

Programme : B.Sc., Zoology

PO No.	Programme Outcomes Upon completion of the B.Sc., Degree Programme the graduate will be able to
PO1	emerge with competency in the subject of Zoology and apply knowledge to Cater to the needs of Society/Employer/Institution/Own Business Enterprise PO
PO2	imbibe analytical/critical/logical/innovative thinkings kills in the fields of Animal Diversity and Evolution, Molecular Biology, Embryology, Environmental Biology, Human Genetics and Applied Zoology
PO3	acquire distinct traits and ethics with high professionalism to gain a broader In sight into the domain concerned for nation building
PO4	adopt scientific temper and give a positive correlation to live with scientific values and to acquire skills in biological/analytical/culture techniques
PO5	prepare the masflexible and versatile person in the workplace, possess the capacity to embrace the emerging technologies, leadership and teamwork opportunities

PSO No.	Programme Specific Outcomes Upon completion of these courses the student would able to
PSO1	experience a broad understanding of classification, diversity and anatomical features of major group of organisms and appreciate their evolutionary relationships and environmental interactions
PSO2	develop an indepth knowledge on core concepts of developmental phenomena of animals, patterns of inheritance, functions of cellular organelles, Biomolecules and the integrated biological system
PSO3	perform procedures as per laboratory standards, explicate the scientific Principles and interpret the findings
PSO4	get acquainted with the recent advancements both in core and applied fields of Zoology for the higher studies and career opportunities
PSO5	inculcate appropriate biological techniques and experimental skills required for Scientific investigations leading to a basic research

Course Title	INVERTEBRATA -I	
CODE	23ZOUC101	
CO No.	Course Outcomes	Knowledge Level
CO-1	Learn and recollect the organizational, anatomical and functional aspects of Invertebrates	K ₁
CO-2	Understand the physiological processes those are significant to each phylum	K ₂
CO-3	Discuss anatomical and functional modifications that exists in different forms of Invertebrates	K ₂
CO-4	Compare and evaluate the Invertebrate organization with reference to their life history and development	K ₂ , K ₃
CO-5	Analyze and interpret the economic importance of Invertebrate animals based on their habit and habitats	K ₃
Course Title	INVERTEBRATA-II	
CODE	23ZOUC102	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the organizational, anatomical and functional aspects of Invertebrates	K ₁
CO-2	Describe the physiological processes those are significant to each phyla	K ₂
CO-3	Explain anatomical and functional modifications that exists in different forms of Invertebrates	K ₂
CO-4	Compare and evaluate the Invertebrate organization with reference to their life history and development	K ₂ , K ₃
CO-5	Analyze and interpret the economic importance of Invertebrate animals based on their habit and habitats	K ₃
Course Title	CHORDATA	
CODE	23ZOUC203	
CO No.	Course Outcomes	Knowledge Level
CO-1	Identify the systematics of phylum Chordata and its classes up to order level	K ₁
CO-2	Describe the morphological, anatomical and functional modifications in Vertebrates	K ₂
CO-3	Compare the specific characteristics and modification in animals of different classes	K ₂
CO-4	Envision and analyze the adaptive changes that occurred in various classes of Chordates	K ₃
CO-5	Interpret the evolutionary concepts and relationship of animals in the biological history	K ₃

Course Title	CORE PRACTICAL I	
CODE	23ZOUCP01	
CO No.	Course Outcomes	Knowledge Level
CO-1	Observe and identify animals belonging to various phyla	K ₂
CO-2	Design methodology for culturing organisms Collect, categorize and identify the insects based on their salient features, habit and habitats	K ₂
CO-3	Compare and distinguish the systematic position, biological significance, structure and function of organisms Access and analyze the beak and feet modifications in birds Sequence the stages of life cycle of selected animals Analyze and distinguish morphometric characters of different species of fishes	K ₃
Course Title	Allied Zoology Paper-I: INVERTEBRATA AND CHORDATA	
CODE	23ZOUA101	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the fundamentals such as systematic, morphology, structural modification in various groups of Invertebrates & Chordates	K ₁
CO-2	Explain the structural and physiological processes occurring in various organisms which are distinctive to each Phyla and classes	K ₂
CO-3	Compare the physiology of the organisms with special emphasis on their life history and development	K ₂ , K ₃
CO-4	Correlate the affinities and adaptations of animals to different modes of life	K ₃
CO-5	Discuss the diversity of both Invertebrate and Vertebrate animal life and their fascinating adaptations in all conceivable ecological niches	K ₃
Course Title	Allied Zoology Paper – II : APPLIED ZOOLOGY	
CODE	23ZOUA202	
CO No.	Course Outcomes	Knowledge Level
CO-1	Gain knowledge on the significance of Aquaculture, Sericulture, Vermiculture, Apiculture and Haematology	K ₁
CO-2	Identify the important species and culture methods available for rearing Silkworm, Earthworm, Fishes and Honeybees	K ₂
CO-3	Explain and perform the basic haematological procedures and interpret the results	K ₃
CO-4	Become a skill-based expert in the applied and technical fields of Zoology	K ₃
CO-5	Apply their learned skills in research and self employment	K ₃

