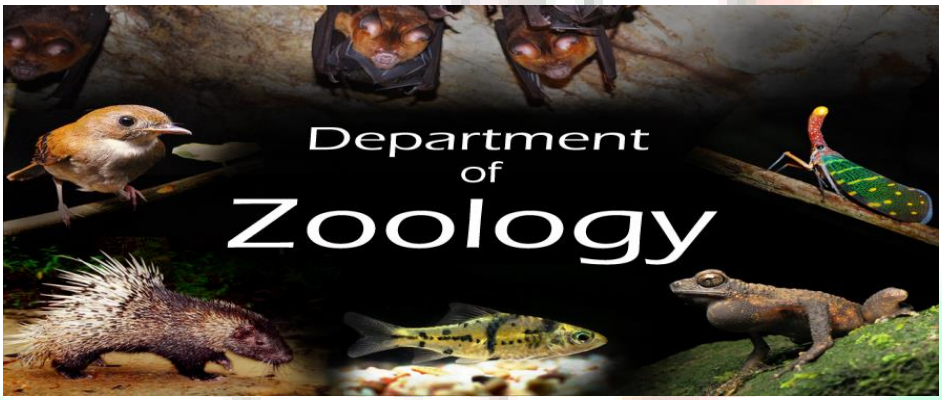
COMMISSIONERATE OF COLLEGIATE EDUCATION
GOVERNMENT OF ANDHRA PRADESH

GOVERNMENT DEGREE COLLEGE
RAYACHOTY, ANNAMAYYA (Dist.)

ZOOLOGY
(UG courses)



COs & PSOs MAPPING

(UNDER CBCS FRAME WORK

B.Sc. ZOOLOGY

COMMISSIONERATE OF COLLEGIATE EDUCATION

GOVERNMENT OF ANDHRAPRADESH

ZOOLOGY

(UG COURSES)

GOVERNMENT DEGREE COLLEGE

RAYACHOTY, ANNAMAYYA(Dist.)

COs & PSOs MAPPING

(UNDER CBCS FRAME WORK)

B.Sc. ZOOLOGY

(WITH EFFECT FROM 2015-16)

DEPARTMENT OF ZOOLOGY
2015-16

BSc - Zoology

Program Specific outcomes

Students after successful completion of B.Sc., Zoology course will be able to	
PSO1	Understand the nature and basic concepts and life cycles of Invertebrates and Vertebrates, cell biology, genetics, taxonomy, physiology,immunology and Livestock management.
PSO2	Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Immunology, tools and techniques of zoology, Dairy technology, Toxicology, Entomology, Nematology, Biochemistry.
PSO3	Gain knowledge about research methodologies, and acquire skills of Drawing diagrams, preparation of charts, models and problem-solving methods.
PSO4	Develop research-oriented skills. Make aware and handle the sophisticated instruments / equipment's.
PSO5	Understand fundamental aspects of animal science relating to management of animals and products from animals.

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DEPARTMENT OF ZOOLOGY
2015-16

BSc - Zoology

COs & PSOs MAPPING

Title of the Course: *Animal Diversity - Biology Of Non-chordates*

Cos		PSOs				
		1	2	3	4	5
CO-1	Describe general taxonomic rules on animal classification	✓		✓	✓	✓
CO-2	Classify Protozoa to Coelenterata with taxonomic keys	✓	✓	✓		✓
CO-3	Classify Phylum Platyhemninthes to Annelida phylum using examples from parasitic adaptation and vermin composting	✓	✓	✓	✓	✓
CO-4	Describe Phylum Arthropoda to Mollusca using examples and importance of insects and Molluscans	✓	✓	✓	✓	
CO-5	Describe Echinodermata to Hemichordata with suitable examples and larval stages in relation to the phylogeny	✓	✓	✓	✓	✓

