probability concepts and perform probability theoretical distributions . Use Estimation Theory and Hypothesis Testing concepts & perform various parametric and non parametric tests.	
5	2017-18	Computer Applications in Business	The objectives of this course include developing an appreciation of different software & Hardware system available in the industry among the participants and build up the experience of computer usage in business organization with specific reference to database, Networking & Communication, spreadsheet & Operating System .	
6	2017-18	Business Laws	urse Objectives: • To provide a general introduction to the legal environment that affects individuals, businesses, and business transactions. • To create an understanding of the basic legal terminology, and	

			<p>concepts; and application of legal reasoning to situations for forming conclusions.</p> <ul style="list-style-type: none"> • To gauge the impact of individual and corporate decisions on human life, society, and the environment • To examine the ethical climate in which managers have to function and thus build a framework for resolving ethical dilemmas. 	
7	2017-18	Business Communication	To encourage the all round development of students by focusing on soft skills and to make student aware about the importance, the role and the content of soft skills through instruction, knowledge acquisition and practice.	
8	2017-18	Workshop on Soft Skills	The objectives of the Skills Soft Training Workbook are to give each student a realistic perspective of work and work expectations, to help formulate problem solving skills, to guide students in making appropriate and responsible decisions, to create a desire to fulfill individual goals, and to educate students about unproductive thinking, self-defeating emotional impulses, and self-defeating behaviors.	

S.No.	YEAR (2017-18)	SUBJECT NAME	COURSE OUTCOME	Mapping of course outcome with PO and PSO
1	2017-18	Organizational Behavior	<ul style="list-style-type: none"> • Providing the students a conceptual framework of understanding, analyzing, and Predicting behavior • Helping them to understand OB in a global scenario Familiarizing about the challenges and opportunity for OB • Helping the students 	

			to gain an understanding of dynamics of complex work situations.	
2	2017-18	Human Resource Management	<ul style="list-style-type: none"> • To familiarize the students with Human Resource Management. Concepts and functions. • To help the students in identifying problems in the management of Human Resources. • To acquaint the students with different strategies and legislations used in management of HR related issues in the organization. 	
3	2017-18	Production & Operations Management	This course aims at acquiring the students with the basic management decisions with respect to production function and designing of a production system .	
4	2017-18	Financial Management	<ul style="list-style-type: none"> • To familiarize students with basic concepts used in FM • To provide basic understanding of working capital management • To introduce project appraisal mechanism and basics of dividend decisions 	
5	2017-18	Marketing Management	<ul style="list-style-type: none"> • To familiarize with the basic concepts, and techniques of marketing management. • To understand the behavior of consumers. • To create awareness of marketing mix elements. • To analyses and solve marketing problems in the complex and fast changing business environment. 	
6	2017-18	Research Methodology	<ul style="list-style-type: none"> • To provide students an insight into various sources of business research data and examine processes for collecting data and analyzing the same. • To learn how to prepare and present marketing research reports. • To develop skills to evaluate 	

			the changing nature of business research and assess the contribution of these changes to actionable business research.	
7	2017-18	Work Shop on Information Technology & Computer Proficiency	This course offers a good understanding of basics of Information Technology. The students will proficiency in the use of personal computers, specifically in the use of spreadsheets and database packages will enhance. The curriculum is so designed as to provide required expertise in the use of personal computer as an effective management tool.	
8	2017-18	Quiz & Seminar	<ul style="list-style-type: none"> • Awareness of how to use values in improving one's own professionalism. • Learning about personal and communication styles for team building. 	

S.No.	YEAR (2017-18)	SUBJECT NAME	COURSE OUTCOME	Mapping of course outcome with PO and PSO
1	2017-18	Business Policy & Strategic Analysis	This course deals with corporate level Policy & Strategy formulation areas. This course aims to developing conceptual skills in this area as well as their application in the corporate world.	
2	2017-18	Entrepreneurship and Small	<ul style="list-style-type: none"> • To create understanding of the concept and process of entrepreneurship • Management of small business and other types of small scale enterprises. • To have an understanding of the major causes and remedial actions for SSI sickness 	
3	2017-18	Performance and Reward Management System	Articulate the benefits of using a performance development plan and the consequences of not having	

			<p>one in place.</p> <ul style="list-style-type: none"> • Distinguish the elements of an effective, integrated performance development system. • Devise “SMART” annual performance objectives (e.g., objectives that are specific, measurable, attainable, relevant and track able). • To familiarize the students with the concept of competency mapping and understanding its role in career development. 	
4	2017-18	Industrial Relations and Labour Law	<p>To provide conceptual framework of Industrial Relation</p> <p>To make students aware with the Indian Labour legislation</p> <p>To make students aware with the basic requirements and mandate of labour legislations</p>	
5	2017-18	Training and Development	<p>The course aims at exposing the learner to the Concept and practice of training and development in the modern organizational setting through the pedagogy of case discussions and recent experiences. The design of the course aims to provide an experimental, skill- based exposure to the process of planning, organizing and implementing a training system.</p>	
6	2017-18	Negotiation and Conflict Management	<p>To familiarize the learners with the dynamics of collective bargaining in the industrial relations environment in the country and to impart them relevant skills in effective negotiations so as to help in managing unions effectively.</p> <p>.</p>	
7	2017-18	Sales & Distribution Management	<p>To build knowledge, understanding, and skills in Sales and Distribution management.</p> <ul style="list-style-type: none"> • Enable 	

			development and implementation of Sales and Channel management strategies. • Help analyze decision alternatives and criteria in the context of realistic problem situations in Sales and Channel management.	
8	2017-18	Consumer Behavior	<ul style="list-style-type: none"> • Define external influences on buying behavior (culture, demographics, social status, reference groups, purchasing groups, management influence). • Define internal influences on buying behavior (belief, attitude, perception, preference, personality, and emotions). • Explain the decision making process and how it relates to consumers and industrial buyers. 	
9	2017-18	Marketing of Services	The objective of the course is to develop an understanding of services and service marketing with emphasis on various aspects of service marketing which make it different from goods marketing.	
10	2017-18	Digital Marketing	<ul style="list-style-type: none"> • To help students understand digital marketing practices, inclination of digital consumers and role of content marketing. • To provide understanding of the concept of E-commerce and developing marketing strategies in the virtual world. • To impart learning on various digital channels and how to acquire and engage consumers online. 	
11	2017-18	Security Analysis and Portfolio Management	Understanding of investment theory will be stressed and tied in with discussion of applicable techniques such as portfolio selection. • The course material will cover	

			<p>formulae that can be applied in different business situations regarding active portfolio management. • To expose the students to the concepts, tools and techniques applicable in the field of security analysis and portfolio management.</p>	
12	2017-18	Corporate Tax Laws and Planning	<p>• The present course aims at familiarizing the participants with the principles, problems and structure of different types of business taxes in Indian • Acquaint about the relevance of direct and indirect taxes in taking business decisions. • A broad understanding or role of taxation in economic and industrial development of an economy • A student of taxation will have to make a detailed study of tax policy and tax in India.</p>	
13	2017-18	Working Capital Management	<p>• To have a basic understanding of the concept and importance of sound working capital strategies of a firm. • To have an understanding of the impact of working capital policies relating to Cash management, inventory and receivables management on firm's profitability. • To gain an insight into the sources of working capital financing.</p>	
14	2017-18	Financial Derivatives	<p>• To make students aware of different types of Derivatives • To develop an understanding amongst students of financial derivatives and associated regulatory framework • To have an understanding of the derivative tools such as options, futures and their application to hedging</p>	

15	2017-18	International Marketing	<ul style="list-style-type: none"> • Provide understanding of the decision variables a marketing manager may use in an international marketing environment. • To gain experience in developing international marketing strategies. • Provide understanding of product and pricing decisions appropriate for international market. • Develop the basic skills needed to develop an international marketing communications plan and strategy, 	
16	2017-18	International Logistics Management	<ul style="list-style-type: none"> • To gain a working understanding of logistics principles • To introduce key activities performed by the logistics functions. • To understand the aspects of shipping industry and freight system • To understand the ports facilities and global air transportation. • To understand the role and importance of information and communication technology in logistics management. 	
17	2017-18	Export Import Documentation	<ul style="list-style-type: none"> • The basic objective of this course is to provide to the country a steady stream of competent young men & women with the necessary knowledge, skills and foundations for acquiring a wide range of rewarding careers into the rapidly expanding world of Import & Export Management • To promote basic understanding on the concepts of export and import; documentations to enable them to realize the impact of documentations. 	
18	2017-18	Cross Cultural Management	<ul style="list-style-type: none"> • To consider the nature of intercultural communication • To learn to think across 	