Course Title	ALLIED ZOOLOGY PRACTICAL (Based on Papers I & II)	
CODE	23ZOUAP01	
CO No.	Course Outcomes	Knowledge Level
CO-1	Identify and describe various species and organs of Invertebrate and Chordates through slides, specimens and virtual dissection	K ₂
CO-2	Perform the laboratory experiments by employing appropriate procedures	K ₂
CO-3	Classify, compare and distinguish the importance of specimens, models and equipments and to execute the practical skills in Zoology	K ₃
Course Title	DEVELOPMENTAL BIOLOGY AND EVOLUTION	
CODE	21ZOUUC304	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the basis of embryonic development, the formation of functional multicellular organisms and the theories and concepts of evolution	K ₁
CO-2	Describe different phases of development of an organism and identify the mechanism by which the evolution occurs	K ₂
CO-3	Compare the morphogenetic movements with organogenesis and to comprehend the evolutionary changes happened from origin of life to evolution of man	K ₂
CO-4	Analyze the role of hormones in reproduction, infertility problems and treatment To develop an idea on the distribution of fauna and their adaptive radiation with geological time scale	K ₃
CO-5	Interpret the potentiality of undifferentiated cells in organogenesis with the application of stem cells in treatment of diseases Investigate the major transition in evolution from the origin of life to hominid evolution	K ₃
Course Title	ENVIRONMENTAL BIOLOGY AND ANIMAL BEHAVIOUR	
CODE	21ZOUUC405	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand and identify distinguishing attributes in various types of fauna present in different habitats	K ₁
CO-2	Describe the specific characteristics, adaptations, organization and inter-specific relationship among the species	K ₂
CO-3	Analyze and compare the animal behaviour and their response to different instincts	K ₂

CO-4	Envision the behavioural manipulations and habitat requirements of various species in the ecological hierarchy	K ₃
CO-5	Interpret the affinities of animals and their relationships with respect to structural ecosystem in conservation practices	K ₃
Course Title	CORE PRACTICAL II	
CODE	21ZOUCP02	
CO No.	Course Outcomes	Knowledge Level
CO-1	Observe and identify the ecological instruments, different stages of development of frog embryo, planktons and fossils	K ₂
CO-2	Estimate the physiochemical parameters of water samples and to assess the their quality To examine and distinguish faunal adaptations to various ecological conditions	K ₃
CO-3	Get hands on experience in the field of environmental biology through field studies	K ₃
Course Title	CELL AND MOLECULAR BIOLOGY	
CODE	21ZOUUC506	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the fundamental Principles of Cell Biology, Ultra structure of cellular organelles and Cytological techniques	K ₁
CO-2	Explain the organization of genes, Principles of membrane transport and functions of cell organelles in diverse cellular processes	K ₂
CO-3	Comprehend the process of cell division, Protein synthesis, Cell signaling and their role in cellular function	K ₂
CO-4	Analyze and interpret the importance of regulation of gene expression, cell communication and defects in the functioning of cell organelle	K ₃
CO-5	Apply the basic research methods in Molecular Biology and develop Science based solution	K ₃
Course Title	MICROBIOLOGY AND IMMUNOLOGY	
CODE	21ZOUUC507	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the salient features and Biology and the significance of microbes Define central immunological principles and concept outlines	K ₁
CO-2	Describe the vital role of microorganism in various fields important to human well being State the role of immune system in defense mechanism	K ₂

	of the body	
CO-3	Elucidate how microbes are used as a model system for biotechnology research Compare and contrast innate versus adaptive immune system and its application in the field of medicine	K ₂
CO-4	Analyze and Interpret the results of various microbiological methods Distinguish various cell types involved in immune response and elucidate the genetic basis for immunological diversity	K ₃
CO-5	Demonstrate the knowledge of Microbiological and Immunological processes at cellular and molecular level	K ₃

