

Name of the Department : **DEPARTMENT OF ZOOLOGY**

Academic Year : 2017-18

A. Program Outcome and Program Specific Outcomes

Name of the programme (UG/PG/M.Phil./ Diploma etc.)	Programme Outcomes Students will be able to	Program Specific Outcomes Students will be able to
UG	1. The students will apply knowledge and skills acquired through this programme.	1. Students will be Knowledgeable in applying the biological concepts effectively.
	2. Enable the students to have a conceptual understanding of Zoology.	2. Students will be able to apply theory in the practicals and understand the scientific discoveries and inventions.
	3. Promote the students to become Entrepreneur	3. Students will become competent to become self employable
		4. Students will acquire technical skills for their employment
PG	1. To assist the students in mastering the latest research methodology	1 Students will identify appropriate . research tools for critical evaluation.
	2. To enable the students to acquire analytical skills.	2 Students will identify appropriate . avenues for research and qualify NET, SET etc.
	3. To prepare students to be competent in the thrust areas of Zoology for undertaking higher responsibilities in the society	3 Students will gain good . Knowledgeable in the field of Zoology to get employed in several Government & Private sectors
Diploma	1. Students will be able to explain and evaluate clinical laboratory analyses.	1 Students will know the biochemical . and molecular tools needed to accomplish preventive, diagnostic, and therapeutic uses.
	2. Students will be able to clinically assess the laboratory indicators of physiologic conditions and diseases	2 Enable the students to understand . the structural similarities and differences among various groups of microbes
	3. To prepare students to become an efficient Lab technician	To apply the various analytical techniques used in disease diagnosis.

B1. Course Outcomes of all Programmes Offered by the Department

Name of the Programme : B.Sc. Zoology

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
1.	Invertebrata I	U16ZY101	1 Students will understand the diversity of living things and to identify major taxonomic groups.
			2 Students will be able to describe the functional significance of associated morphologies and behaviours.
			3 Students will be able to acquire knowledge on parasites and its associated diseases.
2	Invertebrata II	U16ZY202	1 Students will understand the diversity, adaptations, organization of invertebrates
			2 Students will acquire knowledge of advanced invertebrate like Cephalopods
			3 Students will comprehend the economic importance of insects.
3	Core Practical I	U16ZY1P1	1 Students will get acquainted with organ systems of Earthworm through virtual dissection.
			2 Students will be able to identify the body setae of Earthworm under the microscope.
			3 Students will investigate invertebrates in laboratory and field conditions
4	Core Practical II	U16ZY2P2	1 Students will acquire knowledge on organ systems of insects through dissection and virtual labs.
			2 Students will be able to identify the mouthparts of insects under the microscope.
			3 Students will understand the diversity and adaptations of invertebrates