			<p>cultural differences • To experiment with different ways of acting in cross-cultural situations • To reflect on the cultural foundations of economic systems and of organizational practices</p>	
19	2017-18	GD, Presentations and Mock Interviews	<p>It is a good way to engage the participants in a fruitful discussion</p> <p>Group discussion generates a creative thinking in all participants, something beyond the obvious answers and solution to a specific problem</p> <p>Generate more ideas and a structured presentation of a topic</p> <p>Improves analytical abilities to think on a particular given topic</p> <p>Enables profound and in-depth understanding of the subject</p>	
20	2017-18	Summer Training Report Evaluation and Viva-Voce	<p>The purpose of Industrial Training is to expose students to real work of environment experience and at the same time, to gain the knowledge through hands on observation and job execution. From the industrial training, the students will also develop skills in work ethics, communication, management and others. Moreover, this practical training program allows students to relate theoretical knowledge with its application in the manufacturing industry. The objectives of industrial training are:</p>	

			<p>To provide students the opportunity to test their interest in a particular career before permanent commitments are made.</p> <p>To develop skills in the application of theory to practical work situations.</p> <p>To develop skills and techniques directly applicable to their careers.</p> <p>Internships will increase a student's sense of responsibility and good work habits.</p> <p>To expose students to real work environment experience gain knowledge in writing report in technical works/projects.</p> <p>Internship students will have higher levels of academic performance.</p> <p>Internship programs will increase student earning potential upon graduation.</p> <p>To build the strength, teamwork spirit and self-confidence in students life.</p>	
21	2017-18	Business Environment	<ul style="list-style-type: none"> • To provide an in-depth understanding of the various elements/facets of business environment. • To equip with tools and perspectives to analyses the effects of the various elements of business environment on internal organization of business. • To enable the learners to infer the implications of the emerging trends and issues on businesses. 	
22	2017-18	Operation Research	<ul style="list-style-type: none"> • To formulate LPP and Obtain Graphical Solutions & Acquire General idea of the Simplex method. • To understand and solve transportation & assignment models. • To know optimal 	

			sequence model and understand concepts of queuing theory. • To identify right time for replacement of equipment and understand project management techniques	
23	2017-18	Research Project Report	Research can be thought as an organized approach including enunciating the problem, forming a hypothesis, gathering data, analyzing the facts and reaching certain conclusions, either in the form of solution for the concerned problem or in certain generalizations for some theoretical formulation. <i>Research objectives</i> are actually a specification of the final reason behind undertaking research in the first place.	
24	2017-18	Comprehensive Viva (CV)	To analyze the overall performance of the students through certain questions and tasks performed during the course curriculum.	

DEPARTMENT OF HINDI

Department of Hindi (2017-18)

STUDENT PERFORMANCE AND LEARNING OUTCOMES (2017-2018)

Name of Course	Subject	Syllabus	Outcome
M.A.	Hindi	<p>Sem. Ist</p> <p>CO 1 हिंदी साहित्य का इतिहास</p> <p>CO 2 प्राचीन एवं पूर्व मध्यकालीन काव्य</p> <p>CO 3 नाटक एवं रंगमंच</p> <p>CO 4 प्रयोजनमूलक हिंदी</p> <p>Sem. IInd</p> <p>CO 1 उत्तर मध्यकालीन काव्य</p> <p>CO 2 कथा-साहित्य</p> <p>CO 3 कथेतर गद्य साहित्य</p> <p>CO 4 भाषा विज्ञान एवं हिंदी भाषा</p> <p>Sem IIIrd</p> <p>CO 1 आधुनिक काव्य (छायावाद पर्यंत)</p> <p>CO 2 भारतीय काव्यशास्त्र</p> <p>CO 3 विशिष्ट रचनाकार (कोई एक विकल्प) (क) कबीरदास, (ख) सूरदास, (ग) गोस्वामी तुलसीदास, (घ) जयशंकर प्रसाद, (ङ) मुंशी प्रेमचंद, (च) सच्चिदानंद हीरानंद वात्स्यायन 'अज्ञेय'</p> <p>CO 4 पत्रकारिता-प्रशिक्षण</p> <p>IVth</p> <p>CO 1 छायावादोत्तर काव्य</p> <p>CO 2 पार्श्वकालीन काव्यशास्त्र</p> <p>CO 3 विशिष्ट साहित्य-धारा (कोई एक विकल्प) (क) भारतीय साहित्य, (ख) कौरवी लोक साहित्य, (ग) प्रवासी हिंदी साहित्य</p> <p>CO 4 हिंदी आलोचना</p>	<p>The Syllabi are based on UGC guidelines and are designed to prepare the students for the basic degree in the subject as well as for the various competitive examinations. The department is keenly working in various new areas of Literature, Language, Media and Mass Communication and Organizes seminars, debates, poetry and story competitions for students of the department as well as for the whole university students for developing creative writing skills. For the students of the department, competitions are organized from time to time. The department is equipped with a departmental library and computer laboratory, a language laboratory and media laboratory.</p> <p>To learn all this Syllabus in classroom enhance the potential of new Students from remote areas. Students develop their logical capacity, writing skill and improve their presence. Computer Knowledge for P.G. Students are necessary. We teach them computer on primary level as well as secondary level.</p>
Pre. Ph.D.	Hindi	<p>1 शोध-प्रविधि और प्रक्रिया</p> <p>2 हिंदी साहित्य की वैचारिक पृष्ठभूमि</p>	<p>In research Methodology Pre. Ph.D. Students learns how to made synopsis and analyses data. Research proceedings are very important. Philosophy always based on logic and how to analyse the subjects. So, students become very logical competent and directional.</p>

DEPARTMENT OF JOURNALISM AND MASS COMMUNICATION

Programme Outcomes

P.G. Diploma in Film Studies

This innovative P.G. Diploma in Film Studies is designed for students desirous of taking up careers in Film Industry. The Course intends to provide the students with the necessary skills required to understand the history, economics, genres and technical aspects of films. The Course aims to offer an in depth understanding of film criticism, theory and techniques. The curriculum is designed to familiarize the students with both the rudiments of film form and the most advanced theories of film practice. This course is an introduction to the reading and comprehension of film language and to cinema as institution.

Post Graduate Diploma in Public Relations and Advertising

In the era of Information revolution, Public Relations and Advertising is playing a vital role in the field of Government, Private and Corporate Sector. P.G. Diploma in Public Relations and Advertising is a career oriented course. This course is full fill the requirements of students regarding their carrier opportunities in various sectors. Working in PR or Advertising enables persons to explore exciting career opportunities. Students are able to use their creativity fully and improve their skills which help them in their careers. This course allows students to maintain good relations with several people and form well relationship. It not only helps in future career but also increase the goodwill of the person.

Certificate course in Mobile Journalism

This innovative certificate course in Mobile Journalism popularly known as MOJO is designed for students with passion for entrepreneurship in Journalism. The Course intends to provide the students with the necessary skills required to understand the history, economics, techniques and prospects of Mobile Journalism. The Course aims to offer an in depth understanding of Mobile Journalism through social media and other streaming platforms. Some new developments in technology are fascinating enough to attract anyone interested in journalism. The course is designed to familiarize students with all the current and upcoming advancement in technology concerning mobile journalism.

BA JMC

The Course (B.A. in Journalism and Mass Communication) is designed to offer comprehensive fundamental training in various fields of Mass Communication like: Print Media, Radio, Television, Photo Journalism, New Media, Advertising, Public Relations, Corporate Communication, Media Management, Development Communication and more. The objective of B.A. (Journalism and Mass Communication) is to enable the students to understand the concept, scope and significance of mass communication and its techniques; to familiarize and train the students with media techniques by affording them an exposure to contemporary media skills and to provide an opportunity to pursue their areas of interest in this educational stream to go for a carrier.

MA JMC

In an era of information explosion, Journalism and Mass Communication is playing a vital role in spreading information and inducing change as well as in maintaining the system of society. To fulfill these goals systematic education of journalism and mass communication has become inevitable. MJMC is a carrier oriented course spread over four semesters (2 years). The objective of MAJMC is to enable the students to understand the concept, scope and significance of mass communication and its techniques; to familiarize and train the students with media

techniques by affording them an exposure to contemporary media skills and to provide an opportunity to pursue their areas of interest in this educational stream to go for a career.

Ph.D.

