

GOVERNMENT EKLAVYA COLLEGE

Dondi Lohara Dalli Rajhara Road, District: Balod, Chhattisgarh,
India, PIN:491771

Program Outcome (PO) & Course Outcome (CO)

Session 2020-2021

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Affiliation: Hemchand Yadav University, Durg, Chhattisgarh, India

UNDERGRADUATE PROGRAMME

B.A., B.Com., B.Sc.

Programme Outcomes (POs)

At the end of the completion students are able to attain the following attributes

- **Critical thinking** : Undergraduate program syllabus for different courses are designed by Board of Studies of Hemchand Yadav University, Durg. The combination of different subjects in the courses in graduation level leads to knowledge gathering of students. They develop critical thinking about the subject and are able to check the assumptions and ideas from different perspectives.
- **Effective communication**: Foundation course includes two language papers as Hindi language and English language in the undergraduate programme, which aims for development of communication skills. The students will be able to communicate with people, express ideas through books, media and technology.
- **Social interaction**: In UG programme, the courses include practicals and most of the subjects includes field excursion, and field studies, industrial visits which assist students for participative discussions and interactions with experts, professionals, industrialists, entrepreneurs, social activists etc.
- **Ethics**: College administration induce the ethical conducts to students during the entire stay of students in campus and by conducting induction program in the beginning of session and imparting code of conduct to students from time to time thus helping them to develop ethical values amongst the students .
- **Environment and Sustainability**: As per the supreme court guideline the undergraduate courses incorporate Environmental studies as a subject which imparts studies related to environmental issues and sustainability in which the students are given projects pertaining to the environmental concerns. It leads students to understand the issues of environmental contexts and sustainable development.
- **Effective Citizenship**: During the three year UG programme, students actively participate in NCC, NSS, Red cross society activities. This participation help them in developing effective citizenship, awareness of national issues and concerns and to be good citizens.
- **Self directed and life long learning**: Students acquire various traits on completion of the course and program and develop the ability to learn by their own , consequently life long learning process is part of the personality.

POSTGRADUATE PROGRAMME

M.A.

Programme Outcomes (POs)

At the end of the completion of Postgraduate Programme, students are able to attain the following attributes

At the end of PG programme, students are able to attain the following attributes:

- **Disciplinary knowledge:** The enhanced domain knowledge during the entire programme leads to profound expertise in discipline and increase confidence to take up new challenges in discipline as per demand.
- **Research aptitude:** abilities to investigate, innovate, use intellect to target problems and needs of societal welfare are the integral part of research, which is imbibed in students during their learning process.
- **Effective citizenship:** The students develop sense of responsibilities as good citizens, build up contributory approach to national development in small steps by remaining sensible to cultural-regional variations and respect of ideas.
- **Leadership qualities:** The students as part of post graduate programmes develop leadership qualities, develop capabilities of working as a team to achieve goals.
- **Ethical awareness:** Professional ethics are expected from the individuals for serving any work place, which students learn from their learning environment.
- **Self-directed learning and lifelong learning:** The challenges posed during programme as question based learning enable them to work independently, identify appropriate resources required for problem solving, managing projects. Fast learning through ICT tools, integrates self-directed learning, digital learning with life-long learning.

DEPARTMENT OF COMMERCE

B.COM. I

Course Outcomes for Bachelor of Commerce Part I

S.No.	Name of the course	Outcomes
1	Financial Accounting	<ul style="list-style-type: none">• To enable the students to learn principles and concepts of Accountancy.• Students are enabled with the knowledge in the practical applications of accounting.• To find out the technical expertise in maintaining the books of accounts.• To encourage the students about maintaining the books of accounts for further reference.
2	Business mathematics	<ul style="list-style-type: none">• Introduces mathematics to undergraduate students of commerce & industries to solve the real life problems.• Prepares students to develop skills to solve financial problems.
3	Business communication	<ul style="list-style-type: none">• To make the students aware about the business communication.• Corporate communication helps future managers and employees in performing managerial functions smoothly.
4	Business regulatory framework	<ul style="list-style-type: none">• Provides an overview of the basic concepts relating to industrial law.• Provides knowledge of partnership act and consumer protection act 1986.
5	Business Economics	<ul style="list-style-type: none">• Creates awareness among students about various economic conditions of macro-economics such as inflation, unemployment etc.• Updates students about the open economy with International trade.
6	Business Environment	<ul style="list-style-type: none">• To make the students aware about the Business and Business Environment.

