

J.D.M.V.P. CO.-OP. SAMAJ'S
ART'S, COMMERCE AND SCIENCE COLLEGE YAWAL
Course outcomes 2024-2025

Mathematics				
Class	Type	Sem.	Course Name	Outcomes
F. Y. B. Sc.	DSC	I	MT-111 Calculus	<ul style="list-style-type: none"> ➤ Understand the notions of real numbers, supremum, infimum and completeness of real numbers. ➤ Understand the notion of limit of a sequence. ➤ Understand the notion of convergence of a series of real numbers. ➤ Calculate the limit of a function at a point
			MT-112 Practical course on Matrix Algebra	<ul style="list-style-type: none"> ➤ Understand operations on matrices. 5 ➤ Understand the concept of rank of a matrix and inverse of a matrix. ➤ Understand the concept of eigenvalues and eigenvectors. ➤ Understand the concept of orthogonal matrices, quadratic forms, diagonal forms and canonical forms.
			MT-114 Mathematics for Competitive Examinations	<ul style="list-style-type: none"> ➤ Understand and appreciate usage of mathematical concepts which are utmost important in all walks of life. ➤ Solve the problems easily by using short-cut methods with time management which will be helpful for them to clear the competitive examinations for better job opportunities. ➤ Analyze the problems logically and approach the problems in a different manner.
F. Y. B. Sc.	DSC	II	MT-121 Theory of Equations	<ul style="list-style-type: none"> ➤ Use of Principle of Mathematical Induction and understand Divisibility of numbers with their properties. ➤ Find out roots of any equation of degree ≤ 5. ➤ Know the relation between roots and coefficient of quadratic, cubic and biquadratic equations and their use for finding the roots of equation. ➤ Use of Cardon's method, Descarte's method for solving equations
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			MT 124	<ul style="list-style-type: none"> ➤ Understand the basic concepts of quantitative ability.

F. Y. B. Sc.	O. E.		Quantitative Aptitude and Logical Reasoning	<ul style="list-style-type: none"> ➤ Understand the basic concepts of logical reasoning skills. ➤ Acquire satisfactory competency in use of reasoning. ➤ Solve campus placement aptitude papers. ➤ Prepare themselves for various competitive examinations.
2025-2026				
S. Y. B. Sc.	Major		MT-211 Calculus of Single Variable	<ul style="list-style-type: none"> ➤ Demonstrate a clear understanding of limits, continuity, derivatives, and integrals as foundational concepts in calculus. ➤ Apply differentiation techniques and related theorems to analyze functions and solve problems involving continuity and successive derivatives. ➤ Understand and use Mean Value Theorems, Taylor's and Maclaurin's theorems in both theoretical and applied contexts. ➤ Interpret and use first and second derivatives to study the behavior of functions, including graphing and rate-of-change analysis.
S. Y. B. Sc.	Major		MT-212 Vedic Mathematics	<ul style="list-style-type: none"> ➤ Perform rapid and accurate arithmetic operations using Vedic methods. ➤ Demonstrate proficiency in dividing and factorizing algebraic expressions using Nikhila, Paravartya, and other techniques. ➤ Solve simple and complex equations using Vedic methods such as Sunyam and mergers. ➤ Develop analytical thinking through Vedic mathematics, encourage further research in Indian mathematical traditions, and promote the values of Vedic culture.
S. Y. B.Sc.	Major		MT-213 Practical Course on Laplace Transform	<ul style="list-style-type: none"> ➤ Understand piecewise continuous functions, exponential order, and basic concepts of Laplace and inverse Laplace transforms. ➤ Compute Laplace transforms of standard and periodic functions, including those involving the Heaviside and Dirac delta functions. ➤ Apply key properties and theorems of Laplace transforms to simplify and solve problems. ➤ Solve ordinary differential equations using Laplace transform techniques.
S. Y. B. Sc.	Minor	III	MT-214 Linear Programming Problems	<ul style="list-style-type: none"> ➤ Solve the linear programming problem by graphical method. ➤ Solve the linear programming problem by simplex method. ➤ find optimum solution of assignment problems by Hungarian method. ➤ Solve the game by using maximin-minimax principal, algebraic method, dominance property and graphical method.

	Minor		MT-215 Introduction to Python	<ul style="list-style-type: none"> ➤ Become adept at using Python for calculations, symbolic computations. ➤ Create plots, graphs, and other visual representations of mathematical objects and concepts. ➤ Helps students explore and solidify their understanding of mathematical theories and principles. ➤ Solve a variety of mathematical problems calculus and Matrix
	Minor		MT-216 Practical Course on Python	<ul style="list-style-type: none"> ➤ Become adept at using Python for calculations, symbolic computations. ➤ Create plots, graphs, and other visual representations of mathematical objects and concepts. ➤ Helps students explore and solidify their understanding of mathematical theories and principles. ➤ Solve a variety of mathematical problems calculus and Matrix
	O. E.		MT-217 Mathematics for Competitive Examinations-II	<ul style="list-style-type: none"> ➤ Interpret and extract meaningful insights from various data formats such as tables, bar graphs, pie charts, and line graphs. ➤ Identify and apply patterns in sequences involving numbers, letters, and alphabets for solving series completion problems. ➤ Solve basic coding-decoding problems and accurately deduce blood relationships from coded information. ➤ Apply logical reasoning to solve puzzle-based questions, including direction sense, seating arrangements, and Venn diagram logic
S. Y. B.Sc.	Major	III	SEC-1 MT-218 Discrete Mathematics	<ul style="list-style-type: none"> ➤ Describe the structure and properties of posets and lattices using appropriate terminology. ➤ Apply diagrammatic techniques to represent and analyze lattices. ➤ Distinguish among types of lattices, including modular, distributive, complemented, and relatively complemented lattices. ➤ Understand and interpret lattice homomorphisms and identify key elements within posets.
S. Y. B.Sc.	Major	III	MT-219 Practical Course on SciLab	<ul style="list-style-type: none"> ➤ Implement and determine simple mathematical computations in SciLab. ➤ Interpret and visualize simple mathematical functions using SciLab tools. ➤ Analyze the mathematical problem with simulation environment in SciLab ➤ Understand the need for simulation/implementation for the verification of mathematical functions.
S. Y. B. Sc.	Major	IV	MT-221 Group Theory	<ul style="list-style-type: none"> ➤ Identify and verify group structures in algebraic systems, and classify groups as Abelian, finite, or infinite with correct computation of orders.

