Programme Specific Outcome

For Foundation Course in Hindi Language

आधार पाठ्यक्रम हिन्दी भाषा अनिवार्य विषय के रूप में यू.जी. कार्यक्रम के अन्तर्गत अध्यापन किया जाता है, इसे अध्ययन कर विद्यार्थी निम्नलिखित बिंदूओं का अर्जन कर सकने में सक्षम होंगेः–

1. पाठ्यक्रम में भाषा और साहित्य के भागों का अध्ययन कर मानवीय एवं नैतिक मूल्यों से परिचित होने के साथ–साथ उन मूल्यों को अपने अंदर विकसित कर एक बेहतर समाज के निर्माण में अपनी महति भूमिका का निर्वहन कर सकता है।
2. पाठ्यक्रम निर्धारण एवं संचालन करने वाली इकाइयॉ हिन्दी क्षेत्र में हैं इस वजह से हिंदी भाषा संप्रेषण के लिय बहुत आसान एवं सक्षम भाषा के रूप में हमारे विद्यार्थियों के लिये मौजूद है।
3. संप्रेषण के साथ–साथ लिखित रूप में भाषा कौशल को समृद्ध बनाने की क्षमता हिंदी भाषा में मौजूद है। इससे न केवल विद्यार्थी भाषायी दक्षता प्राप्त करते हैं, बल्कि अपने पठन–पाठन को भी सुनिश्चित एवं बेहतर आयाम प्रदान करते हैं।
4. विज्ञान के विद्यार्थियों के लिये वैज्ञानिक आलेखों को हिंदी भाषा में तैयार किये जाने का एक महत्वपूर्ण दक्षता विकसित होता है।
5. जिस भाषा में सहजता से विचार उत्पन्न होते हैं, उनमें हमारी मातृभाषा और उससे संबद्ध हिंदी भाषा है। महाविद्यालय की अवस्थिति हिंदी भाषा परिक्षेत्र में है, इसकी वजह से यहां के विद्यार्थियों को हिंदी भाषा में कार्य करना सहज और आसान होता है। इस सहजता की वजह से विज्ञान के विद्यार्थियों में "साईंटिफीक एप्राच" को हिंदी भाषा के माध्यम से विकसित किए जाने में सहूलियत होगी।

Course Outcome

For Foundation Course in Hindi Language for B.Sc. Part I,II,III

आधार पाठ्यक्रम हिन्दी भाषा के रूप में त्रिवर्षीय यू.जी. कार्यक्रम के तहत् चलाये जाने वाले भाषायी पाठ्यक्रम के अन्तर्गत गद्य, पद्य, नाटक, निबंध, हिन्दी व्याकरण, भाषायी संप्रेषण कुशलता हेतु संप्रेषण के विभिन्न माध्यमों का अवलोकन, पत्राचार, अनुवाद, मीडिया, वित व वाणिज्य भाषाओं का अवलोकन किया जाता है। पाठ्यक्रम का निर्माण विद्यार्थियों में भाषायी कुशलता विकसित किये जाने तथा भाषायी सम्प्रेषण कला को बढ़ावा देने के उद्देश्य से किया गया है। इसके साथ–साथ जनसंख्या, बेरोजगारी, गरीबी के कारणों व उसके निवारण हेतु किये जाने वाले उपायों से विद्यार्थियों को अवगत कराकर समाजिक संदर्भ में देश की समस्याओं से अवगत कराये जाने का ध्यान भी रखा गया है। विद्यार्थी भाषायी दक्षता प्राप्त करने के साथ–साथ समसामयिक संदर्भों से भी जुड़ा रह सके, इसका पाठ्यक्रम में ध्यान रखा गया है। इससे विद्यार्थी भाषा के साथ–साथ समसामयिक संदर्भों पर भी नजर रख सकने में सक्षम होगा।

Programme Specific Outcome

For Foundation Course in English Language

Foundation Course is a compulsory subject in UG Programme. English Language in one of the branches in the course. It equips the students with the following outcomes after completion of the programme:

1- The student could be able to imbibe in themselves moral and human values through the study of language and literature.
2- They could communicate effectively in speaking, reading, writing and listening expressing their ideas in the second language properly.
3- English could be the best medium to interact with other nation as it is a global language.
4- It could lead them toward better placement and pmployability.

Course Outcome

For Foundation Course in English Language for B.Sc. Part I,II,II

The course content of the Three Year Degree UG programme are concerned with prose, poetry, drama, grammar and communication skill. The course is designed in way that the students develop listening, speaking, writing and reading abilities. Letter writing, report writing, essay writing etc. help them in real life. Grammar, Vocabulary, speech skill etc. make the student perfect in communication. Articles on human values, Constitution, Freedom Movement, Indian Culture and Religion, Indian Art etc. provide ample knowledge for them nationalism and internationalism. It develops cosmopolitan outlook and emotions amongst the students.

COURSE SPECIFIC OUTCOME

ENVIRONMENTAL STUDIES FOR UG

Environmental studies is a compulsory subject in UG Programme. It equips the students with the following outcomes after completion of the programme:

1- Gain knowledge about environment and ecosystem.
2- Learn about natural resources, their uses and its environmental impact.
3- Be aware of effect of human activities on the ecosystem and the need for conservation.

COURSE OUTCOME

ENVIRONMENTAL STUDIES FOR UG

1- Understand various environmental issues in the context of conservation and sustainable development.
2- Development of scientific outlook.
3- Imbibe ethical principles and responsibilities.

Department of chemistry

Program Specific Outcomes

B.Sc. Chemistry

PSO (1) Obtain the knowledge of chemistry through theoretically & practically.

PSO (2) To describe nomenclature, stereo chemical, structure, reactivity& mechanism of the chemical reaction.

PSO(3) Understand chemical formula solve numerical questions.