Title of the Course: *Animal Diversity - Biology of Chordates*

Cos		PSOs				
		1	2	3	4	5
CO-1	general taxonomic rules on animal classification of chordates	✓		✓	✓	✓
CO-2	Classify Protochordata to Mammalia with taxonomic keys	✓	✓	✓	✓	✓
CO-3	Understand Mammals with specific structural adaptaions	✓	✓	✓	✓	
CO-4	Understand the significance of dentition and evolutionary significance	✓			✓	✓
CO-5	Understand the origin and evolutionary relationship of different phyla from Prochordata to mammalia.	✓	✓	✓	✓	✓

Title of the Course: *Cell Biology,Genetics,Molecular Biology and Evolution*

Cos		PSOs				
		1	2	3	4	5
CO-1	To understand the basic unit of the living organisms and to differentiate the organisms by their cell structure.	✓		✓	✓	✓
CO-2	Describe fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.	✓	✓	✓		✓

CO-3	To understand the history of origin of branch of genetics,gain knowledge on heredity, interaction of genes, various types of inheritance patterns existing in animals	✓	✓	✓	✓	✓
CO-4	Acquiring in-depth knowledge on various of aspects of genetics in volved in sex determination, human karyotyping and mutations of chromosomes resulting in various disorders	✓	✓	✓	✓	
CO-5	Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins.	✓		✓	✓	✓

Title of the Course: *Animal Physiology, Cellular Metabolism And Embryology*

COs		PSOs				
		1	2	3	4	5
CO-1	Understand the functions of important animal physiological systems including digestion, cardio-respiratory and renal systems.	✓	✓	✓	✓	✓
CO-2	Understand the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with a special knowledge of hormonal control of human reproduction.	✓		✓	✓	✓
CO-3	Describe the structure, classification and chemistry of biomolecules and enzymes responsible for sustenance of life in living organisms	✓	✓	✓	✓	✓
CO-4	Develop broad understanding the basic metabolic activities pertaining to the catabolism and anabolism of various bio molecules	✓	✓		✓	
CO-5	Describe the key events in early embryonic development starting from the formation of gametes up to gastrulation and formation of primary germ layers.	✓	✓	✓	✓	✓

Title of the Course: *Immunology and Animal Biotechnology*

COs		PSOs				
		1	2	3	4	5
CO-1	To get knowledge of the organs of Immune system,types of immunity,cells and organs of immunity.	✓		✓	✓	✓
CO-2	To describe immunological response as to how it is triggered (antigens) and regulated (antibodies)	✓	✓	✓		✓
CO-3	Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell / tissue culture, stem cell technology and genetic engineering.	✓	✓	✓	✓	✓
CO-4	Get familiar with the tools and techniques of animal biotechnology	✓	✓		✓	

CO-5	Proficiency and understanding basic concepts of applied biotechnology in different fields	✓	✓	✓	✓	✓

Title of the Course: *Animal Biotechnology*

Cos		PSOs				
		1	2	3	4	5
CO-1	To describe the structure of animal gene and genomes	✓		✓	✓	✓
CO-2	To describe how genes are expressed and what regulatory mechanisms contribute to control of gene expression.	✓	✓	✓		✓
CO-3	To describe basic principels and techniques in genetic manipulation and genetic engineering	✓	✓	✓	✓	
CO-4	Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell / tissue culture, stem cell technology and genetic engineering	✓	✓		✓	✓
CO-5	Get familiar with the tools and techniques of animal biotechnology.	✓		✓	✓	✓

Title of the Course: *Animal Husbandry*

Cos		PSOs				
		1	2	3	4	5
CO-1	To gain knowledge about poultry farming	✓	✓	✓	✓	
CO-2	To learn about poultry feed management and poultry diseases, useful to the students for poultry farming.	✓	✓		✓	✓
CO-3	To know about selection, care and handling of hatching eggs.	✓	✓	✓		✓
CO-4	Complete knowledge of breeds and dairy cattle and buffaloes to improve practical skills such as dairy farm	✓	✓	✓	✓	✓
CO-5	To know the principles of care and management of dairy animals.	✓	✓	✓	✓	✓