Course Title	BIOSTATISTICS, BIOINFORMATICS AND COMPUTERAPPLICATIONS	
CODE	21ZOU508	
CO No.	Course Outcomes	Knowledge Level
CO-1	Get introduced to Data collection, Statistical methods for data analysis, Classification of Biological sequences, Importance of Bioinformatics and basic concepts of Internet of Things	K ₁
CO-2	Describe the statistical methods for biological research, Properties and significance of biological sequences, Bioinformatic search tools, Data bases and Computational methods in Biology	K ₂
CO-3	Identify and Comprehend appropriate mathematical methods and Computational technology for problem solving and enrich biological perspectives	K ₂
CO-4	Demonstrate and communicate the results of statistical analysis, Phylogenetic studies and biological software accurately and effectively	K ₃
CO-5	Explicate the appropriate statistical methods and Bioinformatic databases for exploratory data analysis and decision making process	K ₃
Course Title	GENETICS	
CODE	21ZOU509	
CO No.	Course Outcomes	Knowledge Level
CO-1	State the laws of Inheritance, Gene structure and function and fundamentals of Population genetics	K ₁
CO-2	Elaborate Linkage, Crossing over, Chromosomal mapping, Sex determination, Sex linked inheritance, Genetic disorders and mutation	K ₂
CO-3	Analyze the mechanism of gene exchange, gene frequencies of population and mutation and its contribution to evolution	K ₂

CO-4	Predict the patterns of inheritance, genetic disorders and apply Genetic Counseling to real life situations	K ₃
CO-5	Employ the concept and strategies of Genetics along with allied branches to solve the problems of human heredity	K ₃
Course Title	MEDICAL LABORATORY TECHNOLOGY- Paper I	
CODE	21ZOUE511	
CO No.	Course Outcomes	Knowledge Level
CO-1	Recall the basic requirement for organizing a Medical laboratory, Safety precautions, Role of laboratory technicians and Fundamental aspects of clinical tests	K ₁
CO-2	Explain and perform the basic laboratory procedures for the diagnosis of human health issues	K ₂
CO-3	Demonstrate technology skills by operating laboratory equipments adhering to standard safety practices in a laboratory environment	K ₂
CO-4	Interpret laboratory results in accordance to laboratory protocol	K ₃
CO-5	Employ the testing principles and accurate methodology for reporting data in an appropriate format	K ₃
Course Title	GENERAL ENTOMOLOGY	
CODE	21ZOUE521	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the morphological differences and the functional modifications in insects	K ₁
CO-2	Identify and categorize insects based on morphological, anatomical and developmental aspects	K ₂
CO-3	Distinguish beneficial and harmful insects based on their behavioural aspects	K ₃
CO-4	Interpret the impact of both beneficial and harmful insects on human health, agriculture and the environment	K ₃
CO-5	Apply the acquired knowledge on entomology in the field of research	K ₃
Course Title	SERICULTURE-I	
CODE	21ZOUE531	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the Scope of Sericulture, the biodiversity of silkworms and host plants	K ₁
CO-2	Understand the Scope of Sericulture, the biodiversity of silkworms and host plants	K ₂
CO-3	Identify and familiarize with common diseases of silkworms and their control measures	K ₂

CO-4	Compare and analyze the specific characteristics of Mulberry and Non mulberry silkworms for rearing	K ₃
CO-5	Apply the acquired knowledge for the selection and rearing of silkworm for good quality silk production	K ₃
Course Title	BIOPHYSICS, BIOCHEMISTRY AND BIOINSTRUMENTATION	
CODE	21ZOUC610	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the fundamentals of membrane physics, biomolecules and importance of radioactive compounds	K ₁
CO-2	Acquire knowledge on the working principle of bioinstruments, enzyme action and metabolic activities of water and minerals	K ₂
CO-3	Apply the gained knowledge on biomolecules, bioinstruments and various separation techniques for analytical practices	K ₂
CO-4	Interpret the role of biomolecules and minerals in various biological activities	K ₃
CO-5	Analyze the applications of instruments in biomedical and Research laboratories	K ₃
Course Title	PHYSIOLOGY AND ENDOCRINOLOGY	
CODE	21ZOUC611	
CO No.	Course Outcomes	Knowledge Level
CO-1	Recall the basic physiological principles and the activities of different organs and their interaction with the environment	K ₁
CO-2	Identify and Summarize various life processes in chemical terms, more complex physiological functions, inter relationships and their regulatory mechanism	K ₂
CO-3	Discern the functional similarities and differences between the physiological processes taking place in human biological system	K ₂
CO-4	Appreciate and Evaluate how these separate systems interact to yield integrated physiological responses to challenges	K ₃
CO-5	Conceptualize the changes caused by disease in various organs and organism as a whole, synthesize ideas to make connection between knowledge of physiology and real world situations	K ₃