				<ul style="list-style-type: none"> ➤ Determine and analyze subgroups and cyclic groups, and apply key theorems such as Lagrange's, Euler's, and Fermat's in problem-solving. ➤ Understand and apply homomorphisms and isomorphisms, including computing kernels and identifying automorphisms. ➤ Represent and manipulate permutations, express them as products of cycles or transpositions, and distinguish between even and odd permutations.
S. Y. B.Sc	Major	IV	MT-222 Practical course on Ordinary Differential Equations	<ul style="list-style-type: none"> ➤ Understand basic concepts in differential equations. ➤ Understand method of solving differential equations ➤ Understand use of differential equations in various fields. ➤ Understand the method of solving the homogeneous linear differential equation.
S. Y. B. Sc.	Minor	IV	MT-223 Graph Theory	<ul style="list-style-type: none"> ➤ Understand and differentiate between various types of graphs such as simple graphs, multigraphs, and subgraphs, and apply operations on graphs. ➤ Analyze graph connectivity and traversal, including the identification of Eulerian and Hamiltonian paths and solving related problems like the Konigsberg bridges and Traveling Salesman Problem. ➤ Apply planar graph properties and graph coloring techniques, including Euler's formula, Kuratowski's Theorem, and dual graphs. ➤ Construct and evaluate trees and spanning trees, including rooted and binary trees, and determine minimal spanning trees using appropriate algorithms.
	Minor		MT- 224 Practical course on Graph Theory	<ul style="list-style-type: none"> ➤ Understand the uses of the graph theory, designing issues in different problems like Konigsberg Seven Bridge Problem, Travelling salesman Problem. ➤ Understand the issues associated with different types of graphs viz connected graphs, disconnected graphs ➤ Find the minimal Spanning trees. ➤ Form flowchart using rooted trees.

	O. E.		MT-225 Business Mathematics	<ul style="list-style-type: none"> ➤ Understand and apply the concepts of annuities, including the distinction between annuity due and regular annuity, and calculate their present and future values in commercial arithmetic contexts. ➤ Demonstrate knowledge of financial instruments such as stocks and shares, and compute basic values like face value, market value, and dividend, including classifications like equity, preference, and bonus shares. ➤ Analyse and solve simple numerical problems related to mutual funds, including calculations of Net Income, NAV changes, entry/exit load, and price averaging under SIP. ➤ Interpret and analyse data presented in tables and line graphs, including single and multiple dependent variable graphs, and use data representation techniques for effective communication of quantitative information.
S. Y. B.Sc	Major	IV	VC-1 MT-226 Introduction to SageMath	<ul style="list-style-type: none"> ➤ Become adept at using SageMath for calculations, symbolic computations. ➤ Create plots, graphs, and other visual representations of mathematical objects and concepts. ➤ Helps students explore and solidify their understanding of mathematical theories and principles. ➤ Solve a variety of mathematical problems, including those in calculus, linear algebra.
S. Y. B.Sc.	Major	IV	MT-227 Course Title: Practical Course on SageMath	<ul style="list-style-type: none"> ➤ Become adept at using SageMath for calculations, symbolic computations. ➤ Create plots, graphs, and other visual representations of mathematical objects and concepts. ➤ Helps students explore and solidify their understanding of mathematical theories and principles. ➤ Solve a variety of mathematical problems, including those in calculus, linear algebra.
Physics				
F. Y. B.Sc.	DSC	I	PH-111 Physics Principles and Applications-I	<ul style="list-style-type: none"> ➤ Understand the basic physics principles in the field of current electricity, electric circuit analysis, electromagnetism and optics. ➤ Apply these principles in understanding applications of these principles ➤ Apply the knowledge gained, in solving some simple problems based on these principles, ➤ Analyze a problem/situation to understand the basic physics principles involved in it.
F. Y. B.Sc.	DSC	I	PH-112 Laboratory-I	<ul style="list-style-type: none"> ➤ Demonstrate basic laboratory skills essential in Physics Laboratory,