Title of the Course: : *Immunology*

Cos		PSOs				
		1	2	3	4	5
CO-1	Provides basics knowledge about immune system and allows the student to create insight as how to improve their immune system and good health.	✓	✓		✓	✓
CO-2	Types of immunity,antigens-antibodies and their properties.	✓	✓	✓		✓
CO-3	Complement system,MHC's and immune responses.	✓	✓	✓	✓	✓
CO-4	Understanding of types of hypersensitivity reactions and autoimmune diseases.	✓	✓		✓	
CO-5	Ability to understand concepts of tumor immunology and transplantation immunology.	✓		✓	✓	✓

Cluster Elective Paper: VIII-B-1 PRINCIPLES OF AQUACULTURE

Cos		PSOs				
		1	2	3	4	5
CO-1	Course provides them comprehensive understanding about aquatic ecosystem and various economical important fishes.	✓		✓	✓	✓
CO-2	Students gain knowledge in the areas of responses characterization and classification of Ostracoderms, placoderms, acanthodians, holocephali, elasmobranches.	✓	✓	✓		✓
CO-3	Students gain knowledge of integumentary system-basic structure of skin, dermal and epidermal pigments, fins, and scales.	✓	✓		✓	✓
CO-4	Understanding of embryogenesis-Early development and postembryonic development.	✓	✓		✓	
CO-5	Understanding of fishes habits and habitats and their functional anatomy	✓		✓	✓	✓

Cluster Elective Paper: VIII-B-2 AQUACULTURE MANAGEMENT

Cos		PSOs				
		1	**2**	**3**	**4**	**5**
CO-1	The students will be well equipped to become very competent in research or teaching fields.	✓	✓	✓		✓
CO-2	It is one of the small scale industry which can provide the student employment opportunity.	✓		✓	✓	✓
CO-3	To understand the Aquaculture concept, Culture systems: Freshwater aqua culture systems: Fresh water prawn culture,fish culture in paddy fields, Brackish water culture, Mari culture: Oyster culture,Crab culture, Lobster culture, mussel culture, culture of Eels, Culture of aquatic weeds.	✓	✓	✓	✓	✓
CO-4	To understand the Composite fish culture and Preparation and management of fish culture ponds.	✓	✓	✓		✓
CO-5	Transport of fish seed and Brood fish and Harvesting: Fishing techniques, preservation & processing of fish and Fish pathology.	✓	✓	✓	✓	✓

Cluster Elective Paper: VIII-B-3 POSTHARVEST TECHNOLOGY						
Cos		PSOs				
		1	2	3	4	5
CO-1	To understand Handling of fresh fish, storage and transport of fresh fish, post mortem changes	✓	✓	✓	✓	
CO-2	To understand the Technologies in Fisheries development	✓		✓	✓	✓
CO-3	To understand the **Processing and preservation of fish and fish by-products**	✓	✓	✓	✓	✓
CO-4	To understand the **Sanitation and Quality control and Regulatory affairs in industries**	✓	✓	✓		✓
CO-5	To learn about **Quality Assurance, Management and Certification**	✓	✓	✓	✓	✓

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GOVERNMENT OF ANDHRAPRADESH

ZOOLOGY

(UG COURSES)

GOVERNMENT DEGREE COLLEGE

RAYACHOTY, ANNAMAYYA(Dist.)

COs & PSOs MAPPING

(UNDER CBCS FRAME WORK)

B.Sc.ZOOLOGY

(WITH EFFECT FROM 2020-21)

DEPARTMENT OF ZOOLOGY

2020-21

BSc - Zoology

Program Specific outcomes

Students after successful completion of B.Sc., Zoology course will be able to	
PSO1	Able to understand and utilize the principles of scientific enquiry, think analytically, clearly and evaluate critically while solving problems and making decisions during biological study
PSO2	Able to formally communicate Scientific ideas and investigations of the biology discipline to othersusing both oral and written communication skills.
PSO3	Able to develop individual behavior and influence society and social structure
PSO4	Able to work with a sense of responsibility towards social awareness and follow the ethical standards in the society
PSO5	Able to understand the impact of biological science insocietal and environmental contexts and demonstrate the knowledge for sustainable development.
PSO6	Understand the special characteristic features and systems of animals, applications of laboratory methods of zoology.