DEPARTMENT OF COMMERCE

B.COM. II

Course Outcomes for Bachelor of Commerce Part II

S.No.	Name of the course	Outcomes
1	Corporate Accounting	<ul style="list-style-type: none">• Students skills about accounting standards will be developed.• To make aware the students about the valuation of shares.
2	Company law	<ul style="list-style-type: none">• Creates understanding of various standards, maintaining order, solving disputes and other rights.• Acts as a guide post for minimally accepted behavior in the society.
3	Cost Accounting	<ul style="list-style-type: none">• Impacts the knowledge of various costs on the basis of element behavior and functions.• Helps in ascertaining the cost of material and labour.
4	Principles of Bus. Management	<ul style="list-style-type: none">• Prepares the students with better managerial abilities and development of managerial skills.• Provide detail knowledge about the management process and various functions of management.
5	Business Statistics	<ul style="list-style-type: none">• To provide practical exposure on calculation of measures of average.• To introduce the students about the concept of provability.
6	Fundamental of Entrepreneurship	<ul style="list-style-type: none">• Enhances the entrepreneurial abilities of the students and develops creativity for better Functioning of the organization.• Familiarizes students with business planning in different types of entrepreneurs and the evolving concepts of entrepreneurial ship.

DEPARTMENT OF COMMERCE

B.COM. III

Course Outcomes for Bachelor of Commerce Part III

S.No.	Name of the course	Outcomes
1	Income Tax	<ul style="list-style-type: none">Helps students to know various Tax procedure.update student with current Taxation policies.
2	Auditing	<ul style="list-style-type: none">Creates understanding of the need & benefits of having audit of financial statements.Analyses an organization's operations and maintenance of systems of internal controls that can help detect and prevent various forms of fraud and other accounting irregularities.
3	Indirect Taxes with GST	<ul style="list-style-type: none">Enables learners to acquire the knowledge of Goods and services.Explores the process of Registration, place and value of supply and computation of tax liability.
4	Management Accounting	<ul style="list-style-type: none">Help the give proper idea on financial statement analysis in practical point of view.To provide knowledge about budget control keeping in mind the scope of the concept.
5	Principles of marketing	<ul style="list-style-type: none">To study and critically analyze the basic concepts and trends in marketing.To aware of the recent changes in the field of marketing.
6	International Marketing	<ul style="list-style-type: none">This course enables the students, the practical knowledge and the tactics in the International marketing.Provides Information regarding product planning and pricing decisions for export marketing.

DEPARTMENT OF HISTORY

B.A. I

Course Outcomes for Bachelor of Arts Part I

- Describe Prehistory and Protohistory.
- Classify urbanisation in the genetic basin.
- Classification of Buddhism and Jainism.
- Identify early maps.
- Students will develop a comprehensive understanding of the theories and practice of language.
- Students will demonstrate advanced critical thinking skills inclusive of information literacy

DEPARTMENT OF ECONOMICS

B.A. I

Course Outcomes for Bachelor of Arts in Economics Part I

- Explain the function of market and prices as collective mechanisms
- Apply the concept of equilibrium to both micro economics and macro economics.
- Identify and explain major types of market failures.
- Discuss the application of marginal analysis.
- Explain the use of benefit/cost analysis.
- Explain the contribution of economics to the analysis of non-market social issues.
- Present economics argument in non-quantitative form.
- Synthesize the arguments found in both academic and popular economic media.
- Discuss economics concepts in an articulate manner in a classroom.
- Recognize how to use scientific method in economics.
- Recognize underlying assumptions in economics methods

DEPARTMENT OF ECONOMICS

B.A.II.

Course Outcomes in Economics

- Develop ideas of the basic characteristics of Indian economy, its potential on natural resources.
- Understand the importance, causes and impact of population growth and its distribution, translate and relate the with economic development.
- Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.
- Understand agriculture as the foundation of economic growth and development, analyse the progress and changing nature of agricultural sector and its contribution to the economy as a whole.
- Not only be aware of the economy as a whole, they would understand the basic features of Mizoram's economy, sources of revenue, how the state government finance its program and projects.
- Understand how factor market works, illustrate basic tools in.