				<ul style="list-style-type: none"> ➤ Understand the specifications of laboratory equipment and their significance, ➤ Apply the basic physics principles, learnt in the course PH-111, in the laboratory.
F. Y. B.Sc.	OE		PH-114 Materials in today's world	<ul style="list-style-type: none"> ➤ Define the possible states of matter and their basic properties. ➤ Explain the chronological development that materials have gone through for achieving their present stage and importance of materials in development of human civilization ➤ Compare and classify materials and explain their properties ➤ Understand developments in advanced materials and their applications
F. Y. B.Sc.	DSC	II	PH-121 Physics Principles and Applications-II	<ul style="list-style-type: none"> ➤ Understand the basic physics principles in the field of gravitation, fluids, sound and semiconductors ➤ Apply these principles in understanding applications of these principles, ➤ Apply the knowledge gained, in solving some simple problems based on these principles, ➤ • Analyze a problem/situation to understand the basic physics principles involved in it.
F. Y. B.Sc.	DSC	II	PH-122 Laboratory-II	<ul style="list-style-type: none"> ➤ Demonstrate basic laboratory skills essential in Physics Laboratory, ➤ Understand the specifications of laboratory equipment and their significance, ➤ Apply the basic physics principles, learnt in the course PHY-121, in the laboratory.
F. Y. B.Sc.	OE		PH-124 Energy	<ul style="list-style-type: none"> ➤ Understand the availability of Renewable and Non-renewable Energy Sources. ➤ Understand the significance of renewable energy sources and energy storage. ➤ • Make appropriate choice of energy source depending on usage pattern.
S. Y. B.Sc.	DSC		DSC PH-211 Modern Physics	<ul style="list-style-type: none"> ➤ Understand the fundamental principles of modern physics and modern atomic theories ➤ Correlate the knowledge gained with other disciplines in physics.
S. Y. B.Sc.	DSC		PH-212 Ancient Indian Astronomy (Subject Specific IKS)	<ul style="list-style-type: none"> ➤ Understand the scientific base of Ancient Indian Astronomy and the developments in it. ➤ Apply the knowledge of basic concepts in Astronomy in daily life.
S. Y. B.Sc.	DSC		PH-213 Laboratory-III	<ul style="list-style-type: none"> ➤ Design, plan and execute experiment related to theories in modern physics, ➤ Demonstrate experimental skills necessary to perform such experiments.
S. Y. B.Sc.			PH-214 (MIN 1) Fundamentals of Physics	<ul style="list-style-type: none"> ➤ Understand the fundamental principles of modern physics and modern atomic theories

				<ul style="list-style-type: none"> ➤ Corelate the knowledge gained with other disciplines in physics.
S. Y. B.Sc.	MIN		PH-215 (MIN 2) Solar, Thermal & Photovoltaic System	<ul style="list-style-type: none"> ➤ Understand the nature of solar energy and its applications. ➤ Understand the methods and principles of the conversion of solar energy in thermal and electrical energy. ➤ Get an overview of different terminologies used in solar thermal and photovoltaic systems. • Make a proper choice of solar energy technology depending on application/requirement.
S. Y. B.Sc.	MIN		PH-216 (MIN 3) Minor Lab-I	<ul style="list-style-type: none"> ➤ Differentiate between solar power and solar energy and measure these quantities ➤ Understand and measure performance parameters of solar thermal devices ➤ Understand and measure performance parameters of solar modules and their various combinations • Identify different components in SPV system, understand their specifications ➤ Design a simple stand-alone SPV system
S. Y. B.Sc.	OE		PH-217 Space Technology & Applications (India)	<ul style="list-style-type: none"> ➤ To understand the developments in Indian Space Science Programs, ➤ To understand various applications of Indian Space Science Programs
S. Y. B.Sc.	SECI		PH-218 Physics Laboratory Skills	<ul style="list-style-type: none"> ➤ Assess the possible sources of error in the measurements. ➤ Analyse observed data. ➤ Present the observed data in a scientific way. ➤ Work in a physics laboratory safely.
S. Y. B.Sc.	SECII		PH-219 Skill Lab-I	<ul style="list-style-type: none"> ➤ Assess the possible sources of error in the measurements. ➤ Analyze observed data. ➤ Present the observed data in a scientific way. ➤ Work in a physics laboratory safely.
S. Y. B.Sc.	DSC		PH-221 Basic Electronics	<ul style="list-style-type: none"> ➤ Understand working principle of diode analog circuits, • Design simple diode analog circuits, • Understand working principle of BJT in applications like amplifier and switch, • Understand basic digital electronics principles, • Apply those principles in simple Digital electronic circuits.
S. Y. B.Sc.	DSC Major Course		PH-222 Course Title: Laboratory-IV	<ul style="list-style-type: none"> ➤ Students Will acquire practical skills for performing simple experiments related to Electronics, ➤ Students will be able to corelate the theoretical knowledge to experimental observations ➤ Students will be able to design simple electronics circuits
S. Y. B.Sc.	MIN		PH-223 (MIN 4) Fundamentals of Electronics	<ul style="list-style-type: none"> ➤ Understand working principle of diode analog circuits, ➤ Design simple diode analog circuits, ➤ Understand working principle of BJT in applications like amplifier and switch,

				<ul style="list-style-type: none"> ➤ Understand basic digital electronics principles, • ➤ Apply those principles in simple Digital electronic circuits.
S. Y. B.Sc.	MIN		PH-224 Minor Laboratory-II	<ul style="list-style-type: none"> ➤ Students Will acquire practical skills for performing simple experiments related to Electronics, ➤ Students will be able to corelate the theoretical knowledge to experimental observations ➤ Students will be able to design simple electronics circuits
S. Y. B.Sc.	MIN		PH-225 Defence Science and Technology (India)	<ul style="list-style-type: none"> ➤ To understand the developments in Indian Defence sector. ➤ To understand contribution of different technologies developed by Indian Defence Sector in various other fields.
Chemistry				
F.Y. B.Sc.		I	CH-111 - Fundamentals of Chemistry-I	<ul style="list-style-type: none"> ➤ Students will be able to understand fundamentals of organic reaction mechanism, structural isomerism, methods of purification of organic compounds. ➤ To understand periodic properties and their general trends in groups and periods.(Atomic size, Ionization energy, Electron affinity, Electro negativity, Metallic properties). ➤ To understand different methods of preparation and chemical properties of alkanes, alkenes and alkynes ➤ Students will be able to determine surface tension and viscosity of liquids and understand the relation between them.
			CH-112 Chemistry Practical-I	<ul style="list-style-type: none"> ➤ Students will be able to understand determine of relative viscosity of liquid by viscometer ➤ To determine equivalent weight, surface tension and enthalpy of salt ➤ Understand the preparation and standardization procedures. ➤ Students will be able to a analyze cation and anion of unknown inorganic compound ➤ Understand the calibration of volumetric apparatus pipette / volumetric flask.
		II	CH-121 Fundamentals of Chemistry-II	<ul style="list-style-type: none"> ➤ Classify Haloalkanes, its nomenclature and different methods of preparation of mono halogen and dihalogen derivatives. ➤ To classify, give nomenclature and methods of preparation of alcohols, ethers and phenols ➤ Understand the applications of hybridization, concept to understand geometries of different molecules ➤ Students will be able to understand Valence Shell Electron Pair Repulsion (VSEPR) Theory and its applications to explain geometry of irregular molecules