PSO (4) Use latest chemical tools, modes, charts & equipment's.

PSO (5) Understand better laboratory practices and safety.

PSO (6) Develop research related skills and Innovative technique.

Course Outcome

B.Sc. 1st year

After completion of these courses students should be able to:-

(1) Inorganic chemistry

CO(1) To Bohar's theory, its limitations and atomic spectrum of hydrogen atom.

CO (2) To discuss the VESPR theory.

CO (3) knowledge the hybridization in molecules.

(2) Organic chemistry

CO (1) Knowledge about the intermediate like carbocation, carbanion,carbene, nitrene like etc

CO (2) Distinguish between geometrical & optical isomers.

CO (3) Know kinetic, mechanism and stereochemistry SN1& SN2 reaction.

CO(4) Compare between E1 and E2 reaction.

(3) Physical chemistry

CO(1) To discuss about Gaseous theory.

CO (2) To know the solid state theory and Braggs Law.

CO (3) Discuss the colloids state and Tindal effect in surface chemistry.

CO (4) Knowledge the rate of reaction & order of reaction – first and second order reaction.

Practical course outcome

CO(1) To know about two acid radical and two basic radical to separate in inorganic mixture.

CO(2) Knowledge about identification of functional group in given organic

compound.

CO(3) To understand the calculation of surface tension with the help of stalagmometer stand pycnometer.

Course outcome

B.Sc. 2nd year

After completion of these courses students should be able to:-

(1) Inorganic chemistry

CO (1) Understand the electronic configuration & varies properties of d & f block elements.

CO (2) Know the VBT theory for complexes.

CO(3) To understand the extraction methods for lanthanides & acteniods.

CO (4) To define inorganic Acid and Base.

(2) Organic chemistry

CO (1) To understand the monohydric, dihydric and trihydric alcohol.

CO (2) Know the benzoin condensation and various name reaction.

CO (3) Understanding the nucleophilic substitution reaction .

(3) Physical chemistry

CO (1) Knowledge the thermodynamic 1st , 2ndand third low of thermodynamic.

CO (2) To understand law of photochemistry.

CO (3) Know the Nenrest equation and Gibb's free energy.

CO (4) Discuss about the Quantum Yield.

practical course outcome

CO (1) Discussion about synthesis and analysis by preparing the standard solution given.

CO (2) To knowledge about functional group specific group identification in given organic compound.

CO (3) Know the determination of transition temperature by thermometric method of $MnCl_2$ or $SrBr_2$ technique.

CO (4) To understand chromatography

Course Outcomes

B.Sc. 3rd year

After completion of these course student should be

able to

(1) Inorganic chemistry

CO (1) Know the metal ligand bonding nature & its properties.

CO(2) Study the magnetic properties and its behavior.

CO (3) Get knowledge about Bioinorganic chemistry.

CO (4) Study about Essential& toxic element.

(2) Organic chemistry

CO (1) To study UV,IR,& NMR , ESR spectroscopy

CO (2) Knowledge about Heterocyclic Compounds and their Syntesis.

CO (3) Knowledge about synthetic dyes & Rubbers.

CO (4) Understand the organometallic Reagent & its daily use.

(3) Physical chemistry

CO (1) Understand the Compton effect & black body radiation.

CO (2) Know about electrochemical cells and Galvanic cells.

CO (3) Discuss about the Corrosion.

CO (4) Knowledge the Frank Condon Principle.

Practical course outcome

CO(1) To study binary mixture with removal of borate and phosphate.

CO(2) Perform the binary mixture.

CO(3) Preparation of organic compounds their purification and run. TLC

CO(4) Determination of physical constant M.P. & B.P.

CO(5) Determination specific relations and percent age of to optically active substance by polarometrically.

Department of Zoology

Programme Specific outcomes

B.Sc. Zoology

BSc - III

PSO1-. To understand the aims and scope of ecology.

PSO2- To study the general and applied microbiology and their role

PSO3- Understand about pathogenic microorganisms their symptoms and treatment

PSO4- Study and understand the DNA Recombinant technique and cell physiology

BSc – II

PSO1- Understand the physiology heart, muscles, nerve and eye

PSO2- Understand the method of agriculture, sericulture and PC culture etc.

PSO3- To Study the hormones receptors, hormones, gland and their disorders.

PSO4- Understand the blood coagulation system and their types.

BSc – I

PSO1- Gain the knowledge about structural organisations of animals and their components.

PSO2- Understand the embryological stage and their role.

PSO3- Understand the cell transformation immunity and cancer.

PSO4- To study and understand the vertebrate and invertebrate and their physiology and anatomy.

Course outcome

B.Sc. Zoology

B. Sc. I (A)

Cell biology and non chordata

CO1- Understand the structure and functions of cell and their component.

CO2- Understand the DNA and RNA structure and importance.

CO3- To study the cell transformation and cancer and their agent

CO4- To study the classification and general characters of Protozoa porifera and Silent coelenterata

CO5- To study pathogenicity prevention and symptoms.

CO6- Classification and general characters of Platyhelminthes, Annelida, Mollusca, Arthropoda and echinodermata.

B. Sc. I (B)

Chordata and embryology

CO1- To study the hemichordata and protochordata.

CO2- Understand the method of parental care in fishes and amphibia.

CO3- Understand about migration of fishes.

CO4- Adaptation system of birds.

CO5- Understand the formation of different types of organ of chick and frog.

CO6- The extraembryonic membrane and their role.

B. Sc. II (A)

Anatomy and Physiology

CO1- To study the digestive and respiratory system.

CO2- To study the evolution of heart and kidney.

CO3- To study and understand the mechanism of digestion and absorption.

CO4- To study the different types of endocrine gland and their role in the chordata.