DEPARTMENT OF ECONOMICS

B.A.III.

Course Outcomes in Economics

- Demonstrate the meaning and function of money, high powered money, monetary and paper system, illustrate various version of quantity theory of money.
- Identify types of banks, explain the meaning and function of commercial banks, illustrate how banks create credit, and suggest the instruments to control credit.
- Analyze different phases of trade cycle, demonstrate various trade cycle theories, understand the impact of cyclical fluctuation on the growth of business, and lay policies to control trade cycle.
- Illustrate the meaning of inflation, deflation, stagflation and reflation, identify different kinds of inflation, causes and effects of inflation on different sectors of the economy, describe different measures to control inflation.
- Explain economic growth and development, illustrate Harrod-Domar and Solow's growth model, distinguish between economic growth and technical progress.
- Understand the conditions of financial markets and its impact in the economy.
- Demonstrate the role and significance of foreign exchange rate and its markets with its impact on various sectors in the economy.

DEPARTMENT OF GEOGRAPHY

Course Outcome B.A. Geography

B.A.-I	Paper-I	Physical Geography <ul style="list-style-type: none"> Understand the effect of rotation of revolution the earth. Know the internal and interior structure of the earth. Study the formation of Rocks. Understand the work of internal and external forces and their associated landforms. Understand the types of winds and composition of atmosphere atmospheric pressure of belts.
B.A.-I	Paper-II	Human Geography <ul style="list-style-type: none"> Gain knowledge about major themes of human geography. Acquire knowledge on the history and evolution of humans. Understand the approaches and processes of human geography as well as the diverse patterns of habitat and adaptations. Develop an idea about space and society.
B.A.-II	Paper-I	Economic & Resources Geography <ul style="list-style-type: none"> Student would be integrating the various factors of economic development and dynamic aspects of economic Geography. Classify economic activities with their features and differentiate, undeveloped and developing countries. Classify resource focus on use non-conventional energy resources crisis. Classify industries, transport, communication and trade. Describe various national and international organization also new concepts.
B.A.-II	Paper-II	Geography of India <ul style="list-style-type: none"> They can know about their own countries land formation, climate and natural vegetation. They understand the economic resources of India. They understand the social distribution of population of their country. Develop an idea about regionalization of India.
B.A.-III	Paper-I	Remote Sensing and Geographical Information System <ul style="list-style-type: none"> Have knowledge of the principles of remote sensing sensor resolutions and image referencing schemes. Interpret satellite imagery and understand the preparation of false color composites from them. Training in the use Geographic information system (GIS) software for contemporary mapping skills. Analyzing and interpreting remotely sensed satellite images and aerial photographs in order to understand. topographical and cultural variations on the earth surface. Apply GIS to the preparation of thematic maps. Use GNSS.

Remote Sensing and Geographical Information System

- Have knowledge of the principles of remote sensing sensor resolutions and image referencing schemes.
- Interpret satellite imagery and understand the preparation of false color composites from them.
- Training in the use Geographic information system (GIS) software for contemporary mapping skills.
- Analyzing and interpreting remotely sensed satellite images and aerial photographs in order to understand topographical and cultural variations on the earth surface.
- Apply GIS to the preparation of thematic maps.
- Use GNSS.

Practical B.A.-I,II,III

- Develop in idea about scale and draw different types of scale like linear, diagonal and vernier.
- Acquire knowledge different types of map projection.
- Gain knowledge about topographical maps and apply this knowledge in ground surface.
- Learn the use of various minor instruments like rotameter, planimeter and pantograph.
- Brings direct interaction of different types of surveying instruments like prismatic compass, plane table with environment.
- Students learn to use of various meteorological instruments and also learn to interpret of the Indian daily weather report.
- That's help students to predict the weather report in future.
- They understand and gain knowledge about statistical techniques.
- Students learn to use pocket stereoscope and interpret the aerial photograph with the help of pocket stereoscope. Also develop their skill in remote sensing and G.I.S.
- Students learn to draw many cartography diagram and apply this in different statistical data.
- They can able to select the appropriate technique for presentation of a data to their field work.
- Their knowledge about primary and secondary data collection helps them to prepare their survey report.

DEPARTMENT OF HINDI

Course Outcomes in Hindi Language for all UG Programme B.A., B.sc., B.com.