			CH-122 Chemistry Practical-II	<ul style="list-style-type: none"> ➤ To determine heat of solution of salt. ➤ Students will be able to understand the fundamentals of analytical chemistry and steps of a characteristic analysis ➤ Different types of qualitative and quantitative analyses ➤ Expresses the terms such as standard solution, titration, back titration, equivalence point, end point, primary and secondary standard. ➤ Determine the nature, functional groups and physical constant of organic compounds ➤ Determine the pH, conductance of fruit juices, and irrigation water
Chemistry				
S.Y.B .SC.		III	CH-218 Organic and Analytical Chemistry – I	<ul style="list-style-type: none"> ➤ Students will be able to distinguish between qualitative and quantitative analysis and will be able to understand sampling, accuracy, precision, significant figures and errors. ➤ Students will gain the ability to interpret experimental data and use stoichiometry to make accurate quantitative predictions. ➤ Students will distinguish between primary and secondary standard substances, understanding their role in preparing standard solutions for titration and calibration
			CH-219 Chemistry Practical	<ul style="list-style-type: none"> ➤ Students will be able to learn green synthesis reaction using Zn / acetic acid. ➤ Students will understand carbonyl group identification through semicarbazone formation, oxime formation and 2,4 DNP derivative formation. ➤ Preparation of standard 0.1 N K₂Cr₂O₇ and estimation of Fe(II) by redox titration with K₂Cr₂O₇ ➤ Learn to quantify aspirin content in pharmaceutical formulations
		IV	CH-226 Organic and Analytical Chemistry – II	<ul style="list-style-type: none"> ➤ Understand the principles and types of chromatography, including partition, adsorption, ion-exchange chromatography. ➤ Study of paper, TLC and column chromatography and their principles, techniques, and uses in separation and purification. ➤ Understand the principles of acid-base titrations and the use of acid-base indicators
			CH-227 Chemistry Practical	<ul style="list-style-type: none"> ➤ Ability to Identify the Type of Organic Compound. ➤ Competence in elemental analysis using the sodium fusion test for detecting elements such as nitrogen, sulphur and halogens in unknown organic compounds ➤ Ability to separate compounds using TLC and calculate R_f values for identification. ➤ Preparation of different acid, base solutions of different normalities and standardization of acids and bases.

				➤ Competence in performing acid-base titrations
Zoology				
F.Y.B .Sc		I	ZO-111 Fundamentals of Medical Laboratory Techniques	<p>Apply proper safety protocols in the laboratory by interpreting signage, maintaining personal hygiene, and implementing first aid procedures when necessary.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Competently operate essential laboratory instruments like microscopes, centrifuges, balances, autoclaves, and spectrophotometers for various laboratory tasks. <input type="checkbox"/> Accurately perform basic blood tests (blood group typing, hemoglobin estimation, ESR, PCV) and prepare blood smears for cell counting (RBC, WBC, differential). <input type="checkbox"/> Effectively perform a urinalysis to evaluate physical characteristics and identify normal and abnormal constituents through chemical analysis.
F.Y.B .Sc		I	ZO-112 Practicals of Fundamentals of Medical Laboratory Techniques	<ul style="list-style-type: none"> • Demonstrate adherence to safety regulations, apply first-aid procedures when necessary, and maintain accurate clinical laboratory records. <input type="checkbox"/> Competently operate essential laboratory instruments (microscopes, centrifuges, balances, autoclaves, spectrophotometers) for various laboratory tasks. <input type="checkbox"/> Accurately perform basic blood tests (blood group typing, hemoglobin estimation, ESR, PCV, cell counts) and basic urinalysis (physical examination, chemical analysis) to identify normal and abnormal parameters. <input type="checkbox"/> Gain firsthand experience by visiting a pathology laboratory and observing professional laboratory operations.
F.Y.B .Sc		I	ZO -113 Vermitechnique	<p>Articulate the principles of Vermitechnology, describe earthworm anatomy, and explain different vermicomposting methods for organic waste management.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Competently harvest worms using various methods, collect and utilize vermicast, vermicompost, and vermivash for different applications. <input type="checkbox"/> Critically evaluate how earthworm activity contributes to soil fertility, explain the benefits of vermicompost in crop production and land reclamation, and discuss their role in waste management and bioremediation processes. <input type="checkbox"/> Evaluate the economic feasibility of vermicomposting, propose marketing strategies for vermicomposting products, and identify potential financial support options (KVIC, NABARD) with their eligibility criteria.