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
5	Chordata	U16ZY303	1 Students will be able to describe the unique characteristics of Pisces, amphibians, reptiles, aves and mammals.
			2 Students will comprehend the external morphology, different systems and sexual dimorphism in chordates
			3 Students will gain expertise in the diversity and adaptation of vertebrates.
6	Core Practical III	U16ZY3P3	1 Students will acquire knowledge on organ systems through virtual dissections
			2 Students will be familiar with the adaptations comparatively in various classes of animals
			3 Students will be able to identify the diversity of chordates
7	Vermitechnology	U16ZYPS1	1 Students will understand the economic importance of earthworms.
			2 Students will be able to prepare vermicompost.
			3 Students will imbibe skills in establishing a vermiculture unit through field visit.
8	Ecology and Evolution	U16 ZY 404	1 Students will understand the importance of environment, its protection and conservation.
			2 Students will be able to understand the Geological time scale.
			3 Students will understand the species concept and isolating mechanism.
9	Core Practical -IV	U16ZY4P4	1 Students will develop the skill of analysing water quality through quantitative estimations in different habitats.
			2 Students will understand the evolutionary significance of animals.
			3 Students will be exposed to the world of fossils and acquire knowledge by collecting them.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
10	SBEC II Pisciculture	U16ZYPS2	1 Students will be able to analyse the economic importance of fresh water fishes.
			2 Students will acquire the skills in establishing various farming systems.
			3 Students will be able to practice breeding, stocking, culturing and harvesting the fishes through aqua farm visit.
11	Biology of Invertebrates and Chordates	U16ZYY11	1 Students will be able to understand the biodiversity and adaptation of Invertebrates and Chordates.
			2 Students will be able to describe the various organ systems of animals through type study.
			3 Students will relate the organization and taxonomic status of Invertebrates and Chordates.
12	Human Physiology and Commercial Zoology	U16ZYY22	1 Students will be able to describe the structural and functional aspects of organ systems in human beings.
			2 Students will develop skills in Vermiculture, Apiculture, Sericulture, Pisciculture and Poultry farming.
			3 Students will be able to ascertain the commercial importance of animals and apply the knowledge to become entrepreneurs.
13	Allied Zoology	U16ZYYP1	1 Students will be able to understand the diversity of Invertebrates and Chordates.
			2 Students will acquire practical skills in Human Physiology experiments.
			3 Students will become entrepreneurs on knowing the economic importance of animals.
14	NMEC I-Public Health and Hygiene	U16ZY3E1	1 Students will understand the significance of major nutrients, food types and balanced diet.
			2 Students will acquire knowledge on hazards of cardio vascular disease, diabetes and obesity.
			3 Students will be aware of public health and hygiene.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
15	NMEC II- Industrial Zoology	U16ZY4E2	1 Students will be able to understand the commercial importance of industrial zoology.
			2 Students will acquire skills in establishing poultry farm, and fish farm
			3 Students will be able to establish Sericulture unit, Vermiculture unit and Apiculture unit.
16	Cell and Molecular Biology	U16ZY505	1 Students will be able to explain the cell theory and understand the ultrastructure and functions of the cell and the cell organelles.
			2 Students will be able to analyse the process of cell divisions .
			3 Students will be able to describe the principle events of the stages of the eukaryotic protein synthesis and its gene regulation.
17	Genetics	U16ZY506	1 Students will be familiar with the mechanism of inheritance pattern
			2 Students will understand the applied aspects of genetics
			3 Students will be able to differentiate and identify the human Karyotypes and the syndromes.
18	Biochemistry and Microbiology	U16ZY5:1	1 Students will understand the basic concepts in biochemistry & metabolism.
			2 Students will be able to relate the classification and characteristics of microbes.
			3 Students will be able to explain the metabolic pathways in microbes.
			4 Students will be able to assess the causes and preventive measures of various microbial diseases.
19	SBEC III - Sericulture	U16ZYPS3	1 Students will be promoted to become entrepreneurs
			2 Students will acquire knowledge on the economic importance of silkworms.
			3 Students will develop skills in establishing the sericulture unit.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
20	Core Practical-V	U16ZY5P5	1 Students will be able to apply practical skills in the biochemical and cell biology techniques.
			2 Students will learn the microbial culture techniques
			3 Students will understand the concepts of heredity and its variations.
21	Animal Physiology	U16ZY607	1 Students will be able to explain the structural organization of the animals.
			2 Students will analyse the functional aspects of organ systems of the animal.
			3 Students will know about the hormonal changes in reproductive cycle of male and female.
22	Developmental Biology and Immunology	U16ZY608	1 Students will be able to understand the process of fertilization and development.
			2 Students will comprehend the immune system and functions of lymphoid organs.
			3 Students will acquire the knowledge of organiser through experiments.
			4 Students will gain knowledge in the various immunological techniques and its applications.
23	Biotechnology	U16ZY6:2	1 Students will understand the basic concepts of biotechnology.
			2 Students will be able to acquire the knowledge in tools and techniques in genetic engineering.
			3 Students will gain knowledge in the thrust areas of biotechnology.
24	Biophysics, Biostatistics and Bioinformatics	U16ZY6:3	1 Students will understand the concepts of biophysics in the study of biomolecules..
			2 Students will know the biologically important predictions from annotated data and transformation of these data for genome analysis and in tracking the evolution.
			3 Students will comprehend the scope and its wide applications.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
25	Core Practical -VI	U16ZY6P6	1 Enable the students to understand the physiological functions of animals through experiments.
			2 Students will be able to identify the developmental stages of frog and chick.
			3 Students will develop skills in the biotechnological and immunological techniques