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PARTMENT OF ZOOLOGY
2020-21

BSc - Zoology

COs & PSOs MAPPING

SEMESTER–I

COURSE	Cos	PSOs 1	2	3	4	5	6
ANIMAL DIVERSITY– INVERTEBRATES	***CO1*** *Describe general taxonomic rules on animal classification*	✓	✓	✓	✓	✓	✓
	CO2 *Classify Protozoa toCoelenterata with taxonomic keys*	✓	✓	✓		✓	✓
	CO3 *Classify Phylum Platy hemninthes to Annelida phylum using examples from parasitic adaptation and vermin composting*	✓	✓	✓	✓	✓	✓
	CO4 *Describe Phylum Arthropoda to Mollusca using examples and importance of insects and Molluscans*	✓	✓	✓	✓		✓
	CO5 *Describe Echinodermata to Hemi chordata with suitable examples and larval stages in relation to the phylogeny*	✓		✓	✓	✓	

SEMESTER–II

COURSE	Cos	PSOs 1	2	3	4	5	6
ANIMAL DIVERSITY - BIOLOGY OF CHORDATES	***CO1*** *Describe general taxonomic rules on animal classification of chordates*	✓	✓	✓	✓	✓	✓
	CO2 *Classify Protochordata to Mammalia with taxonomic keys*	✓	✓	✓		✓	✓
	CO3 *Understand Mammals with specific structural adaptaions*		✓	✓	✓	✓	✓
	CO4 *Understand the significance of dentition and evolutionary significance*	✓	✓	✓	✓		✓
	CO5 Understand the origin and evolutionary relationship of different phyla from Prochordata to mammalia.	✓		✓	✓	✓	

SEMESTER– III

COURSE	Cos	PSOs 1	2	3	4	5	6
	CO1 *To understand the basic unit of the living organisms and to differentiate the organisms by their cell structure*	✓	✓	✓		✓	✓

CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION	***CO2*** *Describe fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.*	✓	✓	✓	✓	✓	✓
	CO3 *To understandthe history of origin of branch of genetics, gain knowledge on heredity, interaction of genes, various types of inheritance patterns existing in animals*	✓	✓	✓		✓	✓
	CO4 *Acquiring in-depth knowledge on various of aspects of genetics involved in sex determination, human karyotyping and mutations of chromosomes resulting in various disorders*		✓	✓	✓	✓	✓
	CO5 *Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins.*	✓	✓	✓	✓		

SEMESTER–IV

COURSE	Cos ↓	PSOs ↓ 1	2	3	4	5	6
PAPER – IV: ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY	***CO1*** *Understand the functions of important animal physiological systems including digestion, cardio-respiratory and renal systems.*	✓	✓	✓		✓	
	CO2 *Understand the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with a special knowledge of hormonal control of human reproduction.*	✓	✓	✓	✓	✓	✓
	CO3 *Describe the structure, classification and chemistry of biomolecules and enzymes responsible for sustenance of life in living organisms*		✓	✓	✓	✓	✓
	CO4 *Develop broadunderstanding the basic metabolic activities pertaining to the catabolism and anabolism of various biomolecules*	✓	✓	✓	✓	✓	✓
	CO5 *Describe the key events in early embryonic development starting from the formation of gametes upto gastrulation and formation of primary germ layers.*	✓		✓	✓	✓	✓
COURSE – 5: IMMUNOLO	***CO1*** *To get knowledge of the organs of Immune system, types of immunity, cells and organs of immunity.*	✓	✓	✓	✓	✓	
	CO2 *To describe immunological response as to how it is triggered (antigens) and regulated (antibodies)*		✓	✓	✓	✓	✓