Ph.D. in Journalism and Mass Communication aims at development of research skills in the field of Journalism and Mass Communication. This programme focuses on increasing the capacity of scholars and professionals in research activities.

DEPARTMENT OF COMMERCE

COURSE OUTCOME

The programme has been designed to promote understanding of the issues confronting the business world and the economy as a whole.

It will help the students to understand various systems, policy framework, and strategies needed to administer the rapid changes in an organization's globally-oriented environment. This program will instil in the students the knowledge and capability of understanding the business world and its complexities. It will also develop the ability and competence to have a problem-solving approach towards the issues which accompany the dynamism attached to the business world.

PROGRAMME OUTCOME

The knowledge of different specializations in Finance, Marketing and Human Resources Management with the practical exposure provide Industries, Banking Sectors, Insurance Companies, Financing companies etc well trained professionals who meet their requirements.

With the thorough knowledge of finance and commerce; Students can independently start up their own businesses.

The curriculum of B.Com. (Hons.) Degree provides a carefully selected subject combination of Accounting, Economics, Finance, Management, Tax, Marketing and Law etc which aims to nurture the students in intellectual, personal, interpersonal and social skills focusing on Holistic Education and development of the students.

DEPARTMENT OF FINE ARTS

Course outcome

Course name : Master Of Fine Arts

Stream: Drawing and Painting

Program Outcomes relates to the skills, knowledge, attitude and behaviour that students acquire through the program.

Knowledge of different Arts: Knowledge of painting, photography, sculpture, artistic craft-based media, ceramics and metal as well digital technology such as three-dimensional modelling and printing, to find an area that favors the expressive style.

Problem analysis: Identify, formulate, research literature, and analyze art problems historically as well as in modern perspectives to arrive at substantiated conclusions using techniques of research, ideas, field survey.

Development of solutions: Solutions are developed for aesthetic issues or problems so that art curriculum can be designed in a way that artists, professionals, art historians, critics, researchers and students can be benefited.

Modern tool usage: Create, select, and apply appropriate research techniques and resources to discover new research and give solutions to the artistic problems with an understanding of the limitations.

Different art techniques: Understanding of applicable techniques and procedures in a multiplicity of pictorial media.

Historical and contemporary perspectives: Knowledge of varied art forms, painters and art pieces from diverse historical and contemporary contexts.

Analyses of different art pieces: Art history across ethos and period, numerous perspectives, understanding of ethnic perspective.

Creativity: Inspire towards creative and experimentations.

Employability: Offer wide possibilities of employability in the field of artistry, sculpture, printing, photography.

Art & Society: Apply reasoning informed by the contextual knowledge to assess socio-cultural & political issues and the consequent responsibilities towards the society.

Ethics: Apply ethical principles and commit to moral & professional ethics and responsibilities bounded by society.

Life- long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of art field.

To produce professional artists for undertaking in educational institutes, art colleges and universities.

To train students for entrepreneurship and vocational guidance

DEPARTMENT OF PSYCHOLOGY

Session- 2016-2017

Session- 2017-2018

Session- 2018-2019

PROGRAM: MA Psychology

Program Outcome

MA is offered as the primary postgraduate degree in Psychology. In 2016-17 the CBCS mode was adopted and implemented. The programme outcomes then were:

PO 1: Students understand and analyze the various theories of Psychology

PO 2: Students know and analyze the recent researches in different areas of Psychology

PO 3: Students can carry out tests and experiments on different topics of Psychology

Course Outcome

Following were the course objectives

Semester I

Paper I- Fundamentals of Psychology

- Students acquainted with basic psychological processes and related concepts and theories to understand behaviour and cognition.

Paper II- Research Methods

- The paper familiarise the students with the meaning, objectives and significance of research, different methods and techniques used in data collection in researches.

Paper -III- Statistics and Experimental Designs

- To get the students acquainted with the statistical concepts and methods in Psychology and to create understanding about different types of design employed in Psychological Researches.

Paper IV- Physiological Psychology

- To acquaint with the structure and function of nervous system, relationship between brain and behavior, internal mechanism of hunger, thirst, reproductive behavior and mechanism of hormonal control.

Semester -II

Paper –I- Cognitive Psychology

- Aimed at creating understanding and knowledge about cognitive aspects of behavior such as attention and perceptual process, memory, language and speech production, thinking problem solving and decision-making.

Paper –II- Fundamentals of Psychometry

- To gain familiarity with Psychometry and psychological measurement, nature, uses, criteria of psychological test, and the steps used in test construction, item analysis and application of the test is the main objective of this course.

Paper –III- Theories of Personality

- This course is intended to present the knowledge about nature and issues of personality, different approaches such as cognitive, learning, triguna and to give acknowledge of recent advances in personality research.

Paper –IV- Guidance and Counselling

- The aim is to understand the basic knowledge about counselling and guidance in different settings and having a practical view about counselling process in different settings.

Semester -III

Paper -I- Health Psychology

To gain familiarity with Meaning of Health in Socio- Cultural Context, Stress and Coping Behaviour, Behavioural Health, Resources Promoting and Maintaining Mental Health

Paper II- Psychopathology

- To get the students acquainted with the nature and classification of Psychological disorders and Therapeutic Approaches.

Paper III- Social Psychology

- To create understanding among the students about social behaviour, social interaction, perception, aggression and violence

Paper IV- Positive Psychology

- This course is aimed at presenting the positive outlook and approaches to behavioural aspects of people, basic concepts and criteria of positive health and happiness and emotional competence in human life.

Semester -IV

Paper -I- Clinical Psychology

- To get the students acquainted with Meaning of Psycho- Diagnosis, Prognosis and Clinical Assessment .

Paper -II- Forensic Psychology

- The students acquainted with Meaning and significance of forensic psychology as a profession.

Paper -III- Para Psychology

- To get the students acquainted with Meaning and significance of parapsychology and its significance in behaviour.

Paper -IV- Industrial and Organizational Psychology

- To create understanding and awareness about the nature of fundamental issues related to human behavior and industrial and organization setting.

Program- M.Phil

Program Outcome

The MPhil program aimed to train students for research and teaching in Psychology. Initially, all doctoral candidates completed an M Phil before venturing to do PhD. However, in 1974, M Phil was delinked from PhD, and MPhil became a teaching degree. The MPhil has been only a research oriented degree, and most students who completed an M Phil later on joined a PhD programme. The syllabi was revised in 2016. Following were the outcomes.

PO 1: Students understand various research methods in Psychology

PO 2: Students select a research problem, do the necessary review, frame the hypotheses, and test them using appropriate techniques

PO 3: Student can develop an insight about theories of psychology and its implication in the present researches.

PO 4: Student can learn more about new areas of psychology and their use in human life.

Course Outcome

1st Semester

Course: I - Research Methodology and Statistics

- To make acquainted with The research methods employed in Psychological research, 2. Awareness of the designs of research, 3. Knowledge about statistical techniques to analyze the data in Psychological researches.

Course: II - Theories and Recent Trends in Psychology

- To make acquainted with the popular and practical theories of psychology and recent issues of psychology being studied in psychology for practice and application.

DEPARTMENT OF HISTORY

Programme Outcome

Programme Outcome of M.A. :

The programme is designed in such a way that at the end of it, the students acquire enough skills to work in different fields like Teaching, Civil Services, Police Services and other Government/Private Services and Competitive Exams, along with being able to pursue the career in the fields of Journalism and Tourism Industry. It also enables students to get into the field of Research through NET/JRF/ICSSR/ICHR fellowships.

Programme Outcome of M.Phil. :

Along with the ability to get into the profession related with education, M.Phil Programme had equipped students to pursue their careers in teaching and research.

Programme Outcome of Pre-Ph.D. :

Its rigorous curriculum prepares students to conduct research in successive engagements during their Ph.D. programme. It is one of the finest ways to prepare young teachers and researchers at large.

Programme Outcome of Ph.D. (History) :

Student having Ph.D. degree in History can choose their profession as Assistant Professors or Lecturers in Universities and Colleges or they can join any group which carry out research and publish historical works on a global scale. They also can continue research at personal level if they intend to.

Course Outcome

M.A. Two Year (Four Semester Programme)

M.A. I Semester

PAPER-1 : CG-1537 Historiography, Concepts, Methods, Approaches and Tools

PAPER-2 : CG-1538 History of Ancient India (From Earliest Times to Post Harappan Settlement)

PAPER-3 : CG-1539 History of Ancient India(From Vedic Age to Mauryan Kindom)

PAPER-4 : CG-1540 History of Ancient India (From Shunga Dynasty to Rajput Era)

M.A. II Semester

PAPER-1 CG-2537 Socio -Economic and Cultural History of Ancient India (From earliest times to 1200 A.D)

PAPER-2 CG-2538 History of Medieval India (Till 1526 A.D.)