B2. Course Outcomes of all Programmes Offered by the Department

Name of the Programme : M.Sc. Zoology

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
1	Functional Morphology of invertebrates and chordates	P15ZY101	1 Students will be able to explain the symmetry and its significance in animal organization
			2 Students will be able to analyse the functional morphology in adaptive and evolutionary relationship.
			3 Students will be able to describe the mechanism of nervous stimulation, respiration and excretion in invertebrates.
			4 Students will understand the diversity and adaptation of vertebrates.
2	Cell Biology	P15ZY102	1 Students will understand the structural and functional aspects of the cell.
			2 Students will know the molecular mechanism of the cell functioning.
			3 Students will gain knowledge of the causes and development of cancer.
3	Molecular Biology and Bioinformatics	P15ZY103	1 Students will be able to explain the structure, synthesis and function of biomolecules.
			2 Students will be able to distinguish the various biological databases.
			3 Students will be able to compare and relate the alignment tools used in evolution and in drug designing.
			4 Students will be able to differentiate the concepts applied in Genomics and Proteomics.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
4	Microbiology	P15ZY1:1	1 Students will understand the structure, function, diversity, metabolism, and the genetics of metabolic regulation microorganisms.
			2 Students will be able to relate the immune response and pathogenesis in disease-causing microorganisms
			3 Students will acquire knowledge about the taxonomic and the biotechnological application of microorganisms.
			4 Students will acquire knowledge in the production of several fermentation products obtained from microbes.
5	Core Practical I	P15ZY1P1	1 Students will acquire skills in squash preparation, preparation of permanent slides and staining.
			2 Students will be competent in cell biology practicals.
			3 Students will apply molecular techniques in biology.
6	Core Practical II	P15ZY1P2	1 Students will be able to acquire skills in sterilization and culture techniques.
			2 Students will be able to observe and identify different types of bacteria.
			3 Students will acquire practical skills in the microbiological techniques.
			4 Students will gain knowledge in water potability tests.
7	Animal Physiology	P15ZY204	1 Students will understand and analyse the structural and functional aspects of different organ systems in the animal.
			2 Students will be able to discuss the role of hormones in the coordination of activities in the biological systems of animals.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
8	Biochemistry	P15ZY205	1 Students will know the chemical basis of life.
			2 Students will acquire knowledge in structure, reactions and energy metabolism of the cellular biomolecules.
			3 Students will be able to understand the concepts in enzyme kinetics.
9	Immunology	P15ZY2:1	1 Students will be able to understand the immune system and its immune response
			2 Students will be able to apply the immunological techniques in biology.
			3 Students will analyse the various immunological disorders.
			4 Students will be familiar with the concepts of transplantation immunology.
10	Core Practical III	P15ZY2P3	1 Students will acquire practical skills in the physiological functions of animals.
			2 Students will understand the immunological techniques and identify the lymphoid organs.
			3 Students will be able to demonstrate the various physiological experiments in animals to adapt to its mode of life.
11	Core Practical IV	P15ZY2P4	1 Students will be able to prepare biochemical solutions for the experiments.
			2 Students will develop practical skills in the quantitative estimation of biochemical compounds.
			3 Students demonstrate the various chromatographic techniques for the separation of biomolecules.
			4 Students will be able to analyse the pKa value of acids and bases.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
12	Environmental Biology	P15ZY306	1 Students will understand the interrelationship between abiotic and biotic environment.
			2 Students will be able to explain the ecological principles and Wild life conservation methods
			3 Students will be able to understand the concepts in population dynamics and factors affecting the rate of population.
			4 Students will be able to acquire knowledge in concepts of ecosystem and ecological succession.
13	Developmental Biology	P15ZY307	1 Students will know the basic principles of genetic growth and development in animals.
			2 Students will understand the role of genes in the embryonic development.
			3 Students will be able to acquire the knowledge in axis and pattern formation in Drosophila.
			4 Students will be able to compare the polarity genes in mice and in mammals.
			5 Students will be able to understand the concepts of organiser in determining the fate of developing embryos.
14	Genetics	P15ZY308	1 Students will be able to differentiate the principles of prokaryotic and eukaryotic genetics.
			2 Students will be able to relate the molecular basis of heredity, chromosome structure, patterns of Mendelian and Nonmendelian inheritance, evolution.
			3 Students will analyse the structure of protein and the basic steps of transcription and translation.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
15	Research Methodology	P15ZY309	1 Students will be able to apply the principles and skills in biological Research.
			2 Students will be competent to analyze, review, and assess critically scientific hypotheses and theories using scientific evidence and information
			3 Students would be able to evaluate the process of scientific research.
			4 Students will apply the principles of biotechniques in separating biomolecules.
16	Animal Biotechnology	P15ZY3:1	1 Students will acquire knowledge in the concepts of biotechnology.
			2 Students will understand the applications of rDNA technology and various techniques.
			3 Students will design and develop various techniques in cell culture labs.
17	Core Practical V	P15ZY3P5	1 Students will be able to estimate water quality parameters.
			2 Students will identify the developmental stages in frog and chick.
			3 Students will understand the genetic significance in human being.
18	Evolution and Animal Behaviour	P15ZY410	1 Students will be able to define the various concepts of evolution and theories.
			2 Students will understand the cultural evolution of man and concepts of Exobiology.
			3 Students will relate the different aspects of behaviour in animals.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
19	Applied Entomology	P15ZY4:1	1 Students will be able to distinguish the various groups of insects and their economic importance.
			2 Students will understand the different pest control measures and integrated pest management.
			3 Students acquire employability skills to become entomologists in government and private sectors.