CO5- Understand the mechanism of osmoregulation nerve impulse and excretion.

.

B. Sc. II (B)

Vertebrate endocrinology reproductive Biology behaviour evolution and applied zoology

CO1- To study the general character action and disorders of hormones.

CO2- Understand the reproductive cycle in vertebrates.

CO3- Understand the process of evolution and their evidence.

CO4- Understand the drugs behaviour and their disorders.

CO5- To study the method of Apiculture, pisciculture, sericulture and their economic importance.

B. Sc. III (A)

Ecology environmental Biology toxicology, microbiology and medical Zoology

CO 1- To study the major ecosystem of the world population and communities and succession.

CO2- To study the environmental conservation and environmental impact assessment.

CO3- Understand about different types of toxic material and their Treatment.

CO4- To study the advantages of micro organisms and their role in hormones, antibody and alcohol production, the process of water and sewage treatment.

CO5- Understand about the pathogenic microorganisms and their vector and treatment.

B. Sc. III (B)

Genetics cell physiology, biochemistry, biotechnology and biotechnics

CO1- Understand the gene interaction and expression method.

CO2- Understand the chromosomal disorder and single gene disorder.

CO3- To study the basic structure and function of amino acids.

CO4- understand the metabolism of Carbohydrate, protein and lipid.

CO5- Understand the scope and importance of biotechnology.

Department of Botany

Programme Specific outcomes B.Sc. Botany

BSc – III

PSO1- Students shall be able to explain the concepts of biotechnology, genetic, engineering and Tissue culture.

PSO2- They shall be able to understand concepts of Biomolecules, Biochemistry and physiology of plants.

PSO3- They will be able to understand/ use basis laboratory instruments.

BSc – II

PSO1- Students will be able to understand plant taxonomy anatomy and embryology.

PSO2- They will develop interest in economically important plants, their identification an cultivation and be able to apply the knowledge in their life.

BSc – I

PSO1- Students will get knowledge of various groups of microorganisms and non-flowering plants.

PSO2- To develop understanding and appreciation for plant diversity.

PSO3- To learn about economic utility of microorganism and to apply their knowledge for socio economic benefits.

Course outcome

B.Sc. Botany

B. Sc. I (A)

Bacteria, Viruses, Fungi, Lichens and Algae

CO1- They shall study the general features, structures, reproduction and economic importance of microbes.

CO2- Students shall be able to understand habit, habitat, cellular composition, nutrition, reproduction of fungi, Algae and their association.

CO3- They shall be able to explain economic importance of these microorganisms.

B. Sc. I (B)

Bryophytes, Pteridophytes, Gymnosperm and Palaeobotany

CO1- To identify the characteristics, affinities, range of thallus organisation, classification and Ecological importance of Bryophytes, Pteridophytes and gymnosperm.

CO2- Students shall be able to understand types and formation of fossils and geological time scale.

B. Sc. II (A)

Plant taxonomy, Economic Botany, Plant anatomy and Embryology

CO1- Students shall be able to understand the important systems of classification of angiosperms.

CO2- They shall be able know about economic Botany and its applications.

CO3- Students shall be able to understand Principles and rules of plant Taxonomy.

CO4- To learn about plant Anatomy and Embryology.

B. Sc. II (B)

Ecology and plant Physiology

CO1- Students shall be able to understand the concepts of Ecology, Ecosystem and interactions between Ecosystem and Organisms.

CO2- They Shall understand photosynthesis, respiration and plant growth hormones.

CO3- Students will learn about plant water relations and mineral nutrition.

B. Sc. III (A)

Analytical Technology, Plant pathology, Elementary Biostatistics, Environmental pollution and conservation

CO 1- To understand and learn about microscopy, chromatography, oven, incubator, etc.

CO2- To learn about plant diseases and control measures and elementary biostatistics

CO3- To understand pollution, biodiversity and conservation strategies

B. Sc. III (B)

Genetics and Molecular Biology biotechnology and biochemistry

CO1- To understand cell structure and chromosomes.

CO2- Students shall be able to know and explain about DNA, RNA and Recombinant Technology

CO3- To learn about the structure and functions of various biomolecules

Department of Microbiology

Programme Specific outcomes

B.Sc. Microbiology

BSc - III

PSO1- To understand airborne and water borne diseases

PSO2- To understand Basic concept of immunity

PSO3- To gain basic knowledge of environmental, Industrial and agricultural microbiology

BSc – II

PSO1- To understand fundamentals of Molecular Biology

PSO2- To understand Protein synthesis, mutation and gene regulation

PSO3- To understand fundamentals of bioinstrumentation and Biostatistics

BSc – I

PSO1- To understand fundamental, history and development of microbiology

PSO2- To understand basic microbial techniques

PSO3- To get knowledge of Biochemistry and Physiology

Course outcome

B.Sc. Microbiology

B. Sc. I (A)

General microbiology and Basic technique

CO1- To learn general microbiology and basic techniques

CO2- To know contributions of pioneers

CO3- To understand principle and classification of microorganisms.

B. Sc. I (B)

Biochemistry and Physiology

CO1- To understand biochemistry and physiology of microorganisms

CO2- To know structure classification and properties of macromolecules

CO3- To learn microbial metabolism and transport system

B. Sc. II (A)

Molecular biology and genetic engineering

CO1- To learn fundamentals of Molecular Biology

CO2- To know DNA replication transcription and translation.

CO3- To understand fundamentals of genetic engineering

.

B. Sc. II (B)

Bio instrumentation and Bio statistics

CO1- To learn microscopy, centrifugation, PH metry and chromatography

CO2- To know basic principles of spectrophotometry, colorimetry and turbidimetry

CO3- To understand electrophoresis x- ray diffraction and biostatistics

B. Sc. III (A)

Medical microbiology and immunology

CO 1- To understand and learn about causes of various diseases such as tuberculosis, Influenza, mumps, cholera, typhoid etc.