PAPER-3 CG-2539 History of Medieval India (1526 - 1707 A.D.)

PAPER-4 CG-2540 History of Modern India (1707 - 1885 A.D.)

M.A. III Semester

PAPER-1 CG-3537 History of Modern India (1885-1950 A.D)

PAPER-2 CG-3538 Archaeology of Ancient Indian History

PAPER-3 CG-3539 Economic History of British India (1757-1950)

PAPER-4 CG-3540 Tourism in India

M.A. IV Semester

PAPER-1 CG-4537 History of South India (From Sangam Age to Vijay Nagar Empire)

PAPER-2 CG-4538 Research Methodology

PAPER-3 CG-4540 History of Modern Europe (1789-1919)

PAPER-4 CG-4539 History of Modern World (1920-1960)

PAPER-5 Women Through Ages

PAPER-6 Important Personalities of India

Course Outcome of M.A. :

Apart from being a course designed for the study of History, M.A. is also a stage where students learn about the ways and methods of History-writing and the craft associated with it. This goal is achieved during teaching of above mentioned courses. Apart from making students aware of Indian and World History in chronological order through Political History; Courses also enhance students' understanding about the social and economic aspects.. Gender and Women study have also been incorporated to make students aware of recent trends in the discipline of History.

Course Outcome

M.Phil. One Year (Two Semester Programme)

M.Phil. I Semester

PAPER-1 : (09A), Research Methodology & Thesis Writing

PAPER-2 :(10), Theories and Methods of History

M.Phil. II Semester

PAPER-1 : (MP-013), Recent Trends in Historiography

PAPER-2 :(MP-014), Language Paper (Sanskrit)

PAPER-3: (MP-14A), Some Major Aspects of Indian History

Course Outcome of M.Phil. :

The objective of this course is to make students write a thesis on a particular topic. This goal is achieved by teaching them Research Methodology and Thesis Writing and Theories and Methods of History. The outcome of this course was considered a grand success in the bearer's career towards Teaching and Research.

Pre- Ph.D. Course Work (History)

PAPER-1 Research Methodology and Thesis Writing

PAPER-2 Recent Trends in Historiography

Course Outcome of Pre-Ph.D. : This course is designed to cater the many fold needs of both the research as well as researcher *e.g.* the recent trends in Historiography and development of skills for conducting research and writing a thesis.

Ph.D. (History)

Course Outcome of Ph.D. : Research is conducted by a research scholar under the guidance of subject experts. Proper use of tools and skills taught during Pre Ph.D. Course is done by a research scholar while he/she is conducting the research. The outcome of this engagement is in the form of a thesis as an original contribution to the field of knowledge.

DEPARTMENT OF FOREIGN LANGUAGES

(RUSSIAN)

1) Course : Certificate of Proficiency in Russian

Duration: 1 year (02 Semesters)

Aim and Course outcome:

1. Communicative Russian: Functional Grammar based on the textbook.
2. Text comprehension and written expression: Comprehension of simple texts and précis writing.
3. Oral expression: Reading of texts, general questions based on day to day life.
4. Translation of simple sentences from Russian into Hindi/English and vice versa.

2) Course: Diploma in Russian Language

Duration: 1 Year (02 Semesters)

Aim and Course outcome:

1. Revision of grammar prescribed for the Certificate of Proficiency in Russian.
2. Communicative Russian: functional grammar based on the textbook.
3. Text Comprehension and Written Expression: Comprehension of texts based on general topics. Essay writings and letter writing.
4. Oral Expression: Reading and answering questions based on the texts. Expressing opinions and discussing issues of general interest.

3) Course: Advanced Diploma in Russian Language and Literature

Duration: 1 Year (02 Semesters)

Aim and Course outcome:

1. Consolidating, strengthening and further developing the following skills:

- i. Listening: To understand the language spoken by the native speakers, as well as news bulletins, feature short/documentary films at the normal conversation speed and rhythm on topics familiar to and needed by the learners for daily use.
 - ii. Speaking: Situational usage of the language.
 - iii. Reading: To be able to read and understand texts from need based literary/ non-literary/ contemporary writings with the help of dictionaries.
 - iv. Writing: To be able to compose and write on the topic of day to day interest under guidance. To retell known and unknown texts and answer questions based on those.
2. Introduction to the works of principal figures of the Russian literature. To develop the ability to read the lives and works of Russian literary figures in the original, understand and appreciate the same.
 3. Development of translation skills. Ability to translate prose/ texts/ newspaper material from Russian- English/ Hindi and vice- versa.
 4. Exposing the learners to the culture and life of the Russian people. e.g., festivals etc. through visual and textual materials selected.

4) Course: Certificate of Proficiency in French

Duration: 1 Year (02 Semesters)

Aim and Course outcome:

1. Communicative French: Functional Grammar based on the textbook.
2. Text comprehension and written expression: Comprehension of simple texts and précis writing.
3. Oral expression: Reading of texts, general questions based on day to day life.
4. Translation of simple sentences from French into Hindi/English and vice versa.

5) Course: Diploma in French Language

Duration: 1 Year (02 Semesters)

Aim and Course outcome:

1. Reinforcing , further strengthening and developing the following language skills:
 - i. Listening to and understanding the spoken language.
 - ii. Speaking: to engage in everyday interaction.
 - iii. Reading: to read and understand texts, such as a short narrative, advertisement, a dialogue.
 - iv. Writing: to write paragraphs and short essays.
2. Giving the learners the mastery of and the ability to use the grammatical structures of the language and essential vocabulary items.
3. Exposing the learners to the culture of the relevant country/ countries.

6) Course: Advanced Diploma in French Language and Literature

Duration: 1 Year (02 Semesters)

Aim and Course outcome:

1. Introduction to the works of the principal figures of the French literature, in original.

2. Translation skills: Ability to translate prose/ texts/ newspaper material from French- English/ Hindi and vice- versa.
3. Reinforcing the previous knowledge of the learners about the life and socio-cultural aspects of different regions of modern day France, and that of vis-à-vis Europe and the world.

DEPARTMENT OF FOOD SCIENCE & TECHNOLOGY

(2017-18)

M.Sc. Ag. (Food Science and Technology)

Course Outcome

The department has established well-equipped laboratories for the conduct of practicals in various aspects of Food Science & Technology. A modern, well-equipped food-processing laboratory was established recently in the department with financial assistance from the Ministry of Food Processing Industries, Govt. of India, New Delhi.

SEMESTER-I

CO-1: FST-1001: Title: General Biochemistry- To acquaint students with the chemical constituents of food, their interactions during cooking, and evaluation of taste characteristics of food.

CO-2: FST-1002: Title: Statistical Methods and Computer Techniques- Provides knowledge about various statistical methods used in agricultural sciences. To help them learn the importance of basic knowledge computers and bioinformatics in the agricultural research.

CO-3: FST-1003: Title: General Microbiology- To acquaint the students with different groups of microorganisms associated with food, their activities, destruction and detection in food.

SEMESTER-II

CO-1: FST-2001: Title: Food Chemistry- To understand chemical composition of various food commodities. To understand the standards of identity based on authentic chemical composition. To understand the various contaminants and toxicants present in the food systems.

CO-2: FST-2002: Title: Technology of Cereals, Pulses and Oilseeds- To acquaint with production trends, structure, composition, quality evaluation and processing technologies for product development and value addition of various cereals, pulses and oilseeds.

CO-3: FST-2003: Title: Principles of Food Processing- To provide students with the basic practical skills required to prepare foods, and evaluate raw and processed foods. To enable

students evaluate food establishments for their consumer acceptability and sanitation attributes.

SEMESTER-III

CO-1: FST-3001: Title: Principles of Food Analysis & Sensory Evaluation- To familiarize students with the test methods involved in discrimination, descriptive analysis and consumer sensory testing of food products. To understand principles of physiology, psychology and measurement upon which methods of sensory testing are based.

CO-2: FST-3002: Title: Technology of Milk and Milk Products- To acquaint students with quality control tests specific to the dairy industry. To make students competent in practically performing fundamental dairy processing techniques.

CO-3: FST-3003: Title: Food Microbiology- To acquaint the students with different groups of microorganisms associated with food, their activities, destruction and detection in food. To familiarize the students with industrial standards concerning safe food production and the existent national and international systems that ensure food quality.