- भाषा संबंधी स्किलडेवलप होती है।
- पत्र संपादक एवं मुद्रण में सहायता।
- अनुवादक बनने में सहायक।
- प्रतियोगी परीक्षा के लिए भाषा का ज्ञान।
- भाषा पर अधिकार प्राप्त होता है।

DEPARTMENT OF ENGLISH

Course Outcomes in English Language for all UG Programme B.A., B.sc., B.com.

- Four genres of literature, literary and historical events.
- Pre and Post independent India Human Values , Professional Ethics ,Gender Issues and Environmental Concerns
- To equip the learner with knowledge of English as a world language
- To speak and write accurately in variety of contents and genres
- To create a discreet mind B.A. Part-I, II, III Paper-I & II

DEPARTMENT OF MICROBIOLOGY

Course Outcome for B.Sc. I, II, III B.Sc. Microbiology

S.No.	COURSE	OUTCOME
1	B.Sc.I Year General Microbiology And Basic techniques	Students will be able to understand the contribution various scientist in microbiology and scopes of various branches of microbiology. Understands various microbial techniques (culture, staining, Serial dilution, isolation technique).
	Basic microbial techniques	Understand various stapes of cell divisions of microbes and microbial physiology, Genetics of microbes.
2	B.Sc.II Year Molecular Biology genetic engineering and microscopy, centrifugal technique	Students will be able to Define various stapes of genetic engineering . Identify different parts of microscope and they will be able to know about microscopic study in various department.
3	B.Sc.III Year Molecular biology and genetic engineering Environment and medical microbiology	Students will be able to To study the microorganism found in environment To gain knowledge of the relationship between the human body and microorganism They will be able to know the different diseases caused by microorganism

DEPARTMENT OF MATHEMATICS

Course Outcome for B.Sc. I.

- Learn to solve system of linear equation.
- Learn to solve system of elementary matrices relation and
- Mapping solve to liner equation.
- Learn to solve system of change of variables, Tracing of conins and solve of cylinder equation.
- Gail knowledge of fundamental concepts of real number and introduction to sequence and series.

Course Outcome for B.Sc. II.

- Verify the value of the limit of a function at a point using the definition of the limit.
- Student will be to understand differentiation and fundamental theorem in differentiation.
- Introduction to ordinary differential equation and solve dif. Equation problems.
- Student will be to understand mechanics like harmonic oscillations kinetic energy.

Course Outcome for B.Sc. III.

- Finding extreme values of function and introduction to complex analysis.
- Learn to find roots of polynomial over rational roots.
- Introduction to complex analysis solve linear equation.
- Acquire good knowledge and understanding in advanced analysis of vector geometry and algebra problem.

DEPARTMENT OF PHYSICS

Course Outcome for B.sc. I.

B.SC. Part-1	Paper first :- MECHANICS AND RELATIVITY <ul style="list-style-type: none">• Understand the motion of objects in different frame of references.• Understand laws of motion, reference frames, and its applications i.e. projectile motion, simple harmonic oscillator, Rocket motion, elastic and inelastic collisions.• Understand the idea of conservation of angular momentum, central forces and the effective potential.• Understand the application of central force to the stability of circular orbits, Kepler's laws of planetary motion, Orbital Precession and Rutherford scattering.• Understand the dynamics of rotating objects i.e. rigid bodies, angular velocity, the moment of inertia, parallel axis theorem, the inertia tensor, the motion of rigid bodies. non-inertial frames: pseudo forces, examples involving the centrifugal force and Coriolis force.• Understand the basics of material properties like, elasticity, elastic constants and their relation, torsion of a cylinder, bending of a beam, cantilever, beam supported at its ends and loaded in the middle.• Understand the basics of motion of fluid which includes streamlined and turbulent flows, equation of continuity, critical velocity, flow of a liquid through a capillary tube, capillaries in series and parallel, Stokes' formula.
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B.Sc. part-1	<p>Paper second :- MATHEMATICAL METHOD</p> <ul style="list-style-type: none"> • Learn and understand calculus. Starting with review of differentiation, exponential and logarithm functions, trigonometric functions, plotting functions, differentials and basics of integration. • Understand Gaussian integrals, integration by parts, differential and integral calculus for many variables, Lagrange multipliers and Jacobins, Taylor series and their applications in physics. • Understand math of complex number and application of Cauchy-Riemann Equations, Residue Theorem and Taylor Series for analytic functions. • Understand basics of vector calculus. • Understand divergence, gradient and curl and their physical interpretation. • Understand divergence theorem, Green's theorem, Stokes' theorem and appreciate its applications. • Understand basics of matrices and determinants i.e. inverses, linear vector spaces, basis, basis transformations and linear operators, determinants, eigenvalues, eigenvectors, simple applications, and basics of tensors.
B.Sc. part-1	<p>PHYSICS LAB :-</p> <ul style="list-style-type: none"> • A working knowledge of fundamental physics and basic mechanics principles. • The ability to identify, formulates, and solve physics problems. • The ability to formulate, conduct, analyzes and interprets experiments in physics. • The ability to use modern physics techniques and tools, including mathematical techniques, graphs and laboratory instrumentation.