CO2- To know symptoms, treatment and prevention of bacterial viral and fungal diseases

CO3- To understand Basic concept of immunity and immune disease diagnosis

.

B. Sc. III (B)

Environmental, Industrial and agricultural

CO1- To know basics of aerobiology.

CO2- To know Basic concept of water microbiology, soil microbiology and industrial microbiology

CO3- to understand bio fertilizers and biological nitrogen

DEPARTMENT OF PHYSICS

PROGRAMME SPECIFIC OUTCOME

B.Sc. Physics

PSO1- Gain knowledge of physics through theory and practical's.

PSO2- Understand good laboratory practices and safety.

COURSE OUTCOME

B.SC. 1ST YEAR

PAPER-I

PH. MECHANICS:

CO1- Know laws of motion, coordinate system (Cartesian cylindrical and spherical.)

CO2- To study system of particles, centre of mass, conservation of energy.

CO3- To understanding kepler's laws, Gravitational laws and field.

PH. OSCILLATIONS:

CO1- To understanding oscillations, simple harmonic oscillations.

CO2- To study two simple harmonic motion of the same frequency.

CO3- Know Lissajous figures, cases and applications.

CO4- To study damped and driven harmonic oscillations.

ELECTRIC FIELD AND MAGNATIC FIELD:

CO1- To study motion of charged particles in E. field and M. field.

CO2- To study mutually parallel electric and magnetic fields.

CO3- To study CRO.

PH. PROPERTIES OF MATTER

CO1- Know the elasticity.

CO2- To study Hook's laws

CO3- To understanding cantilever experimentally.

CO4- To understanding surface tension and surface energy.

PH MATHEMATICAL BACKGROUND

CO1- To study scalars and vectors, dot and cross products, reciprocal vectors.

CO2- To study divergence and curl of vector fields line, surface and volume integrals.

CO3- To study gauss divergence theorem.

CO4- To study stock's theorem.

CO5- To study flux of the electric field.

CO6- To study dielectric. Dielectric constant polarization.

CO7- To understanding steady current.

CO8- To study biot and sevart's law.

CO9- To study ampere's law, torque on a current loop.

PH. ELECTROMAGNATIC THEORY:

CO1- Know electromagnetic wave introduction, characteristics.

CO2- To understanding faraday's laws electromagnetic force.

CO3- To study mutual and self-inductance.

CO4- To study transformers.

CO5- To study Maxwell's equations

CO6- To study poynting vector.

COURCE OUTCOME

B. Sc.II PHYSICS

PAPER-I

Course: After completion of these courses students should be able to:

PH. THERMODYNAMICS:

CO1- Know the concept of path function.

CO2- To study first, second, third law of thermodynamics.

CO3- To understand the Entropy concept.

CO4- To study change in entropy in simple cases.

CO5- To study thermodynamics relationship.

PH. KENETIC THEORY:

CO1- To study Maxwell relations.

CO2- To study Maxwell distributions of R.M.S. and most probable speed value depending on temperature and pressure.

PH. STATISTICAL PHYSICS:

CO1- Understanding statistical distribution of system of particles.

CO2- To study the elementary concept of statistics.

CO3- To study Bose-Einstein theory.

CO4- To study partition function.

CO5- To study black-body radiation and its applications.

CO6- To study Fermi-Dirac statistics.

PAPER- II

WAVES:

CO1- To study waves; characteristics speed and nature.

CO2- To study reflection, reflection and diffraction of sound wave.

PH. ACCOUSTICS AND OPTICS:

CO1- To study interference of light.

CO2- To study Fermat's principle.

CO3- To study principle of sonar system ranging.

PH. LASER:

CO1- Know the coherence spontaneous and stimulated emission.

CO2- To study Einstein's A and B coefficients.

CO3- To understanding principle of laser and condition required for laser action.

CO4- To study optical pumping, population inversion and its applications.

COURCE OUTCOME

B. Sc. III PHYSICS

CO1- After determination of these course students should be able to:

PAPER-I

PH. RELATIVITY:

CO1- Know the reference system, Galilean invariance, conservation laws.

CO2- To understand the special theory of relativity.

CO3- Discuss the Michelson-Morley experiment.

CO4- Discuss about Compton Effect.

CO5- Know and discuss about Zero rest mass etc.

PH. QUANTAM MECHANICS:

CO1- Understand De-Broglie hypothesis and uncertainty principle.

CO2- Understand the concept and derive Schrodinger time dependent and independent.

CO3- Get knowledge of photoelectric effect.

CO4- Know different operators in quantum mechanics.

PH.ATOMIC AND MOLECULAER PHYSICS:

CO1- To study the Raman spectra.

CO2- To study the Zeeman Effect.

CO3- To understand molecular spectra of atom.

PAPER-II

PH.SOLID STATE PHYSICS:

CO1- To study the amorphous and crystalline solid.

CO2- To study Miller indices.

CO3- To study Einstein and Debye theories.

CO4- To study Bragg's law.

PH.SOLID STATE DEVICE AND ELECTRONICS:

CO1- To study Kronig-penny model.

CO2- To study about insulator, conductor.

CO3- To understand special purpose diode.

CO4- To study Zenor diode.

CO5- To study half and full wave rectifier.

Department of Mathematics

Program Specific Outcome

B. Sc. Mathematics

Student will able to:

PSO1- Be familiar with different areas of Mathematics.

PSO2- Construct abstract models using appropriate mathematical and statistical tools.

PSO3- Be prepared to use mathematics. Not only in the discipline of mathematics, but also in other disciplines and in their future endeavours.

PSO4- Recognize what constitutes mathematical thinking. Including the ability to produce and judge the
validity of rigorous mathematical arguments.