SEMESTER-IV

CO-1: FST-4001: Title: Technology of Fruits and Vegetables- To acquaint students with the principles and methods of preserving fruits and vegetables. To familiarize students with processing techniques of horticultural produce.

CO-2: FST-4002: Title: Food Beverages- Prepare fruit juices with juice extracting/pulping machines with safety precautions and preserve fruit juices with addition of preservatives and determine the acidity and TSS content. Explain various types of packaging material used in food beverages products and storage.

CO-3: FST-4003: Title: Principles of Food engineering- To develop knowledge about the concept of conservation of mass and energy as a basic tool in food engineering analysis. To provide a basic understanding on the mechanisms of heat and mass transfer and the ability to apply basic engineering principles to design process and equipment for food processing.

CO-4: FST-8002: Title: Project Report- Each student has to undertake a project work on any aspect related to the course of study and submit the Project Report at the end of fourth semester. The students are encouraged and helped to receive training during their project work in different research institutes, laboratories and other Universities.

PROGRAMME – B.P.ED

Programme Outcomes: - Define learning outcomes for **Bachelor Physical Education** which Encourages a holistic approach based on a socio-ecological perspective. Promote greater integration and balance between the social and physical sciences. Contextualize physical education with a set of attitudes and values that signify the importance of movement as a valued Human practice . Centralize and acknowledge that the individual, in his /her search for personal meaning, once Educated in Health and Physical Education, would be able to make positive contributions to the Enhancement of Society .Promote the learning of new skills . Enhance, extend, inform and critique the deliberate use of exercise, play, sport and other forms of physical activity within and individual and societal context.

Programme Specific Outcome:-

Make a unique contribution to balanced development and living. Movement being essential to be a human .Learning focused on movement and students need to be engaged in it. A medium for developing skills across diverse areas of endeavor . Fostering a pedagogy based around critical thought and action.

2ND Year :Theoretical Course		
Course Code	Title of the Papers	
Core Course		
CC-201	Sports Training	<ul style="list-style-type: none"> ❖ To understand the concept, principles and forms of sports training. ❖ To develop Methods of Training for all of the Fitness components ❖ Technical and Tactical training methods to develop ❖ To acquaint the students with dimensions

		and actual markings of different play fields, courts and arenas.
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1ST Year :Theoretical Course B P ED		
Course Code	Title of he Papers	
Core Course		
CC-101	History, Principles and Foundation of Physical Education	<ul style="list-style-type: none"> ❖ To gain the knowledge of physical education. ❖ To understand the historical perspectives of physical education in India. ❖ To understand the various isms to become familiar with Indian philosophy. ❖ To equip with the ideas of Fitness Promotion.
CC-102	Anatomy and Physiology	<ul style="list-style-type: none"> ❖ To gain the knowledge of Organization of the human body and its regulation. ❖ To understand the support and movement of systems of the body. ❖ To understand the human body and its function. ❖ To understand and analyze the structural aspect of systems of the body. ❖ To understand the concept of fundamental of human body organs. ❖ To understand and analyze the functional aspects of Human body.
CC-103	Health Education and Environmental Studies	1. Students will understand the concept & importance and determinants of health.

		<p>2. Students will understand the changing concept of health education, need of a comprehensive health education program and approaches to health education.</p> <p>3. Students will understand reasons, effects & preventive ways of substance use & abuse.</p> <p>4. Students will understand typical stages of diseases, and help them understand certain communicable and non-communicable diseases. Students will know about environmental studies</p> <p>5. Students will make sustainable use of natural resources and use products which are environmentally recommended</p> <p>6. Students will know the status of Sanitation, urban & rural health and will keep themselves and their surroundings clean and healthy</p> <p>7. Students will know about govt. policies for management of Pollution.</p>
<p>CC-104</p>	<p>Yoga Education</p>	<ul style="list-style-type: none"> ❖ To understand and to be equipped with the Concepts of Yogic practices and Asana. ❖ To be Equipped with the knowledge of Upanisadas and importance in one's life. ❖ To be Equipped with the knowledge of Yoga sutra, Astang Yoga and Hatayoga. ❖ To become familiar Classify and Identify the

		Yogic practices' and Asana's values and apply the same to the society.
CC-105	Educational Technology and Methods of Teaching in Physical Education	<ul style="list-style-type: none"> ❖ To understand the importance of Educational Technology for Teaching lessons of physical education. ❖ To understand the importance and types of teaching methods and techniques with its devices to teach various aspects Physical education skillfully. ❖ To acquire information on current directions in special Teaching Aids. ❖ To be sensitive to the proficiency in construction of Lesson Plans for various physical education activities. ❖ To gain the knowledge of classifying the types of presentation-techniques and technical preparations required for physical education lessons. ❖ To understand the principles of class management and factors affecting class management. ❖ To acquire the skill of utilization of various teaching aids for conduct of physical education program effectively.
CC-106	Organization and Administration	<ol style="list-style-type: none"> 1. Understand the principles and process of Administration and Management 2. Administer physical education and sports programs in schools.

		<p>3. Develop appropriate physical education curriculum, tools and budget to manage school programs</p> <p>4. Appraise and manage physical education facilities and personnel in school</p> <p>5. Design tournament fixtures and structures to organize competitions</p>
CC-107	Officiating and Coaching	<ul style="list-style-type: none"> • To understand basic concepts & principles of officiating and coaching of different sports. • To enable the students to understand the rules, regulations and officiating in different sports. • To acquaint the students with the duties and responsibilities of officials and coaches. • To acquaint students with dimensions & actual markings of different play fields, courts & arenas. • To understand the concept, principles and forms of sports training.
CC-108	Sports Nutrition and Weight Management	<p>1. Restate the role of nutrients and caloric requirements</p> <p>2. Sketch the basic classification, functions and utilization of nutrients.</p> <p>3. Point out diet for various competitions and nutrient supplements for performance.</p>

		4. Evaluate the factors affects weight management and solutions for obesity.		
		5. Design caloric requirements for various sports and age groups.		
Part–B Practical Course				
PC-101	Track and Field (Running & Jumping Events.)	30	70	100
PC-102	Swimming/Gymnastics/Shooting (Any one)	30	70	100
PC-103	Yoga/Aerobics (Any one)	30	70	100
PC-104	Indigenous Sports: Kabaddi / Malkhambh/ Kho-Kho etc. (Any one)	30	70	100
PC-105	Mass Demonstration Activities: March past / Dumbbells /Tipri / Wands/ Lezim / Hoop/Umbrella.	30	70	100
PC-106	Racket Sports: Badminton/ Table Tennis/Squash/ Lawn Tennis. (Any one)	30	70	100
Part – C Teaching Practices				
TP - 101	Teaching Lesson Class Room Teaching (05lessons)	30	70	100
TP - 102	Teaching Lesson a. General Lesson Plan (05lessons) b. Lessons in outdoor Sports & Game activities (05lessons)	30	70	100
TOTAL		480	1120	1600
		❖ to Factors Influencing Training Programme		
CC-202	Computer Applications in Physical Education	❖ To understand the need and importance of Communication Technology (ICT) . ❖ To gain knowledge of the application of Computer in Physical Education ❖ To acquaint the learner with different methods MS Offices .		

		<ul style="list-style-type: none"> ❖ To understand Application of Software used in Physical Education and sports
CC-203	Sports Psychology and Sociology	<ol style="list-style-type: none"> 1. Explain group mechanisms and group psychology in a sports context 2. Reflect upon motivational psychology as applied to sports activities 3. Formulate relevant constructs of exercise psychology 4. Demonstrate the ability to discuss sociological theories, concepts, and ideas in large and small groups and to express empirically as well as theoretically-based opinions. 5. To apply core sociological theories to specific social problems in order to analyse social problems.
CC-204	Measurement and Evaluation in Physical Education.	<ul style="list-style-type: none"> ❖ To understand the concept of Measurement, Evaluation and Assessment Procedure in Physical Education. ❖ To understand different tests in Physical Education. ❖ To acquire the knowledge of various tests regarding Physical fitness, motor and health related fitness. ❖ To understand various sports skill tests. <ul style="list-style-type: none"> ❖ To understand and application of simple statistical procedures for evaluation