F.Y.B .Sc		II	ZO -121 Forensic Zoology	<p>Demonstrate an understanding of how zoological evidence contributes to solving crimes, identifying perpetrators, and reconstructing events.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Competently identify and analyze different types of biological evidence (hair, teeth, blood, semen, saliva) with potential forensic significance. <input type="checkbox"/> Effectively collect and examine insect evidence at crime scenes, focusing on blow flies, dermestid beetles, and other relevant insects, to estimate the post-mortem interval. <input type="checkbox"/> Explain the basic principles of forensic medicine and medical jurisprudence, highlighting the importance of accurate and legally compliant medical evidence documentation.
F.Y.B .Sc		II	ZO -122 Practicals of Forensic Zoology	<p>Skilled in examining human hair morphology, preparing slides for scale pattern analysis, and differentiating fingerprint types.</p> <ul style="list-style-type: none"> • Competently detect blood presence, perform blood grouping tests (limited to practical scope), and utilize the acid phosphatase test for semen identification. • Effectively observe and interpret insect development stages (blow flies, dermestid beetles) to estimate the post-mortem interval at crime scenes. • Demonstrate skills in preparing casts of footprints, performing microscopic analysis of diatoms (citing relevant case studies), and writing comprehensive case reports on forensic entomology and wildlife forensics. Note: The practicality of performing some techniques (e.g., blood grouping) may vary depending on the course level and safety considerations.
F.Y.B .Sc		II	ZO -123 Public health and hygiene	<p>Demonstrate the ability to design balanced meal plans considering calorie needs and dietary requirements for different individuals and life stages.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Effectively communicate the causes, symptoms, and prevention strategies for common food-borne and water-borne diseases. <input type="checkbox"/> Competently demonstrate essential personal hygiene practices and advocate for social hygiene initiatives in the community. <input type="checkbox"/> Articulate the negative health consequences of unhealthy habits and positively promote physical activities like cycling and walking, stress management techniques (yoga), and responsible family planning methods.

S. Y. B.Sc.		III	ZO – 211 Parasitology	<ul style="list-style-type: none"> Recall fundamental concepts of parasitology, including parasite types, host classifications, and host-parasite interactions Explain the basic principles of parasitism, symbiosis, commensalism, mutualism, and their significance in biological systems. Apply knowledge to classify parasites (ecto-, endo-, intermediate, definitive, and reservoir) and identify their roles in disease transmission. Analyze the morphology, life cycle, pathogenicity, and control measures of medically important parasites and parasitic arthropods. Evaluate diagnostic techniques and control strategies for managing parasitic infections in humans and animals. Develop innovative parasite control measures and propose integrated strategies for sustainable parasitic disease management.
S. Y. B.Sc.		III	ZO – 212 Ethnozoology	<ul style="list-style-type: none"> Evaluate the ethical, ecological, and conservation-related concerns associated with ethno zoological practices. Recall the fundamental concepts, history, and significance of ethnozoology. Apply knowledge to identify and categorize various zoo-therapeutic practices and their applications in traditional medicine. Explain the cultural and religious significance of animals in Indian traditions, including myths, vahanas, and sacred symbols.
S. Y. B.Sc.		III	ZO – 213 Practicals of Parasitology and Ethnozoology	<ul style="list-style-type: none"> Recall the morphology and life cycle of major protozoan, helminthic, and arthropod parasites using permanent slides and charts Explain the cultural and religious significance of animals in Indian traditions, including myths, vahanas, and sacred symbolism Apply knowledge to identify parasites and their pathogenic effects in medical and veterinary contexts. Conduct field studies and propose sustainable approaches to integrate traditional knowledge with modern parasitological research.
S. Y. B.Sc.		III	ZO -214 Animal Type – Grasshopper	<ul style="list-style-type: none"> Recall the external features, sexual dimorphism, and physiological adaptations of grasshoppers. Explain the structure and function of various organ systems, including digestion, respiration, circulation, nervous control, and excretion.

				<ul style="list-style-type: none"> Analyze the reproductive system and life cycle stages, including egg, nymph, and adult development. Evaluate the impact of grasshoppers on crop production and propose management strategies for pest control.
S. Y. B.Sc.		III	ZO – 215 Ecology	<ul style="list-style-type: none"> Recall the basic concepts of ecosystem structure, energy flow, and ecological pyramids. Explain ecological succession, food chains, food webs, and population ecology dynamics. Apply ecological principles to analyze population growth, migration, and environmental resistance. Propose strategies for biodiversity conservation and sustainable ecosystem management.
S. Y. B.Sc.		III	ZO – 216 Practicals of Animal Type – Grasshopper and Ecology	<ul style="list-style-type: none"> Recall the external morphology and sexual dimorphism of grasshoppers. Explain the structure and function of digestive, circulatory, nervous, and reproductive systems. Analyze the life cycle stages of grasshoppers and their developmental processes Conduct field studies to analyze aquatic and terrestrial ecosystems..
S. Y. B.Sc.		III	ZO – 217 Ornamental Fish Culture	<ul style="list-style-type: none"> Develop a sustainable breeding and maintenance plan for ornamental fishes. Evaluate water quality management practices and disease prevention strategies in aquariums. Apply techniques for setting up and maintaining a functional aquarium environment. Explain the biological characteristics and classification of common ornamental fishes.
S. Y. B.Sc.		III	ZO – 218 Pearl Culture Techniques	<ul style="list-style-type: none"> Recall the basic concepts of pearl formation and types of pearls. Explain the biological and chemical properties of pearls. Apply techniques for pearl implantation and harvesting. Analyze the factors influencing nacre secretion and pearl quality.
S. Y. B.Sc.		III	ZO – 219 Practicals of Pearl Culture Techniques	<ul style="list-style-type: none"> Recall the basic concepts of pearl formation and types of pearls. Explain the biological and chemical properties of pearls.