	CO3 *Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering.*	✓	✓	✓	✓	✓	✓
	CO4 *Get familiar with the tools and techniques of animal biotechnology.*	✓	✓	✓	✓	✓	✓
	CO5 *Understand the applications of PCR:Basics of PCR.*	✓	✓	✓	✓	✓	✓
SEMESTER–V							
COURSE	Cos ↓	PSOs ↓					
		1	**2**	**3**	**4**	**5**	**6**
Course 6 B: LIVE STOCK MANAGEMENT-I (BIOLOGY OF DAIRY ANIMALS)	Students at the successful completion of the course will be able to	✓	✓	✓	✓	✓	✓
	CO1 Select the suitable breeds of livestock for rearing	✓	✓	✓	✓	✓	✓
	CO2 Relate the anatomy of udder with letdown of milk	✓	✓		✓	✓	✓
	CO3 Identify and manipulate the reproductive behavior of cattle		✓	✓	✓	✓	✓
	CO4 Inspect the economics of dairy farming	✓	✓	✓	✓	✓	
	CO5 Apprise the various breeding techniques employed in live stock.	✓	✓	✓	✓	✓	✓
Course 7B: LIVE STOCK MANAGEMENT -II (DAIRY PRODUCTION AND MANAGEMENT)	**CO1** Identify and suggest the suitable housing system for the dairy farming	✓	✓	✓	✓	✓	✓
	CO2 Understand management practices for the dairy farming	✓	✓		✓	✓	✓
	CO3 Learn the process of milk pasteurization	✓	✓	✓	✓	✓	✓
	CO4 Prepare cream from milk.	✓	✓	✓	✓	✓	✓
	CO5 Apprise the various breeding techniques employed in live stock	✓	✓	✓	✓	✓	✓

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COs & PSOs MAPPING

(UNDER CBCS FRAME WORK)

B.Sc. ZOOLOGY

(WITH EFFECT FROM 2023-24)

DEPARTMENT OF ZOOLOGY

2023-24

BSc - Zoology

Program Specific outcomes

Students after successful completion of B.Sc., Zoology course will be able to	
PSO1	Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology
PSO2	Analyse the relationships among animals with their ecosystems
PSO3	Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology
PSO4	Understand the applications of Zoology in Agriculture, Medicine and daily life.
PSO5	Gains knowledge about research methodologies, effective communication and skills of problem solving methods.
PSO6	Contributes the knowledge for Nation building
PSO7	Understand animal interactions with the environment and identify the major groups of organisms with an emphasis on animals and classify them within a phylogenetic framework
PSO8	Ability to connect and apply biological knowledge to other disciplines and to integrate knowledge into their personal and professional lives

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DEPARTMENT OF ZOOLOGY

2023-24

BSc - Zoology

COs & PSOs MAPPING

SEMESTER–I

COURSE	Cos	PSOs 1	2	3	4	5	6	7	8
COURSE 1: Introduction to Classical Biology	1. Learn the principles of classification and preservation of biodiversity	✓	✓	✓	✓	✓	✓	✓	✓
	2. Understand the plant anatomical, physiological and reproductive processes.	✓	✓	✓	✓	✓	✓	✓	✓
	3. Knowledge on animal classification, physiology, embryonic development and their economic importance.	✓	✓		✓	✓	✓	✓	✓
	4. Outline the cell components, cell processes like cell division, heredity and molecular processes.		✓	✓	✓	✓		✓	✓
	5. Comprehend the chemical principles in shaping and driving the macromolecules and life processes	✓	✓	✓	✓	✓	✓	✓	✓
COURSE 2: INTRODUCTION TO APPLIED BIOLOGY	1. Learn the history, ultra structure, diversity and importance of microorganisms.	✓	✓	✓	✓	✓	✓	✓	✓
	2. Understand the structure and functions of macromolecules.	✓	✓	✓	✓	✓	✓	✓	✓
	3. Knowledge on biotechnology principles and its applications in food and medicine.	✓	✓		✓	✓	✓	✓	✓
	4. Outline the techniques, tools and their uses in diagnosis and therapy.		✓	✓	✓	✓	✓		✓
	5. Demonstrate the bioinformatics and statistical tools in comprehending the complex biological data.	✓	✓	✓	✓	✓	✓	✓	✓