<p>CC-205</p>	<p>Kinesiology and Biomechanics</p>	<ul style="list-style-type: none"> ❖ To understand the nature and scope of Kinesiology and Biomechanics in Physical Education & Sports. ❖ To understand the importance of movement analysis, Kinesiology and Biomechanics analysis . ❖ To understand the knowledge regarding antagonistic and agonistic muscles in the movements. ❖ To gain knowledge of the application of mechanical principles to fundamental skills and sports techniques. <ul style="list-style-type: none"> ❖ To understand basic mathematical problems related to motion, force and levers
<p>CC-206</p>	<p>Research and Statistics in Physical Education</p>	<ul style="list-style-type: none"> ❖ To understand need and Importance of Research in Physical Education and sports . ❖ To understand the nature and scope of Research and Statistics in Physical Education and sports . ❖ To understand Survey of Related Literature and Research Reports . ❖ To understand basics of Statistical Analysis or problems and related Graphical Presentation of Distribution ❖ To prepare Statistical Models in Physical Education and Sports
<p>CC-207</p>	<p>Sports Medicine, Physiotherapy and Rehabilitation.</p>	<p>1. Understand the primary responsibilities the sports trainer has in preventing</p>

		<p>sports injuries and providing initial care for injured athletes.</p> <p>2. Demonstrate the basics of sport first aid during and after game situation.</p> <p>3. Recognise and appropriately treat common sports injuries and conditions from onset through rehabilitation.</p> <p>4. Identify and apply knowledge of anatomy to the design and execution of research studies.</p>
<p>CC-208</p>	<p>Sports Management.</p>	<p>1. Know sports management and employ principles of strategic planning, and financial and human resource management.</p> <p>2. Assess marketing needs and formulate short term and long term solutions.</p> <p>3. Conceive, plan, execute, and evaluate a sports event.</p> <p>4. Introduce the teaching and curriculum objectives and course module design</p> <p>5. Analyze the planning strategies, teaching, learning and assessment</p> <p>6. Develop strategies to promote quality learning, practice marking and consider methods of course and self-evaluation</p>

		7. Evaluating learning intentions and the process that is guided through explicit and manageable criteria.		
Part–B Practical Course				
PC-201	Track and Field (Throwing Events)	30	70	100
PC-202	Combative Sports :Martial Art/ Karate/ Judo/Fencing/ Boxing/Taekwondo/ Wrestling, etc.,(Any two out of these)	30	70	100
PC-203	Team Games Specialization: Baseball/Cricket/ Football/Hockey/Softball/Volleyball/Handball/basketball/ Netball etc (Any two out of these)	30	70	100
PC-204	Sports Specialization Track and Field /Swimming / Gymnastics (Any one)	30	70	100
PC-205	Games Specialization Kabaddi/ Kho-Kho/Badminton/ Table Tennis/Squash/ Tennis etc (Any one out of these)	30	70	100
Part – C Teaching Practices				
TP - 201	Teaching Practices/Internship Teaching (4 week School) Teaching Lesson Plans for Racket Sport/ Team Games/Indigenous Sports (out of 10 lessons 5 internal and 5 external at practicing school)	30	70	100
TP - 202	Teaching Practices/Internship Teaching(4 week School) Sports Specialization: Coaching lessons Plans(One for Sports 5 lessons) (out of 10 lessons 5 internal and 5 external at practicing school)	30	70	100
TP - 203	Teaching Practices/Internship Teaching(4 week School) Games Specialization: Coaching Lessons Plans(One for Sports 5 lessons))(out of 10 lessons 5 internal and 5 external at practicing school)	30	70	100
TOTAL		480	1120	1600

M.P.ED (2YEAR COURSE)

MASTER OF PHYSICAL EDUCATION (M.P.Ed.)

Program Specific Outcomes (PSOs)

The Master of Physical Education(M.P.Ed.) Programme is a professional Programme meant for preparing physical education teacher for senior secondary (classes XI and XII) level as well as assistant professor / directors / sports officers in colleges /universities and teacher educators in college of physical education and university departments of physical education. The curriculum

and syllabus have been structured in such a way that each of the course meets one or more of the outcomes related to the skills, knowledge, and behaviors that students acquire as they progress through the program. Further, each course in the program spells out clear instructional objectives which are mapped to the student outcomes.

Pedagogies employed in the M.P.Ed. Programme:

Class room teaching will be used through black board, chalk, power point presentation and information and communications technology. One on one interaction with small group student numbers during Practical and Tutorial classes. Student seminar/research paper presentation in each semester. Students will be tested for their writing abilities through answer precise and essay

type questions. Every semester the students will be subjected to viva voce examinations by external examiners. Project work on various rules and regulations, court markings, maintains and

Officiating Literature review in the form of Dissertation. Invited talks from eminent Personalities

Internship programme

M.P.ED (2YEAR COURSE)

Semester I

Theory Courses

MPCC-101 RESEARCH PROCESS IN PHYSICAL EDUCATION AND SPORTS SCIENCES

Learning Outcomes

The learning outcome of the paper are as:

- To Enhance the competency of research ability of students
- To know about the research methods and types
- To create the awareness regarding research for enhances the quality of higher education
- Able to formulate the hypothesis
- To increase the writing ability for research reporting

MPCC-102 PHYSIOLOGY OF EXERCISE

Learning Outcomes

The learning outcome of the paper are as:

- To Know the role of exercise physiology on sports performance
- To know about the Effects of exercise on different system of human body
- To create the awareness regarding research in the field of exercise physiology
- Able to test the Physiological Parameters

- To Know about the function of internal human body

MPEC-103 SPORTS MANAGEMENT

Learning Outcomes

The learning outcome of the paper are as :

- To Know the importance of sports Management
- To know about how to organised sports competition
- To create the awareness regarding research in the field of sports Management
- To know about that intramural and extramural tournaments
- To Know about the role of effective teaching and learning in physical education

MPEC-101 SPORTS BIOMECHANICS AND KINSESIOLGY (Elective)

Learning Outcomes

The learning outcome of the paper are as:

- To Know the importance of sports biomechanics and Kinesiology on sports performance
- To know about the various physical law of motion for reducing the Injuries and enhancement of sports performance
- To create the awareness regarding research in the field of Sports Biomechanics
- To know about the Qualitative and Quantitively Analysis of sports related skills
- To Know about mechanical analysis of sports related skills

MPEC-102 SPORTS ENGINEERING (Elective)

Learning Outcomes

The learning outcome of the paper are as:

- To Know the sports Engineering in physical education
- To know about role **Mechanics of engineering materials** in sports performance
- To create the awareness regarding research in the field of sports Engineering.
- To know about various **Sports Dynamics, mechanical Principles for sports achievements.**
- To Know about the care and maintenance of sports equipment

Semester II Theory Courses

MPCC-201 APPLIED STATICTICS IN PHYSICAL EDUCATION AND SPORTS

Learning Outcomes

The learning outcome of the paper are as:

- To Know the importance of Applied statistics in physical education
- To know about the benefits of Applied statistics for research of Physical education.
- To create the awareness regarding research in the field of Applied statistics
- Able to apply the different statistical test for hypothesis testing
- To Know about that benefits of Applied statistics in illustration of sports related data.

MPCC-202 SPORTS PSYCHOLOGY

Learning Outcomes

The learning outcome of the paper are as:

- To Know the role of sports Psychology sports performance
- To know about effects of various psychological factors sports performance
- To create the awareness regarding research in the field of sports psychology
- To know about various motivational technique psychological problems for sports performance.
- To Know about the psychological preparation of sports

MPEC CC-203: TEST, MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION

Learning Outcomes

The learning outcome of the paper are as:

- To develop awareness in evaluation procedures.
 - To develop awareness in physical fitness and motor fitness assessment.
 - To develop awareness in assessment of sports skills and anthropometric measurements..
 - To develop awareness of body types and remedial work.
 - To develop awareness in measuring intangible qualities.