				<ul style="list-style-type: none"> • Apply techniques for pearl implantation and harvesting. • Analyze the factors influencing nacre secretion and pearl quality. • Propose innovative techniques for improving pearl quality and sustainability.
S. Y. B.Sc.		IV	ZO – 221 Agricultural Pest management	<ul style="list-style-type: none"> • Recall the classification and characteristics of agricultural pests. • Explain the life cycle, nature of damage, and control measures of major insect pests. • Apply knowledge to identify and implement appropriate pest control measures. • Analyze the economic and environmental impact of pest control methods.
S. Y. B.Sc.		IV	ZO – 222 Practicals of Agricultural Pest management	<ul style="list-style-type: none"> • Explain the principles and applications of various pest control techniques, including IPM and biological control. • Apply knowledge to identify and use appropriate pest control measures, including pesticide appliances. • Analyze the effectiveness of biological control methods using predators and parasitoids in pest management. • Evaluate pesticide residues in foodstuffs and assess the impact of chemical control strategies.
S. Y. B.Sc.		IV	ZO – 223 Animal Type – <i>Labeo rohita</i>	<ul style="list-style-type: none"> • Recall the systematic position, habit, habitat, and external characteristics of <i>Labeo rohita</i>. • Apply knowledge to identify and describe the physiological processes of respiration, digestion, and excretion in <i>Labeo rohita</i>. • Analyze the reproductive system, fertilization process, and embryonic development of <i>Labeo rohita</i>. • Design sustainable management strategies for <i>Labeo rohita</i> fisheries based on its biological and ecological traits.
S. Y. B.Sc.		IV	ZO – 224 Practicals of Animal Type - <i>Labeo rohita</i>	<ul style="list-style-type: none"> • Recall the systematic position, habit, habitat, and external features of <i>Labeo rohita</i>. • Apply knowledge to perform anatomical studies, such as temporary preparations of scales, eyeballs, and air bladders. • Evaluate the importance of <i>Labeo rohita</i> in aquaculture, fisheries, and its economic significance. • Explain the structure and function of the digestive, circulatory, respiratory, nervous, and excretory systems.

S. Y. B.Sc.		IV	ZO – 225 Sericulture	<ul style="list-style-type: none"> Recall the history, scope, and classification of sericulture, along with different types of silkworms. Explain the life cycle, morphology, and physiological processes of <i>Bombyx mori</i>, including silk gland function. Apply knowledge of mulberry cultivation and silkworm rearing techniques, including the use of rearing appliances. Evaluate pest and disease management strategies to improve silk production and prevent economic losses.
Botany				
S. Y. B.Sc.			Angiosperm Taxonomy	<ol style="list-style-type: none"> Students will learn taxonomy of Angiosperms and naming system. Students will develop knowledge of Bentham and Hooker's system of classification. Understand the comparative account among the families of angiosperms. Students will upgrade their knowledge of distinguishing features and economic importance of the angiosperm plants. Realize the concepts of botanical gardens and herbarium techniques
S. Y. B.Sc.		III	Plant Physiology	<p>After studying this course, the students will be able to:</p> <ol style="list-style-type: none"> Know processes like diffusion, osmosis and imbibition for understanding plant water relations Understand the process of absorption of water and Ascent of sap Understand the mechanism of Transpiration Understand the mechanism of Photosynthesis Understand the mechanism of Respiration
S. Y. B.Sc.			Practical based onBO-211 and BO-212	<p>After studying this course, the students will be able to:</p> <ol style="list-style-type: none"> The student will be able to describe the angiosperm plant. The course will help students to be aware of the practical of angiosperms taxonomy.

				<p>3. The students will learn the herbarium techniques of plants.</p> <p>4. Students will be able to understand the physiological knowledge of imbibition and</p> <p>5. Osmosis.</p> <p>6. The students will get the knowledge of transpiration and rate of photosynthesis</p> <p>7. and how it varies according to environmental factors.</p>
S. Y. B.Sc.		III	Ethnobotany	<p>1. Students will be able to: Collect and identify plants using standard methods.</p> <p>2. Practice standard ethnobotanical survey techniques. Field Collection and Identification Methods.</p> <p>3. Recognize regionally important plant families.</p> <p>4. Plants utilization for different disease.</p> <p>5. Explore the general principles of ethnobotany, including its history and importance in traditional and modern culture</p>
S. Y. B.Sc.		III	Biofertilizers	<p>After studying this course, the students will be able to:</p> <p>1. Able to distinguish types of biofertilizers and the methods of application.</p> <p>2. Acquire skill of isolation and maintenance of biofertilizers</p> <p>3. Able to understand the importance of biofertilizers in relation to environment</p> <p>4. Able to understand formulation and large-scale industrial production of biofertilizers</p>
S. Y. B.Sc.		III	Practical based on BO-214 and BO-215	<p>After studying this course, the students will be able to:</p> <p>1. Recognize regionally important plant families</p> <p>2. Plants utilization for different diseases.</p> <p>3. Explore the general principals of ethnobotany, including its history and importance in traditional and modern culture.</p>

				<p>4. Able to distinguish types of biofertilizers and the methods of application.</p> <p>5. Acquire skill of isolation and maintenance of biofertilizers</p> <p>6. Able to understand the importance of biofertilizers in relation to environment</p> <p>7. Able to understand formulation and large-scale industrial production of biofertilizers</p>
S. Y. B.Sc.		III	Herbal Home Remedies	<p>1. Identify and describe various medicinal plants and their traditional uses.</p> <p>2. Understand the basic science behind common herbal remedies. and their potential therapeutic effects.</p> <p>3. Critically evaluate the scientific evidence supporting herbal claims and recognize limitations. 4. Learn safe preparation and usage methods for different herbal remedies.</p> <p>5. Develop responsible self-care practices that integrate traditional and evidence- based approaches. 6. Cultivate respect for cultural diversity and sustainable harvesting practices regarding medicinal plants.</p>
S. Y. B.Sc.		III	Vertical Farming and Hydroponics	<p>After studying this course, the students will be able to:</p> <p>1. Identify the basic elements in a vertical farming. 2. Evaluate environmental control systems.</p> <p>3. Select plants those are appropriate for vertical farming.</p> <p>4. Develop plant growing procedure.</p> <p>5. Design and maintain a simple vertical farm.</p> <p>6. Understand the advantages and disadvantages of vertical farming.</p> <p>7. Develop interdisciplinary thinking to solve challenges in vertical farming</p>
S. Y. B.Sc.		III	Practical based on BO-218	<p>At the completion of this course, students will be able to:</p>