PSO5- Identify suitable existing methods of analysis, if any, and assess his/her strengths and weaknesses
in the context of the problem being considered.

PSO6- Develop the skills necessary to formulate and understand proofs and to provide justification.

PSO7- Think critically and communicate clearly mathematical concepts and solution to real-world problems.

PSO8- Understand the Concepts of algebra which include equations numbers and algebraic structures.

PSO9- Students will be able to use concepts of analysis in saving problem. The concept include sets, numbers, functions and convergence.

PSO10- Understand mathematics ideas from basic axioms.

PSO11- Identify the application of mathematics in other disciplines and society.

PSO12- On completion of the program the Students are well poised to pursue careers in alealemia, industry
and other areas of mathematics.

Course Outcome

B.Sc. - I

Algebra And Trigonometry

After completing this course the learner should be able to:

CO1- To find the inverse of matrix by cayley Hamliton theorem.

CO2- To find the descarte's rule of sign and salutions of cubic equation (Carton's Method)

Calculus

After completing this course the learner should be able to:

CO1- Find the higher order derivative of the product of two functions.

CO2- Expand a function using Taylor's and McLaurin's series.

CO3- Learn about partial derivatives its applications.

Vector Analysis and Geometry

After completing this course the learner should be able to:

CO1- Represent vectors analytically and geometrically and compute dot and cross products for presentations of lines.

CO2- Analyse vector functions to find derivatives, tangent lines, integrals, arc length and curvature.

CO3- Compute limits and derivatives of function of 2 and 3 variables.

CO4- Evaluate double and triple integral for area volume.

CO5- Differentiate victor fields.

B.Sc.- II

Advanced Calculus

After completing this course the learner should be able to:

CO1- Compute double integrals, application to area and volume, arena's theorem in the plane and the

change of various in double integrals.

CO2- Understand basic nations such as derivative of the scalar field w.r to vector field gradient of scalar

field, paths and line.

CO3- Recognize fundamental vector product, area of various parametric surfaces.

Differential Equation

After completing this course the learner should be able to:

CO1- Obtain an integrating factor which may reduce a given differential equation into an exact one and

eventually provide its solution.

CO2- Method of solution of the differential equation.

CO3- Solve differential equations using the Laplace transform technique.

Mechanics

After completing this course the learner should be able to:

CO1- Relative motion inertial and non-inertial reference frames.

CO2- Parameters defining the motion of mechanical system and their degree of freedom.

CO3- Study of the interaction of forces between solids in mechanical systems.

CO4- Centre of mass and inertia tensor and mechanical systems.

CO5- Application of the vector theorems of mechanics and interpretation of their results.

B.Sc. - III

Analysis

After completing this course the learner should be able to:

CO1- Learns various field axioms the Archimedean property , triangle and Cauchy Schwartz inequality.

CO2- Extend the idea to set theory, functions, countable and uncountable sets.

CO3- Examine the convergence of any sequence in a matric space.

CO4- Relate function to point set topology.

Abstract Algebra

After completing this course the learner should be able to:

CO1- Analyze and demonstrate example of subgroups, normal subgroups and quotient groups.

CO2- Analyze and demonstrate example of ideals and quotient rings.

CO3- Use the concepts of isomorphism and homomorphism for groups and rings.

Discrete Mathematics

After completing this course the learner should be able to:

CO1- Study the concept of Relation and functions.

CO2- Classify the concept of Lattices and Boolen Algebra.

CO3- Create structural designs using patterns of graphs in graph theory.

Department of Biotechnology

Programme Specific outcomes

B.Sc. Biotechnology

BSc - III

PSO1- In this course they specifically learn about the plants and their culture technique.

PSO2- They also understand about immune system how different disease function and how our body react to them.

BSc – II

PSO1- This course emphasising about the molecular basics of genetics and fundamental of genetics..

PSO2- To learn about the recombinant DNA technologies and gene transfer mechanism.

BSc – I

PSO1- Course emphasizing about the biochemistry and microorganisms.

PSO2- This course also in precise about food technology by a physical science where they also study about instrument that are used in all the Laboratories

Course outcome

B.Sc. Biotechnology

B. Sc. I (A)

Biochemistry Biostatics and computer

CO1- Students understand about basics of biomolecules, their structure, properties and functions.

CO2- They also understand about basics of biostatics.

CO3- This course also help to understand about basics of computer -hardware, software, input, output devices.

B. Sc. I (B)

Cell biology Genetics and microbiology

CO1- To make the student to understand the concept of cells and their activities, cell division and cell death.

CO2- To make the student to understand the microbial physiology.

CO3- To make the student to understand basics of genetic.

B. Sc. II (A)

Molecular biology and Biophysics

CO1- To learn fundamentals of Molecular Biology

CO2- Enables the student to get sufficient knowledge of principle and application of bio-Instruments.

CO3- To Learn about basic techniques of biophysics.

.

B. Sc. II (B)

Recombinant DNA technology and genomics

CO1- This course presents the mechanism of gene manipulation to make the student to understand the concept of gene transfer Technologies.

CO2- Acquire knowledge of Recombinant DNA technology.

CO3- They about basics of Bioinformatics and their applications.

B. Sc. III (A)

Plant environmental and industrial biotechnology

CO 1- This course presents the application of plant in biotechnology.

CO2- The students would have understood crop development, callus culture, biotechnological application of plants.

CO3- The Students understand about basics of environmental biotechnology

CO4-They will also learn about bioprocess engineering and food technology.

. **B. Sc. III (B)**

Immunology animal and medical biotechnology

CO1- Students should understand about defence mechanism of humans.

CO2- Students should understand about the disease and their working mechanism.

CO3- Students should understand all basic techniques of immunology.

CO4- They also learn about animal tissue culture.