MPEC-201 SPORTS JOURNALISM AND MASS MEDIA (Elective)

Learning Outcomes

The learning outcome of the paper are as :

- To Know the importance of sports journalism and mass media for sports
- To know about the role of sports journalism and mass media for active participation in sports
- To create the awareness regarding research in the field of sports journalism and mass media
- To know about that how to write the report for publishing in news papers
- To Know about the technique for highlighting the reports in sports

MPEC-202: CURRICULUM DESIGNS IN PHYSICAL EDUCATION(Elective)

Learning Outcomes

The learning outcome of the paper are as :

- On completion of the course the student shall understand the following:
 - Concepts of Management and personal management
 - Steps in programme management applied to sports
 - Purchase and Care of Supplies of Equipment
 - Curriculum principles, factors and sources

Semester III

Theory Courses

MPCC-301 SCIENTIFIC PRINCIPLES OF SPORTS TRAINING

Learning Outcomes

The learning outcome of the paper are as :

- To Know the importance of Scientific Principles of sports training
- To know about scientific principle for enhancement of sports performance
- To create the awareness regarding research in the field of Scientific Principles of sports training
- To know about various technique for development of physical and motor fitness
- To Know about the role of tactics and strategy for sports performance

MPCC-302 SPORTS MEDICINE

Learning Outcomes

The learning outcome of the paper are as :

- To Know the role of sports medicine for sports performance
- To know about adverse effects of doping in sports
- To create the awareness regarding research in the field of sports medicine
- To know about various technique for relaxation of sports person
- To Know about the various therapy for sports injuries

MPCC-303 HEALTH EDUCATION AND SPORTS NURTITION

Learning Outcomes

The learning outcome of the paper are as:

- To Know the health education in physical education
- To know about effects of nutrition in sports performance
- To create the awareness regarding research in the field of sports nutrition
- To know about various communicable and Non communicable Disease.
- To Know about the health service and personal Hygiene of Students and athletes

MPEC-301 Yogic Sciences (Elective)

Learning Outcomes

The learning outcome of the paper are as:

- To Know the role of Yogic Sciences on sports performance
- To know about the benefits of Pranayama and Asana on health of the Athletes
- To create the awareness regarding research in the field of Yogic Sciences
- Able to perform the various Yogic Practices
- To Know about the benefits of Kriya and Mudra of Yoga
- To established the relationship of Yoga and Sports

MPEC-302 PHYSICAL FITNESS AND WELLNESS (Elective)

Learning Outcomes

The learning outcome of the paper are as:

- To Know the sports concept and technique of Physical Fitness
- To know about role **foods and Nutrition** in sports performance
- To create the awareness regarding research in the field of physical fitness and wellness.

- To know about various **techniques of Aerobic and anaerobic exercise and its benefits**
- To Know about the flexibility exercise and its role on sports performance

**Semester IV
Theory Courses**

MPCC-401 INFORMATION & COMMUNICATION TECHNOLOGY (ICT) IN PHYSICAL EDUCATION

Learning Outcomes

The learning outcome of the paper are as:

- To Know the Information and communication Technology in physical education
- To know about role Information and communication Technology in class room teaching in physical education
- To create the awareness regarding research in the field of Information and communication Technology.
- To know about various fundamental of computers in physical education
- To Know about the MS Office Applications in physical education

MPCC-402 ATHLETIC CARE AND REHABILITATION

Learning Outcomes

The learning outcome of the paper are as :

- To Know the importance of Athletic care and rehabilitation of sports person
- To know about the rehabilitation process of injured athletes
- To create the awareness regarding research in the field of Sports Biomechanics
- To know about that how to care about Athletes to avoiding sports injuries
- To Know about the different technique related to relaxation and rehabilitation of Athletes

MPCC-403 Sports Sociology

Learning Outcomes

The learning outcome of the paper are as :

- To Know the importance of group mechanisms and group sociology in a sports context
- To Know the importance of Reflect upon motivational sociology as applied to sports activities
- To Know the importance of Formulate relevant constructs of sociology
- To Know the importance of Demonstrate the ability to discuss sociological theories, concepts, and ideas in large and small groups and to express empirically as well as theoretically-based opinions.
- To apply core sociological theories to specific social problems in order to analyse social problems.
-

MPEC-401 DISSERTATION Elective

Learning Outcomes

The learning outcome of the paper are as:

- To Know about the process of research in physical education
- To know about review of related literature in research
- To create data analysis in research
- To know about statistical intervention in research.
- To increase the writing competency in research reporting

MPEC-402 PROFESSIONAL PREPARATION IN PHYSICAL EDUCATION Learning Outcomes

The learning outcome of the paper are as:

- Students will know the foundation of profession, its criteria.
- Students will understand the various perspectives of profession.
- Students will understand the principles & process of professional development.

DEPARTMENT OF PLANT PROTECTION

(2017-18)

(A)M.Sc. Ag. (Entomology)

Course Outcome

M.Sc. Ag. (Entomology) is a two years (four semesters) full time course, including the project work. There are four theory courses (three in case of fourth semester only) and one practical in each semester. This practical comprises practicals designed for each theory course. Each student has to undertake a project work on any aspect related to the course of study and submit the Project Report at the end of fourth semester. The students are encouraged and helped to receive training during their project work in different research institutes, laboratories and other Universities.

SEMESTER-I

CO-1: ENT-1001: Title: Statistical Methods- Provides knowledge about various statistical methods used in agricultural sciences.

CO-2: ENT-1002: Title: Insect Morphology- To acquaint the students with external morphology of the insect's body i.e., head, thorax and abdomen, their appendages and functions.

CO-3: ENT-1003: Title: Classification of Insects- To introduce the students to the classification of insects up to the level of families with hands-on experience in identifying the families of insects.

CO-4: ENT-1004: Title: Techniques in Plant Protection- To acquaint the students with appropriate use of plant protection equipments and techniques related to microscopy, computation, pest forecasting, electrophoresis etc.

SEMESTER-II

CO-1: ENT-2001: Title: Insect Anatomy Physiology and Nutrition- To impart knowledge to the students on basic aspects of anatomy of different systems, elementary physiology, nutritional physiology and their application in entomology.

CO-2: ENT-2002: Title: Pests of Field Crops- To familiarize the students about nature of damage and seasonal incidence of insect pests that causes loss to major field and their effective management by different methods.

CO-3: ENT-2003: Title: Biological Control of Crop Pests and Weeds- To train the students with theory and practice of biological control, mass production techniques and field evaluation of various biological control agents like parasitoids, predators and various entomopathogenic microorganisms.

CO-4: ENT-2004: Title: Insect Ecology- To teach the students the concepts of ecology, basic principles of distribution and abundance of organisms and their causes. Study life tables, organization of communities, diversity indices. Train students in sampling methodology, calculation of diversity indices, constructing life tables, relating insect population fluctuations to biotic and/or abiotic causes.

SEMESTER-III

CO-1: ENT-3001: Title: Computer Applications and Bioinformatics- To help them learn the importance of basic knowledge computers and bioinformatics in the agricultural research.

CO-2: ENT-3002: Title: Toxicology of Insecticides- To orient the students with structure and mode of action of important insecticides belonging to different groups, development of resistance to insecticides by insects, environmental pollution caused by toxic insecticides and their toxicological aspects.

CO-3: ENT-3003: Title: Principles of Integrated Pests Management- To familiarize the students with principles of insect pest management, including concept and philosophy of integrated pest's management. Train students in computation of economic threshold levels, implementing integrated pest's management programmes.

CO-4: ENT-3004: Title: Pests of Horticulture and Plantation Crops- To impart knowledge on major pests of horticultural and plantation crops regarding the extent and nature of loss, seasonal history, their integrated management.

SEMESTER-IV

CO-1: ENT-4001: Title: Plant Quarantine- To acquaint the learners about the principles and the role of Plant Quarantine in containment of pests and diseases, plant quarantine regulations and set-up.

CO-2: ENT-4002: Title: Storage Entomology- To focus on requirement and importance of grain and grain storage, to understand the role of stored grain pests and to acquaint with various stored grain pest management techniques for avoiding losses in storage.

CO-2: ENT-4003: Title: Commercial Entomology- To familiarize the students with entrepreneurial opportunities in entomology, provide information on productive insects and their products, as well as insect pests of public health and veterinary importance and their management.

CO-3: ENT-8002: Title: Project Report/ Dissertation - Each student has to undertake a project work on any aspect related to the course of study and submit the Project Report at the end of fourth semester. The students are encouraged and helped to receive training during their project work in different research institutes, laboratories and other Universities. Students gain the knowledge in research methodology and develop skills for literature survey, protocol designing, Result interpretation, and thesis writing.

(B) M.Sc. Ag. (Plant Pathology)

Course Outcome

M.Sc. Ag. (Plant Pathology) is a two years (four semesters) full time course, including the project work. There are four theory courses ((three in case of fourth semester only) and one practical in each semester. This practical comprises practicals designed for each theory course. Each student has to undertake a project work on any aspect related to the course of study and submit the Project Report at the end of fourth semester. The students are encouraged and helped to receive training during their project work in different research institutes, laboratories and other Universities.

SEMESTER-I

CO-1: PPA-1001: Title: Mycology- To study the nomenclature, classification and characters of fungi.

CO-2: PPA-1002: Title: Statistical Methods- Provides knowledge about various statistical methods used in agricultural sciences.