				<ol style="list-style-type: none"> 1. Identify the basic elements in a vertical farming. 2. Evaluate environmental control systems. 3. Select plants that are appropriate for vertical farming. 4. Develop plant growing procedure. 5. Design and maintain a simple vertical farm. 6. Understand the advantages and disadvantages of vertical farming. 7. Develop interdisciplinary thinking to solve challenges in vertical farming
S. Y. B.Sc.		IV	Gymnosperm and Palaeobotany	<p>After completion of the course, student will be able to:</p> <ol style="list-style-type: none"> 1. Understand general characters of gymnosperms, Distinguishing features between gymnosperm and angiosperms. 2. Understand economic uses of gymnosperms. Understand morphology, anatomy and reproduction, of Cycas and Pinus. 3. Understand palaeobotany, fossil types, geological time scale. 4. Understand various fossil genera of different fossil groups
S. Y. B.Sc.		IV	Practical based on BO-221	<p>: After completion of the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Understand general characters of gymnosperms, Distinguishing features between gymnosperm and angiosperms. 2. Understand the economic uses of gymnosperms. Understand morphology, anatomy and reproduction of Pinus and Cycas. 3. Understand palaeobotany, fossil types, geological time scale. 4. Understand various fossil genera of different fossil groups
S. Y. B.Sc.		IV	Economic Botany	<ol style="list-style-type: none"> 1. Knowledge of economically important plant species.

				<p>2. Students should develop an understanding of the historical, cultural, and socioeconomic aspects of human-plant interactions.</p> <p>3. Identification and classification skills: Students should acquire the ability to identify economically important plant species using taxonomic keys and other identification methods.</p> <p>4. Students should gain insight into agricultural practices, including crop cultivation, breeding and management techniques aimed at improving yield, quality.</p> <p>5. Understanding of medicinal plants and natural products: including the bio active compounds they contain and their potential applications in pharmaceuticals, Herbal medicine and other health-related industries</p>
S. Y. B.Sc.		IV	Practical based on BO-223	<p>1. Knowledge of identifying economically important plant species.</p> <p>2. Identification and classification skills: Students should acquire the ability to identify economically important plant species using taxonomic keys and other identification methods.</p> <p>3. Understanding of medicinal plants and natural products: including the bioactive compounds they contain and their potential uses in pharmaceuticals, Herbal medicine and other health-related industries.</p>
S. Y. B.Sc.		IV	Industrial Botany	<p>After completing this course, student will be able to 1. Students will be able to: learn and understand about industrial methods.</p> <p>2. Students will be able to: find job opportunity.</p> <p>3. Students will be able to: to start small startup.</p> <p>4. Students will be able to: utilize plant for industrial purpose.</p> <p>5. Students will be able to: utilize the subject and its practicable applicability</p>
S. Y. B.Sc.		IV	Mushroom Cultivation	<p>After completing this course, students will be able to 1. Understanding mushrooms, types (edible & poisonous) and mushroom production.</p> <p>2. Learning cultivation of different edible mushrooms.</p> <p>3. Knowledge about climatic requirements of mushroom cultivation</p> <p>4. Knowing the harvesting and post-harvesting processes of mushrooms.</p> <p>5. Learning value-added products preparation from mushrooms</p>
S. Y. B.Sc.		IV	Practical based on BO-226	<p>After completing this course, students will be able to:</p> <p>1. Identify different types of edible mushrooms.</p> <p>2. Isolate and cultivate pure cultures of mushrooms.</p> <p>3. Prepare compost and spawn for mushroom cultivation.</p> <p>4. Harvest, process and store mushrooms.</p> <p>5. Start their own mushroom cultivation business.</p>
S. Y. B.Sc.		IV	228 On Job Training	<p>1. On-the-job training helps employees learn and perform their jobs in real-life situations while minimizing potential issues.</p> <p>2. As a result, job-related knowledge is learned, retained and applied more reliably.</p>