Department of Information Technology

Programme Specific outcomes

B.Sc., INFORMATION TEHNOLOGY

On completion of the B.Sc. (Information Technology) students are able to:

- Serve as Programmer or Software Engineer with sound knowledge of practical and theoretical concepts for developing software's.
- Serve as Computer Engineer with enhanced knowledge of computers and its building blocks.
- Serve as System Administrator with thorough knowledge of DBMS.
- Give Technical Support for various systems. Work as Support Engineer and Technical Writer.
- Work as Consultant and Management officers for system management.
- Work as IT Sales and Marketing person.
- Serve as IT Officer in Banks and cooperative societies.
- Work as DTP Operator in small scale industries.
- Serve as Web Designer with latest web development technologies.

Course outcomes

B.Sc. – I

PAPER-I

- Know about concept of IT, Application of IT, impact of IT on society and industry, legal and ethical aspect, security and threats in IT.
- Know about basic concept of computer network, wireless communication and social networking.
- To understand theoretical and practical knowledge of Word Processing (MS-Word), spread sheet (MS-Excel), MS-Excess and MS-Power Point.

PAPER-II

- To understand Fundaments of C Programming.
- To understand theoretical and practical knowledge of Control Constructs, Array, String, Structure, Union and Enum, Pointer, File Handling and Miscellaneous feature of C Programming.

B.Sc. – II

PAPER-I

- To understand Number System and Boolean algebra.
- To understand Basics and working about Combinational Circuits and Multivibrator Circuits.
- To understand Basics of Central Processing unit and I/O organisation and Memory organisation of Computer.

PAPER-II

- To understand basics of Object Oriented Programming in C++
- To know theoretical and practical knowledge of function, object and classes, pointers, file and stream in C++ Programming.

B.Sc. – III

PAPER-I

- To understand basics about Power amplifier, Feedback amplifier and oscillators, operational amplifier and power control devices.
- To understand basics, architecture and working of 8080/8085 microprocessors, and programming the microprocessor.

PAPER-II

- To understand fundamentals of Data Structure.
- To know theoretical and practical knowledge of linked list, tree, stack and queue, searching and sorting, tables and graphs in data structure using C/C++

Department of chemistry

Program Specific Outcome

M.Sc. Chemistry

PSO (1) To understand the structure and boding nature in molecules ions and predict the structure of compound.

PSO (2) Learn the different types of reactions like aliphatic, aromatic, nucleophilic substitution etc.

PSO (3) Understand the similar name reaction and their reaction mechanism.

PSO (4) To know better laboratory practices and safety.

PSO (5) Study of organometallic reaction and their application in modern days.

PSO (6) Study of Biological system by using amino acids and lipids.

Course Outcome of M.Sc. 1st Semester Chemistry

After completion of these courses students should be able to:-

(1) Inorganic Chemistry -1 (MSC101)

CO (1) To understand the Bent Rules & energetic of hybridization.

CO (2) To know about complex Formation, stability and nature of metal ligand bond. .

CO (3) Discuss about LCAU-MO theory &VBT theory.

CO (4) Knowledge about metal carbonyls, structure & bonding.

(2) Organic Chemistry-1 (MSC 102)

CO(1) To know the optical activity & chirality of Molecule.

CO(2) To understand the conformational analysis of cyclohexane.

CO(3) Discuss the SN1, SN2 and SNi mechanism.

CO(4) Knowledge the Isotopes effect

(3) Analytical Chemistry (MSC 103)

Co (1) To understand quantitative and qualitative analysis.

CO (2) Discuss about analytical methods of selectivity.

CO(3) Knowledge about the ion exchange chromatography technique.

CO (4) To know about various spectroscopy.

(4) Research Methodology &Computer Application(MSCA01)

CO(1) Understand the concept and place of research in concern subject.

CO(2) Becomes familiar with various tools of research.

CO (3) Achieves skills in various research writings.

CO (4) Gets a acquainted with computer fundamentals & office software package.

(5) Group Theory Spectroscopy & Diffraction Methods (MSCA02)

CO(1) To know the diffraction techniques and to learn about group theory & spectroscopy.

CO(2) To knowledge about x-ray diffraction Bragg law.

CO (3) To discuss the symmetry elements and symmetry operation.

(6) Inorganic and Analytical Chemistry Lab(MSC111)

CO (1) Know about semi micro qualitative analysis of mixture containing eight radicals four basic and four acid.

CO(2) To learn about complex metric titrations (EDTA) estimation of La, mg and Zn.

CO (3) Knowledge about the volumetric and Gravimetric analysis of oil sample, COD, BOD and DO harness of water etc

Course Outcome M.Sc. 2nd Semester

After completion of these courses students should be able to:-

(1) Inorganic Chemistry-2 (MSC201)

CO(1) To learn about the theories of coordination complexes.

CO(2) To discuss about chemistry of lanthanides.

CO(3) To understand the nanotechnology and use of inorganic compounds in biological chemistry.

(2) Organic Chemistry-2 (MSC 202)

CO(3) Discuss about reducing reaction.

CO(4) Knowledge the aromaticity and non benzoids compounds.

(3) Physical Chemistry (MSC 203)

CO(1) Know about microwave spectroscopy.

CO(2) Discuss the infrared spectroscopy & Raman spectroscopy.

CO(3) Understand the electronic spectroscopy of molecules.

CO(4) To learn about surface chemistry.

(4) Social Outreach & Skill Development (MSC S02)

CO(1) To understand about remote area's social activities and their lifes.

CO(2) Learn about skills development in various field like nursery, horticulture, sericulture, soil analysis etc.

(5) Applied Chemistry (MSC B04)

CO(1) To understand the chemistry of water analysis.

CO(2) Know about the analysis of fertilizers and pesticides.

CO(3) Knowledge about the soap and detergents their function in cloth's.