DEPARTMENT OF PHYSICS

Course Outcome for B.sc. II

B.Sc. part-2	Paper first :- OSCILLATIONS, WAVES & ACOUSTICS <ul style="list-style-type: none">• Understand the concepts of mechanics, acoustics and the properties of matter.• Ability to recognize and use a mathematical oscillator equation and wave equation, and derive these equations for certain systems, point out the limitations and be able to refer to very different solutions of identical oscillator equations due to different initial and boundary conditions.• Understand how several waves or parts of waves interact, and be able to calculate and analyze diffraction and interference phenomena, and explain the conditions required for such phenomena to appear.• Able to calculate what happens when waves move from one medium to another, and be able to explain dispersion and group and phase velocity.• Use Lissajous figures to understand simple harmonic vibrations of same frequency and different frequencies.• Able to solve wave equation and understand significance of transverse waves.• Able to solve wave equation of a longitudinal vibration in bars free at one end and also fixed at both the ends.• Obtain boundary conditions of a longitudinal vibration in bars free at one end and also fixed at both the ends.• Gain knowledge on applications of transverse and longitudinal waves.• Understand application of acoustics in noise and music, musical scale, sonar and ultrasonic.
B.Sc. part-2	Paper second :- ELECTRICITY & MAGNETISM <ul style="list-style-type: none">• Understand the basic concepts of electric and magnetic fields.• Understand the concept of conductors, dielectrics, inductance and capacitance.• Gain knowledge on the nature of magnetic materials.• Understand the concept of static and time varying fields.• Gain knowledge on electromagnetic induction and its applications• Gain knowledge on EM waves, propagation and their properties.• Ability to use Maxwell's equations in calculations featuring: both free and stationary electromagnetic waves.
B.Sc. part-2	PHYSICS LAB <ul style="list-style-type: none">• Understand physical characteristics of SHM and obtaining solution of the oscillator using experiment.• Use both analytical mathematics and numerical methods to explore the subjects mentioned above. In particular you should be able to analyse experimental oscillator or wave phenomena, such as sound, using suitable methods.• Use Lissajous figures to understand simple harmonic vibrations of same frequency and different frequencies.• Solve wave equation and understand significance of transverse waves.• Solve wave equation of a longitudinal vibration in bars free at one end and also fixed at both the ends.• Obtain boundary conditions of a longitudinal vibration in bars free at one end and also fixed at both the ends.• Gain knowledge on applications of transverse and longitudinal waves.

DEPARTMENT OF PHYSICS

Course Outcome for B.sc. III.

B.Sc. part-3	Paper first :- OPTICS <ul style="list-style-type: none">• Understand phenomenon based on light and related theories .• Get skills to identify and apply formulas of optics and wave physics• Understand the event like reflection, refraction, interference, diffraction etc• Understand the applications of diffraction and polarization.• Understand the applications of interference in design and working of interferometers.• Understand the resolving power of different optical instruments.• Understand working of optical fiber and their applications in communication.
B.Sc. part-3	Paper second :- INTRODUCTION TO QUANTUM MECHANICS <ul style="list-style-type: none">• Understand the origins of quantum mechanics• Understand and explain the differences between classical and quantum mechanics• Understand the idea of wave function• Understand the Schrodinger wave mechanics and operator formalism• Solve the Schrodinger equation for simple 1D time-independent potentials• Appreciate the importance and develop an understanding of angular momentum• Develop the idea of spin and quantum statistical mechanics
B.Sc. part-3	PHYSICS LAB <ul style="list-style-type: none">• Understand optical components and systems.• Understand, and choose, different models for light.• Ability to calculate light level and ray paths in optical systems.• Understand the operating principle of some important types of optical instruments.