Course Title	BIOTECHNOLOGY	
CODE	21ZOU612	
CO No.	Course Outcomes	Knowledge Level
CO-1	Recall the basic concepts of cellular events and bioprocesses of living organisms and broad understanding of core concepts of Genetic engineering	K ₁
CO-2	Describe Gene manipulation, Gene transfer technology, Cell culture and applications of Recombinant technology in research and industrial enterprises	K ₂
CO-3	Identify appropriate tools and molecular techniques for skill development in various emerging areas of academic and industrial relevance	K ₂
CO-4	Analyze the advantages and problems both in technical and ethical issues and able to express the concern over it	K ₃
CO-5	Apply and develop biotechnology processes and participate in multidisciplinary research projects to generate new knowledge	K ₃
Course Title	MEDICAL LABORATORY TECHNOLOGY- Paper - II	
CODE	21ZOU612	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand with the principles of Microbiology, functional tests of vital organs and body fluids	K ₁
CO-2	Explain the principles of Biochemical examination and perform the test to identify the health problems	K ₂
CO-3	Recognize the role of clinical technician and apply knowledge on safety regulations and standards	K ₂
CO-4	Evaluate and interpret laboratory results and relating data to various disease status	K ₃
CO-5	Exhibit essential employability qualities by demonstrating lab safety, analyzing lab results and preparing accurate reports	K ₃
Course Title	APPLIED ENTOMOLOGY	
CODE	21ZOU622	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the major insect pest species of plants and animals	K ₁
CO-2	Describe the mode of action and nature of damage caused by the pest	K ₂
CO-3	Compare and analyse different types of pest control methods	K ₂
CO-4	Access the impact of pest attack and identify suitable pest control methods	K ₃

CO-5	Investigate and apply innovative ecofriendly pest management strategies	K ₃
Course Title	SERICULTURE-II	
CODE	21ZOUE632	
CO No.	Course Outcomes	Knowledge Level
CO-1	Gain fundamental knowledge on different components of Sericulture	K ₁
CO-2	Describe the process of silkworm rearing, reeling and silk production	K ₂
CO-3	Identify the suitable conditions, appliances and methods in sericulture practices for self employability	K ₂
CO-4	Analyze and apply strategies for the qualitative and quantitative improvement in silk production	K ₃
CO-5	Apply the learned techniques of silkworm rearing venture into the sericulture industry as an entrepreneur	K ₃
Course Title	COREPRACTICAL - III	
CODE	21ZOUCP03	
CO No.	Course Outcomes	Knowledge Level
CO-1	Identify and describe the slides, specimen, instruments and models pertaining to the course Prepare mountings, smears, Bacterial cultures, lymphocyte culture and report the findings	K ₃
CO-2	Demonstrate Soil tests, Milk tests, Bioinformatics techniques and able to interpret the results	K ₃
CO-3	Apply theoretical knowledge to identify Mutant forms of Drosophila, Genetic disorders in Human, Nucleotide sequence and Statistical tools for data analysis and infer the findings	K ₃
Course Title	CORE PRACTICAL - IV	
CODE	21ZOUCP04	
CO No.	Course Outcomes	Knowledge Level
CO-1	Identify, explain and distinguish different types of Tissues, Organs, Endocrine glands, Instruments, Chemicals and Biotechnology products	K ₃
CO-2	Apply theoretical knowledge to perform various qualitative and quantitative analysis in Biochemistry, Physiology and Biotechnology and interpret the findings	K ₃
CO-3	Analyze biological samples using advanced Biological Instruments and evaluate laboratory test outcomes Demonstrate experiments and apply skills acquired from the Research laboratories/Institutions through educational visits	K ₃

Course Title	MEDICAL LABORATORY TECHNOLOGY PRACTICAL	
CODE	21ZOUEP11	
CO No.	Course Outcomes	Knowledge Level
CO-1	Perform the laboratory procedures by employing proper techniques	K ₃
CO-2	Discuss and present laboratory results and findings in a clear and timely manner	K ₃
CO-3	Draw appropriate conclusions based on the results and present an accurate report	K ₃
Course Title	ENTOMOLOGY PRACTICAL	
CODE	21ZOUEP21	
CO No.	Course Outcomes	Knowledge Level
CO-1	Identify and explain insects belonging to different orders	K ₁
CO-2	Assess and explain the nature of damage caused by insect pest	K ₂
CO-3	Apply integrated pest management practices	K ₂
Course Title	SERICULTURE PRACTICAL	
CODE	21ZOUEP031	
CO No.	Course Outcomes	Knowledge Level
CO-1	Identify, explain and distinguish mulberry from non Mulberry silkworms	K ₃
CO-2	Learn mulberry cultivation, silkworm rearing and silk reeling techniques	K ₃
CO-3	Apply acquired knowledge on silkworm harvesting technology And disease identification	K ₃