CO(4) To discuss about petroleum and photo chemical analysis.

(6) Physical and Organic Chemistry Lab: (MSC 211)

CO(1) Learn the qualitative analysis of binary organic Anixter.

CO (2) To know about estimation quantitative analysis.

CO (3) Understand the organic synthesis two and three steps synthesis of organic compounds including acylation, oxidation etc.

CO (4) knowledge about verification of lambert beers law using a colorimeter.

CO (5) To learn the determination of rate constant of hydrolysis of methods acetate catalyzed by acid and also energy of activation.

.

Course Outcome M.Sc.Third Semester Chemistry

After completion of these courses students should be able to:-

(1) Application of Spectroscopy Inorganic Chemistry (MSC301)

CO (1) To know about photoelectron spectroscopy and there application and Raman Spectroscopy.

CO(2) Discuss the vibrational spectroscopy, symmetry and shapes of molecule.

CO(3) Tounder stand the ESR and NMR spectroscopy.

CO (4) Knowledge about the mossebaner spectroscopy and their significant.

(2) Application of Spectroscopy Organic Chemistry (MSC302)

CO(1) Knowledge about fieser- Woodward rule in conjugared dieses.

CO(2) Discuss about MClafferty rearrangement and their application.

CO(3) To Learn about infrared spectroscopy.

CO(4) knowledge about two dimension NMR spectroscopy-COSY, NOESY, DEPT and FTIR techniques.

(3) **Photo chemistry &Pericyclic Reaction (MSC 303)** :-

CO(1) Learn about Beer Lamberts law and photo chemical Grothers-Dropper law.

CO(2) Discussion about photo physical processes in excited state.

CO(3) know the photochemistry of carbonyl compound and alkenes.

CO(4) To understand about photo rearrangement and pericyclic reactions.

(4) Intellectual Properties Human Rights &Environment Basics (MSCS03)

CO(1) Understands the concept and place of research in concerned subject.

CO(2) Becomes familiar with various tools of research.

CO(3) knowledge about right environment as human right.

CO(4) Tounder stand meaning of copy right and historical evolution.

(5) Heterocyclic chemistry (MSC C04)

CO(1) know the nomenclature of hetero cycles.

CO(2) to understand four and five memberd heterocyclic compound.

CO(3) To Learn about Bi cyclic ring system and messianic hetero cycles.

CO(4) Discuss about higher hetero cycles, structure and synthesis.

(9) Organic Chemistry Lab (MSC 311)

CO (1) To know about isolation of natural product like caffeine, nicotine etc.

Co (2) Learn about purification technique of organic compounds and their spectroscopic identification.

CO(3) Understand the organic preparations like esterification and saponification.

CO(4) Knowledge about qualitative analysis of binary mixture.

Course outcome M.Sc. 4th semester chemistry

After completion of these courses students should be able to:-

1. Bioinorganic Chemistry (MSC 401)

CO(1) To learn about essential and trace metal ions.

CO(2) Understand the Hemoglobin and myoglobin structure & functions.

CO(3) know about metal ion transport and storage.

CO(4) Discount about medicinal Bio-Inorganic chemistry and chelation therapy.

2. Environmental Chemistry (MSC 402)

CO(1) To Discuss the Global warming and Green house effect.

CO(2) Know about the Air pollution and effect on human and climate.

CO(3) Understand the oxygen demanding wastes.

CO(4) To Learn about chemical Toxicology and industrial pollution.

3. Solid State Chemistry (MSC 403)

CO(1) Knowledge about the powder compact Reactions and solid state Defects.

CO(2) Understand the electronic properties and Band theory.

CO(3) Discuss about magnetic and optical properties of solids.

4. Dissertation (MSC S04)

CO(1)Dissertation works as skills development in students.

CO (2) Increases their mental ability.

CO(3) Express their opinion and thoughts.

CO(4) Enhancing writing skills and knowledge.

5. Photo Inorganic Chemistry (MSC D01)

CO(1) Discussion about Basic of Photochemistry Absorpation, excitation and photochemical laws.

CO(2) To understand of Frank Condon Principle.

CO(3) Knowledge about photosubsitution, photooxidation and photoreduction.

Department of Mathematics

Programme Specific outcomes

M.Sc. Mathematics

PSO1- Create a hypothesis and appreciate how it relates to broader theories .

PSO2-.Evaluate hypothesis, theories, methods and evidence within their proper contexts.

PSO3-Solve complex problems by critical understanding, analysis and synthesis.

PSO4- Demonstrate engagement with current development in the subject.

PSO5- Develop proficiency in the analysis of complex physical problems and the use of mathematical or other appropriate techniques to solve them.

PSO6- Provide a systematic understanding of the concepts and theories of mathematics and their application in the real world to an advanced level and enhance career prospects in a huge array of fields.

PSO7- Criticize mathematical arguments developed by themselves and others.

PSO8- Communicate effectively by oral, written, computing and graphical means.

PSO9- Recognise the need to engage in lifelong learning through continuing education in mathematics department.

Course outcome

M.Sc. Mathematics

MSc Semester - I, II

ADVANCED ABSTRACT ALGEBRA (Paper 01)

Student will able to

CO1- Define- group and subgroup, normal subgroup ,quotient group, permutation groups, nilpotent group ,direct product, cyclic modules, simple modules, homomorphism of modules, canonical forms, smith normal forms, extension fields, separable and inseparable extensions, Galios field and extension generalized Jordan forms over any field.

CO2- Prove- Jordan Holder theorem, primary decomposition theorem, fundamental structure theorem for finitely generated module, hillbert basis theorem, Noether-lasker theorem, fundamental theorem of galios theory.