DEPARTMENT OF ZOOLOGY

Course Outcome for B.Sc. I

- The students will be able to understand classify and identify the diversity of animals.
- The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.
- State the outline of animal classification of non-chordates and chordates.
- Classify the higher invertebrate and vertebrates' groups.
- Categorize the diversity found in the invertebrate's groups of animals like Arthropoda, Mollusca and Echinodermata.
- Categorize the diversity found in the vertebrate groups of animals like reptiles, birds and mammals.
- Explain various adaptations in avian group as migration and flight in birds.
- The learner will understand the importance of cell as a structural and functional unit of life.
- The learner understands and compares between the prokaryotic and eukaryotic system and extrapolates the life to the aspect of development.
- The cellular mechanisms and its functioning depend on endomembrane and structures. They are best studied with microscopy.

DEPARTMENT OF ZOOLOGY

Course Outcome for B.Sc. I. Practical

- Gain knowledge to identify various animals based on the Demonstrate Major and minor Dissection of Earthworm, Cockroach, Palamon and pila.
- Prepare the model /drawing of Aquatic, terrestrial, aerial and desert animals.
- List the various invertebrate and vertebrate animals in a given class.
- Identify various larval stages and development in invertebrate and vertebrate groups.
- Study of prepare the Alternative methods: By Clay/Therma Col drawing/Model etc. of Adaptive characters of Aquatic, terrestrial, aerial and desert animals.
- Study of the representative museum specimen invertebrate and vertebrate.
- Study of prepared Slides Invertebrate, frog embryology, Chick embryology and cytology.
- Give knowledge Structure and function of Endocrine glands

DEPARTMENT OF ZOOLOGY

Course Outcome for B.Sc. II.

- Explain the comparative anatomy of various organ Systems of vertebrates:
- Knowledge of basic terms in physiology.
- Students are taught the detailed concepts of digestion respiration excretion the functioning of nerves and muscles.
- Students gain fundamental knowledge of animal Physiology.
- Students Gain knowledge about the comparative physiological concepts of nutrition digestion respiration excretion metabolism and osmoregulation.
- Explain the structure of the contraction of muscle.
- Explain the concept of nutrition and digestion.
- Illustrate the anatomy and physiology of heart and cardiac cycle.
- Justify the location and structure of eye, ear and their functions.
- Explain the Theories and Evidences of organic evolution.
- Describe the Evolution of Horse.
- Gain knowledge of variation, Mutation, Isolation and Natural selection.
- Give Knowledge of the Prawn Culture, Sericulture, Apiculture, Pisciculture, Poultry keeping, Elements of Pest Control: Chemical & Biological Control
- Give Knowledge Structure and function of Endocrine glands, Hormone receptor, Biosynthesis and secretion of thyroid, adrenal, ovarian and testicular hormones, Endocrine disorder of pituitary, Thyroid, adrenal and pancreas.

DEPARTMENT OF ZOOLOGY

Course Outcome for B.Sc. II. Practical

- Study of the representative examples of the different chordates (Classified characters).
- Dissection of various systems of scolion-Afferent and Efferent branchial cranial nerves, internal ear.
- Study of prepare the Alternative methods: By Clay/Therma Col /drawing/Model etc.
- Simple microscopic technique through unstained or stained permanent mount.
- Study of prepared slides histological, as per theory papers.
- Study of limb girdles and vertebrae of frog, Varanus, Fowl and Rabbit.
- Identification of species and individual of honey bee.
- Life cycle of honey bee and silkworm.
- Exercise based on Evolution and Animal behaviour.

DEPARTMENT OF ZOOLOGY

Course Outcome for B.Sc. III.