CO-3: PPA-1003: Title: Principles of Plant Pathology- To introduce the subject of Plant Pathology, its concepts and principles.

CO-4: PPA-1004: Title: Detection and Diagnosis of Plant Diseases- To impart training on various methods/techniques/instruments used in the study of plant diseases/pathogens.

SEMESTER-II

CO-1: PPA-2001: Plant Virology- To acquaint with the structure, virus-vector relationship, biology and management of plant viruses.

CO-2: PPA-2002: Title: Diseases of Field and Vegetables Crops- To educate about the nature, prevalence, etiology, factors affecting disease development and control measures of field and vegetables crop diseases.

CO-3: PPA-2003: Title: Integrated Management of Plant Diseases- To emphasize the importance and need of IDM in the management of diseases of important crops.

CO-4: PPA-2004: Title: Principles of Nematology- To project the importance of nematodes in agriculture and impart basic knowledge on all aspects of plant nematology.

SEMESTER-III

CO-1: PPA-3001: Title: Computer Applications and Bioinformatics- To help them learn the importance of basic knowledge computers and bioinformatics in the agricultural research.

CO-2: PPA-3002: Title: Plant Bacteriology- To acquaint with plant pathogenic prokaryote (procarya) and their structure, nutritional requirements, survival and dissemination.

CO-3: PPA-3003: Title: Chemicals in Plant Disease Management- To impart knowledge on the concepts, principles and judicious use of chemicals in plant disease management.

CO-4: PPA-3004: Title: Diseases of Fruits, Plantation and Ornamental Crops- To educate about the nature, prevalence, etiology, factors affecting disease development and control measures of fruits, plantation and ornamental crop diseases.

SEMESTER-IV

CO-1: PPA-4001: Title: Plant Quarantine- To acquaint the learners about the principles and the role of Plant Quarantine in containment of pests and diseases, plant quarantine regulations and set-up

CO-2: PPA-4002: Title: Epidemiology and Forecasting of Plant Diseases- To acquaint with the principles of epidemiology and its application in disease forecasting.

CO-2: PPA-4003: Title: Seed Health Technology- To acquaint with seed-borne diseases, their nature, detection, transmission, epidemiology, impacts/loses and management.

CO-3: PPA-8002: Title: Project Report/ Dissertation - Each student has to undertake a project work on any aspect related to the course of study and submit the Project Report at the end of fourth semester. The students are encouraged and helped to receive training during their project work in different research institutes, laboratories and other Universities. Students gain the knowledge in research methodology and develop skills for literature survey, protocol designing, Result interpretation, and thesis writing.

DEPARTMENT OF ENGLISH

Semester – 1

- CO 1 Chaucer to Milton: To inculcate knowledge of the style, structure and content of the assigned literary texts from Chaucer to Milton.
- CO 2 Restoration to 1798: To acquaint the students about the Neo-Classical era in the literary history of England.
- CO 3 Shakespeare: To analyse texts to determine Shakespeare's purpose, historical and cultural perspective and use of rhetorical and dramatic strategies in creating a play or a poem.
- CO 4 Fundamentals of Literary Criticism: To develop student's ability to understand and to criticise a literary piece.

Semester – 2

- CO 5 Romantic Literature: To acquaint the students with the romantic period and some of its representative writers.
- CO 6 Victorian poetry: To inculcate analytical knowledge of some of the well known poets of the Victorian period.
- CO 7 English Phonetics and Phonology: To inculcate in students detailed knowledge of the levels of language description: phonology, morphology and syntax
- CO 8 American Literature: To understand the historical background of American literature and the American dream as well as to teach the students the socio cultural and political events responsible for the development in American literary history.

Semester – 3

- CO 9 Victorian Fiction and Prose: To study literary texts that reflect the literary characteristics of the Victorian period .
- CO 10 Twentieth Century British Poetry: To familiarise the students with some of the major techniques introduced by the poets in the early decades of 20th century.
- CO 11 Twentieth Century British Fiction and Drama: To study the important literary texts of the modern and post modern eras which are representative of the important trends, critical shifts and formal experimentation.
- CO 12 English Language Teaching: To understand the landmarks in the history of English Language Teaching in India and develop an understanding of various methods and approaches.

Semester – 4

- CO 13 Indian Literature in English (Poetry and Drama): To introduce the students to the major literary works of Indian dramatists as well as poets.

- CO 14 Indian Literature in English(Fiction and Prose): To provide an overview of the various phases of the evolution of Indian fiction as well as to introduce the students to some of the most important literary texts by Indian writers writing in english.
- CO 15 New Literatures in English: To enable the students to make a critical analysis of a work of art within the frames of post colonial studies.
- CO 16 Literary Theory (Application): To give the students a firm grounding in a major methodological aspect of literary studies known as theory.

M.Sc Home Science (Food & Nutrition) Sem-I

(1) Applied Physiology

Paper Code (V-1118)

COURSE OUTCOME : Apply to clinical scenarios the concepts and knowledge of the general terminology, cell structure and function, histology, gross anatomy, and physiology of several organ systems (integumentary, skeletal, muscular, and nervous).

(2) Geriatric Nutrition and Assessment of Nutritional Status

Paper Code (V-1119)

COURSE OUTCOME: Geriatric **nutrition** applies nutrition principles to delay effects of aging and disease, to aid in the management of the physical, psychological, and psychosocial changes commonly associated with growing old.

(3) Food Science

Paper Code (V-1120)

COURSE OUTCOME: Food science is the study of the physical, biological, and chemical makeup of **food**; and the concepts underlying **food** processing. **Food** technology is the application of **food science** to the selection, preservation, processing, packaging, distribution, and use of safe **food**.

(4) Advances in Food Microbiology

Paper Code (V-1121)

COURSE OUTCOME: Apply the knowledge to understand the microbial physiology and to identify the microorganisms. Understand the regulation of biochemical pathway and possible process modifications for improved control over microorganisms for microbial product synthesis.

M.Sc Home Science (Food & Nutrition) Sem-II

(1) Advanced Nutrition

Paper Code (V-2118)

COURSE OUTCOME : The course provides a detailed insight into understanding the composition, molecular interaction and bio-mechanisms of the food metabolites. The course has a multidisciplinary emphasis providing a broad base of knowledge and understanding of the wide role of nutrition in sustaining health and preventing diseases.

(2) Research Methods & Statistics

Paper Code (V-2119)

COURSE OUTCOME: Students will be able to understand basic theoretical and applied principles of statistics needed to enter the job force. Students will be able to communicate key

statistical concepts to non-statisticians. Students will gain proficiency in using statistical software for data analysis

(3) Nutritional Biochemistry

Paper Code (V-2120)

COURSE OUTCOME: Capable of describing biochemical pathways relevant in nutrient metabolism. Capable of describing biochemical techniques that are relevant for the investigation of the nutrient metabolism.

(4) Community nutrition and nutritional deficiency

Paper Code (V-2121)

COURSE OUTCOME: Understand about Clinical Nutrition & Nutrition Education, Be aware of National Nutrition Programmes. Be aware of objective & functions of national & International agencies working in the field of nutrition. Understand the concept of health & primary health care.

M.Sc Home Science (Food & Nutrition) Sem-III

(1) Clinical & Therapeutic Nutrition

Paper Code (V-3118)

COURSE OUTCOME: Understand nutrients, their functions & metabolism and diet therapeutic modification of normal diet understand principles of dietetic management in different disease condition.

(2) Institutional Food Administration

Paper Code (V-3119)

COURSE OUTCOME: Understand concepts and functions of catering management, Know the importance and guidelines of menu planning. Aware of functions and types of menus followed in catering institutes. Understand the importance of food selection, purchase and storage of food.

(3) Food Processing and Technology

Paper Code (V-3120)

COURSE OUTCOME: This course has an advanced food processing component and overview conventional and emerging novel food processing methods available to maximize the nutrition levels in the making of foods that are safe, high quality and with maximum shelf life and convenience.

(4) Nutrition for Health & Fitness

Paper Code (V-3121)

COURSE OUTCOME : A plan to review and facilitate a deeper understanding of nutrition. How past experiences, advertising, history, family and personal preferences influence the decisions we make with respect to health and wellness.

M.Sc Home Science (Food & Nutrition) Sem-IV

(1) Dissertation and seminar/Industry training (internship) and project report

Paper Code (V-4118/4119)

COURSE OUTCOME : To develop practitioner skills for entry-level dietitians who are able to assume leadership roles to improve and maintain the nutritional care of diverse individuals, families and communities within national and global populations. The program will prepare graduates to be competent entry-level dietitians.