MSc Semester - I,II

REAL ANALYSIS (Paper-02)

Student will able to

CO1- **Define-** riemann stieltjes integral, pointwise and uniform convergence ,linear transformation, chain rule, derivative of higher order ,measure and Outer measure, lebesgue outer measure, regulatory, measurable set, borel set, lebesgue sum ,integral bounded and unbounded function, integral of non-negative function, differentiation of monotonic function.

CO2-**Prove-** Fundamental theorem of Calculus, weierstrass approximation theorem , able and tauber's theorem ,riemann's theorem ,Taylor's theorem, inverse function theorem, implicit function theorem, egoroff's theorem, riesz theorem, lusin theorem

MSc Semester - I, II

TOPOLOGY (Paper-03)

Students will able to

CO1-Define- Topological space, product topology, product space, the continuous functions ,connected space, compact space, compact subspace, complete metric space, Closed sets ,open set, neighbourhood, neighbourhood systems, limit points and components.

CO2-**Prove-** Urysohn's metrization theorem, urysohn's metrization theorem, nagata metrization theorem, tychonoff theorem , The smirnov theorem,fundamental theorem of algebra, cantor's theorem.

MSc Semester - I, II

RESEARCH METHODOLOGY & COMPUTER APPLICATION (Paper-04)

Students will able to

Describe-Meaning and characteristics of research ,steps in the research process, types of research, applied and action research ,quantitative and qualitative research, tools of research method of research, treatment of data and computer fundamentals.

MSc Semester - I, II

ADVANCED DISCRETE MATHEMATICS (Paper-05)

Students will able to

CO1-Define-Illustrate different types of graph theory, TF statement, connectives, atomic and compound statements, Tautology, truth table, quantifiers, predicate, interpret lattice, Boolean Algebra, karnaugh map, switching circuits.

CO2-**Prove-**Drive Euler's theorem, automata, finite automation and NDFA, kleene's theorem, Pumping Lemma Theorem , Euler's theorem, dijkstra theorem, kruskal theorem, warshall theorem, finite state machines, moore and mealy machines.

MSc Semester - III, IV

INTEGRATION THEORY AND FUNCTIONAL ANALYSIS (Paper-01)

Students will able to

CO1-Define- signed measure , mutually similar measure, differentiation and integration bair set bair measure, continuous function, normed linear space, banach space, reflexive space ,compact operators, inner product spaces, hilbert space, orthonormal sets, bessel's inequality self-adjoint operator, projection, normal and unitary operators.

CO2-Prove-Hahn decomposition theorem, radon nikodym theorem, riesz representation theorem, extension theorem, riesz Markoff theorem, uniform boundedness theorem, open mapping and closed graph theorem, hahn banach theorem for real and complex linear space, riesz representation theorem, the generalized LAX milgram theorem.

MSc Semester - III, IV

Partial differential equation and mechanics (Paper-02)

Students will able to

CO1-Define-Illustrate a partial differential equation with example, classification, Higher-order partial differential equation with example, transport equation, min value formula, poisson bracket, Generalized coordinates, holonomic and non holonomic system, rheonomic and non rheonomic system ,generalized potential.

CO2-Prove-Drive transport equation, mean value formula, euler lagrange equation ,Wave Equation, heat fundamental solution, holf lax formula, laxoienik formula ,attraction and potential of rod, disc, spherical shells, sphere ,poisson bracket, holf cole transform ,language equation, calculus of variation, Hamilton canonical equation, donkin's theorem, Routh equation, jacobi poisson theorem, hamiltons principle, lagrange bracket,Two dimensional motion of rigid bodies.

MSc Semester - III, IV

Operation research (Paper-03)

Students will able to

CO1-Define-Define operation research and its scope, convex set, convex and concave function ,integer programming non-linear programming, convex and non-convex programming ,quadratic programming.

CO2-Derive-Graphical solution of linear programing problem, Simplex method, two phase method, Big M method, dual simplex method, linear goal programming, transportation and assignment problem, dynamic programming, minimum spanning tree problem ,maximum flow problem, minimum cost flow problem, Game Theory, two person zero Sum game, games with

mixed strategy, Kuhn tucker condition for constrained optimization, wolf method, Beal method, non-convex programming.

MSc Semester - III, IV

Intellectual property, Human rights & Environment (Paper-04)

Students will able to

CO1-Define-Meaning of copyright, meaning of patent, kinds of patents, development of law of patents ,TRIPS agreement, dramatic work and musical work for copyright, rights of performers and broadcasters assignment of copyrights, author's special rights, human-rights meaning and Essentials, human-rights kinds rights related to life, liberty ,equals and disabled, national human right Commission, State Human Right Commission, High Court, regional Court ,procedure and functions of high and regional court ,right to environment as human right, international humanitarian law and environment.

CO2-Dissertation works- skill development in students increases their mental ability, Express their opinion and thoughts, enhancing writing skills and knowledge.

MSc Semester - III, IV

Numerical analysis (Paper-05)

Students will able to

CO1-Define-Define forward and backward difference, the operator E, properties of E and del operator are distributive, to express any value of the function in leading terms and the leading differences of difference table, difference equations. homogeneous linear difference equations, homogeneous linear differential equation with constant coefficient ,existence and uniqueness theorem ,different methods for finding for particular solution in case of non-homogeneous linear equation.

CO2-Derive-Derive interpolation with equal intervals and with unequal intervals, by Newton's formula, sheppard rule, lagrange formula, hermitet's formula, Central difference Gauss Sterling, Bessel's formula for interpolation, numerical differentiation and integration by trapezoidal, Simpson one third rule, 3-8 rule, weddle's rule, cotes method, numerical solution of ordinary differential equations of first order-picard , euler's improved modified, Euler's method, Milne's method, runge kutta method ,simultaneous Linear algebraic Equations by gauss Jordan Jacobi iterative method, gauss seidel method .