Paper-I - Ecology, Environmental Biology, Toxicology, Microbiology and Medical Micro Biology After successful completion the student would be able:

- To understand the basic theories and principles of ecology, ecosystems and their functioning to be aware of toxicants, their impacts on environment and remedial measures To understand the microbial world, its structure and function and to familiarize with the applied aspects of microbiology To make them aware of the pathogens, health related problems, their origin and treatment

Paper-II - Genetics, Cell-Physiology, Biochemistry, Biotechnology and Biotechniques After successful completion the student would be able:

- To get an in depth understanding of human genetics and genetic disorders
- To develop critical thinking, skill and research aptitude in the frontier areas of the biochemistry and biotechnology
- To understand the basic principal applications of analytical and separation techniques

DEPARTMENT OF CHEMISTRY

Course Outcome in Chemistry – B.Sc. Part - I

PAPER I: INORGANIC CHEMISTRY

- Students will learn atomic structure through basic concepts of Quantum Mechanics
- Students will understand periodic variations in properties of elements
- Students will acquire knowledge about various bonding's and theories of bonding's
- Students will be able to analyse qualitatively cations & anions applying principle of common ion and solubility product.

PAPER II: ORGANIC CHEMISTRY

- Students will learn basic concepts of Organic Chemistry in reference to hybridization, bondings, stability
- They will acquire understanding in isomerism, stereochemistry, conformational analysis
- They will learn about aliphatic and aromatic hydrocarbons in details.

PAPER III: PHYSICAL CHEMISTRY

- Students are expected to learn the students are expected to learn the Mathematical concepts
- They will be able to understand gaseous states, colloidal states, solid state chemistry
- They will understand principle of Chemical Kinetics and application of Catalysts in Industry.

PAPER IV: LABORATORY COURSE

- This laboratory course enables students to determine & analyse: Semi-micro qualitative analysis, Volumetric analysis.
- This course also makes students to learn separation techniques and purification of organic compounds.

DEPARTMENT OF CHEMISTRY

Course Outcome in Chemistry – B.Sc. Part - II

PAPER I: INORGANIC CHEMISTRY

- Students will learn basic concepts of coordination chemistry
- Students will understand and will be able to interpreted properties of complex formation.
- Students will acquire knowledge about various bonding's and theories of complex formation.
- Students will be able to understand about Lanthanides and Actinides, Acids & Bases, non aqueous solvents.

PAPER II: ORGANIC CHEMISTRY

- Students will learn and understand about Organic halides, Alcohols, phenols.
- They will acquire knowledge of mechanism of chemical reactions and kinetics.
- They will learn about Aldehyde's ketones, carboxylic acids, nitrogen containing organic compounds.

PAPER III: PHYSICAL CHEMISTRY

- Students are expected to learn fundamental concepts of Thermodynamics
- They will be able to understand laws of the urodynamics, thermochemistry
- They will understand principle of Chemical dynamics, chemical equilibrium, phase equilibrium
- Students will learn Laws of photochemistry, application in biochemical process.

PAPER IV: LABORATORY COURSE

- students will have expertise in determination of hardness of water
- Students will be able to describe and classify organic compounds in terms of their functional groups and reactivity.
- They will also learn the paper chromatographic separation of metal ions.
- After completion of this course students will be able to analyse the inorganic sample qualitatively.

DEPARTMENT OF CHEMISTRY

Course Outcome in Chemistry – B.Sc. Part - III

PAPER I: INORGANIC CHEMISTRY

- Students will learn through advance concepts of coordination Chemistry
- Students will learn magnetic behaviour of metal ligand complex, electronic spectra of TMC
- Students will acquire knowledge about various bonding's in organometallic compounds and Metal carbonyls
- Students will be able to acquire knowledge about biological process and role of trace elements

PAPER II: ORGANIC CHEMISTRY

- Students will learn details of Heterocyclic organic compounds
- They will acquire understanding in organometallic reagents and its applications
- They will learn Bioorganic molecules, will be able to apply knowledge about polymers and dyes in industries.
- They will be able to understand concepts of spectroscopy

PAPER III: PHYSICAL CHEMISTRY

- Students are expected to learn the advance concepts of quantum Mechanics and their applications
- They will be able to understand application of molecular and nuclear Chemistry
- Students will learn principle of electrochemistry and application in Industry and techniques of Corrosion prevention.

PAPER IV: LABORATORY COURSE

- After completion of this course students will be able to analyse the inorganic sample qualitatively.
- Students will be preparing some inorganic double salts and co-ordination complexes. With these experiments they will learn the synthetic methods for preparing inorganic compounds and characterize those compounds.