				3. Training of an organization's workers enables them to perform their job to the best of their ability. 4. It provides the knowledge as well as the skills they require to carry out their duties effectively.
F. Y. B.Sc.		I	Plant Diversity	1. Microscopic observation and identification of algae, fungi, bryophytes, lichens, pteridophytes and gymnosperm. 2. Observation of crop plants infected by the pathogens included in the syllabus and study of symptoms, causative agents and etiology. 3. Know the systematic, morphology and structure of Gymnosperms. 4. Understand the habit of the angiosperm plant body. 5. Know the vegetative characteristics of the plant. systematic, morphology and structure of Gymnosperms. 4. Understand the habit of the angiosperm plant body. 5. Know the vegetative characteristics of the plant.
F. Y. B.Sc			Lab- I Practical based on BO-111	1. Microscopic observation and identification of bacteria, algae, fungi, lichen, bryophytes, pteridophytes and phanerogams. 2. Observation of crop plants infected by the pathogens included in the syllabus and study of symptoms, causative agents and etiology.
F. Y. B.Sc			Plant Nursery and Management	1. Understand the importance of a plant nursery and basic infrastructure to establish it. 2. Explain the basic material, tools and techniques required for nursery. 3. Demonstrate expertise related to various practices in a nursery. 4. Comprehensive knowledge and skills to get an employment or to become an entrepreneur in plant nursery sector. 5. To know green house and polyhouse technology. 6. To know vertical farming, Hydroponic technique.
F. Y. B.Sc		II	Plant Morphology	1. After completion of the course, student will be able to: 2. Understanding of plant morphology terminologies and identifying morphological peculiarities. 3. Understand plant morphology 4. Understand basics of floral morphology 5. Understand basics various plant tissues
F. Y. B.Sc		II	Lab –II Practical based on BO-121	1. After completion of the course, student will be able to: 2. Understanding of plant morphology terminologies and identifying morphological peculiarities. 3. Understand plant morphology 4. Understand basics of floral morphology 5. Understand basics various plant tissues
F. Y. B.Sc		II	Food Technology	1. Students will demonstrate knowledge of various properties of food and its application in food industry, 2. Students will understand the Concept of food processing, conventional and advanced methods of food preservation. 3. Students will learn Methods of packing, & develop food products and for food industry.
Comptuer				
			CS-111	➤ Learn the basic principles of programming.

F. Y. B. Sc.		I	C Programming-I	<ul style="list-style-type: none"> ➤ Develop of logic using algorithm and flowchart. ➤ Acquire information about data types. ➤ Understanding of input and output functions. ➤ Enhance advanced concepts using program
			CS-112 Lab on C Programming-I	<ul style="list-style-type: none"> ➤ Formulate an algorithm and draw flowchart for the given problem ➤ Implement the given algorithm in C ➤ Write programs using appropriate data types and control structures in C
		II	Cs-121 C Programming-II	<ul style="list-style-type: none"> ➤ Learn the basic principles of programming. ➤ Develop of logic using algorithm and flowchart. ➤ Acquire the information about data types. ➤ Understanding of input and output functions. ➤ Enhance advanced concepts using program.
			Cs-122 Lab on C Programming-II	<ul style="list-style-type: none"> ➤ Formulate an algorithm and draw flowchart for the given problem ➤ Implement the given algorithm in C ➤ Write programs using appropriate data types and control structures in C
SYB Sc-		Sem III	CS-211 Data Structure-I	<ul style="list-style-type: none"> ➤ To provide knowledge how to analyze algorithm with respect to time and space. ➤ To provide the knowledge of basic data structures and their implementations. ➤ To provide the knowledge of applications of data structure in various areas.
SYB Sc-		Sem III	CS-212 Vedic Mathematics	<ul style="list-style-type: none"> ➤ Apply Vedic sutras effectively to perform mental calculations, leading to improved speed and accuracy in arithmetic operations. ➤ Utilize Vedic methods to simplify geometry and trigonometry problems, enhancing problem-solving skills in these areas. ➤ Demonstrate ethical mathematical practices, including proper attribution of sources and responsible problem-solving
SYB Sc-		Sem III	CS-213 Lab on Data Structure-I	<ul style="list-style-type: none"> ➤ The course is designed to develop skills to design and implement simple linear and nonlinear data structures and their operations. ➤ It strengthens the ability to the students to identify and apply the suitable data structure for the given real-world problem.
SYB Sc-		Sem III	CS-218 Object Oriented Programming Using C++	<ul style="list-style-type: none"> ➤ Understanding OOPs concepts. ➤ Understanding data types, operators and manipulators. ➤ Use of Functions in C++.

				➤ Understanding the concept of Operator Overloading.
SYB Sc-		Sem III	Cs-219 Lab on OOPs Using C++	➤ Student will be able to develop C++ program: Class and object Inheritances Array of objects Overload functions and operators
		SYBsc-Sem VI	CS-21 Data Structure-II	<ul style="list-style-type: none"> ➤ To provide knowledge how to analyze algorithm with respect to time and space. ➤ To provide the knowledge of data structures tree and graph with their implementations. ➤ To provide the knowledge about applications of data structure like graph and tree in various areas. ➤ To provide the knowledge of various sorting and searching techniques and their applications in various areas.
		SYBsc-Sem VI	Lab on Data Structure-II	<ul style="list-style-type: none"> • The course is designed to develop skills to design and implement simple non-linear data structures and their operations. • It strengthens the ability of the students to identify and apply the suitable data structure for the given real-world problem.
		SYBsc-Sem VI	Introduction to DBMS	<p>Understand and effectively explain the concepts of database technologies.</p> <ul style="list-style-type: none"> • Design and implement a database schema for give problem domain and normalize Database • To make the students understand the students about SQL Queries.
		SYBsc-Sem VI	Lab on DBMS	After completion of this course, students will able to write SQL DDL, DML queries, they can understand Constraints and able to implement Relationships
		SYBsc-Sem VI	SQL for All	<p>Student will be able to design SQL database:</p> <ul style="list-style-type: none"> • With constraints • SQL data handling • SQL functions.
		SYBsc-Sem VI	On Job Training	<ul style="list-style-type: none"> • Apply Theoretical Concepts to Practical Work – Demonstrate the ability to integrate classroom knowledge with hands-on experience in an industry setting. • Develop Industry-Specific Technical Skills – Gain expertise in relevant tools, technologies, and methodologies used in the industry. • Exhibit Professional and Ethical Competence – Showcase teamwork, communication, time

				management, and professional ethics in a workplace environment. <ul style="list-style-type: none">• Analyze and Solve Real-World Problems – Identify and address practical challenges using computational approaches, innovation, and critical thinking.