B3. Course Outcomes of all Programmes Offered by the Department

Name of the Programme : Diploma in Medical Lab Technology

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
1	Clinical Biochemistry and Haematology	D16ZY201	1 Students will be able to explain the synthesis of proteins, lipids, nucleic acids, and carbohydrates and their role in metabolic pathways.
			2 Students will be able to evaluate clinical laboratory analysis as tools for drug dosage and intoxication diagnostics.
			3 Students will acquire knowledge in biochemical and molecular tools needed to accomplish preventive, diagnostic, and therapeutic intervention on hereditary and acquired disorders.
2	Clinical Microbiology and Pathology	D16ZY202	1 Students will acquire theory and practical skills in microscopy and their handling techniques and staining procedures.
			2 Students will understand the structural similarities and differences among various groups of microbes.
			3 Students will acquire knowledge in microbial transport systems and the modes and mechanisms of energy conservation in microbial metabolism.
3	Clinical Biochemistry and Haematology Practicals	D16ZY2P1	1 Students will be able to clinically assess the laboratory indicators of physiologic conditions and diseases.
			2 Students will be able to carry out blood sampling analysis.
			3 Students will be able to perform various recent techniques in biochemical and molecular experiments.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes (After completing this course, the students will be able to)
4	Clinical Microbiology and Pathology Practicals	D16ZY2P2	<p>1 Students will be able to acquire knowledge in General bacteriology and microbial techniques for isolation of pure cultures of bacteria, fungi and algae.</p> <p>2 Students will be able to measure the growth of bacteria and factors affecting the growth.</p> <p>3 Students will be able to understand various Culture media and their applications and physical and chemical means of sterilization.</p>