SEMESTER–II									
COURSE	Cos	PSOs							
		1	2	3	4	5	6	7	8
COURSE 3: ANIMAL DIVERSITY-I BIOLOGY OF NON-CHORDATES	1. Describe concept of animal kingdom classification and general characters of Protozoa	✓	✓	✓	✓	✓	✓	✓	✓
	2. Classify Porifera and Coelenterata with taxonomic keys	✓	✓	✓	✓	✓	✓	✓	✓
	3. Classify Phylum Platy & Nemathelminthes using examples, parasitic adaptation	✓	✓		✓	✓	✓	✓	✓
	4. Describe Phylum Annelida & Arthropoda using examples and economic importance of vermicomposting & economic importance of insects.	✓	✓	✓	✓	✓	✓	✓	
	5. Describe Mollusca, Echinodermata & Hemi chordata with suitable examples in relation to the phylogen	✓	✓	✓	✓		✓	✓	✓
COURSE 4: CELL & MOLECULAR BIOLOGY	1. Understand the basic unit of the living organisms and to differentiate the organisms by their cell structure.	✓	✓	✓	✓	✓	✓	✓	✓
	2. Describe fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.	✓	✓	✓	✓	✓	✓	✓	✓
	3. Explain the cell cycle and bioenergetics of the cell	✓	✓	✓	✓	✓	✓	✓	✓
	4. Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins	✓	✓		✓	✓	✓	✓	✓
	5 Understand the gene expression phenomenon and biological importance of bio molecules	✓	✓	✓	✓	✓	✓		✓

SEMESTER– III

COURSE	Cos	PSOs							
		1	2	3	4	5	6	7	8
COURSE 5: ANIMAL DIVERISTY-II BIOLOGY OF CHORDATES	1. Describe general taxonomic rules on animal classification of chordates	✓	✓	✓	✓	✓	✓	✓	✓
	2. Classify Protochordata to Mammalia with taxonomic keys	✓	✓	✓		✓	✓	✓	✓
	3. Understand Mammals with specific structural adaptations	✓	✓	✓	✓	✓	✓	✓	✓
	4. Understand the significance of dentition and evolutionary significance	✓		✓	✓	✓	✓	✓	✓
	5. Understand the origin and evolutionary relationship of different phyla from Prochordata to Mammalia.	✓	✓		✓	✓	✓	✓	✓
COURSE 6: PRINCIPLES OF GENETICS	1. To understand the history of genetics, gain knowledge basic terminology of genetics		✓	✓	✓	✓	✓		✓
	2. To acquire knowledge on interaction of genes, various types of inheritance patterns existing in animals with reference to non-Mendelian inheritance.	✓	✓	✓	✓	✓	✓	✓	✓
	3. To acquire knowledge on chromosomal inheritance	✓	✓	✓	✓	✓	✓	✓	✓
	4. Acquiring in-depth knowledge on various of aspects of genetics involved in sex determination,	✓	✓		✓	✓	✓	✓	✓
	5. Acquiring in-depth knowledge on human karyotyping, pedigree analysis and chromosomal disorders concepts of proteomics and genomics		✓	✓	✓	✓	✓		✓
COURSE 7: ANIMAL BIOTECHNOLOGY	1. Get knowledge of the Vectors and Restriction enzymes used in biotechnology	✓	✓	✓	✓	✓	✓	✓	✓
	2. Describe the gene delivery mechanism and PCR technique	✓	✓	✓	✓	✓	✓	✓	✓
	3. Acquire basic knowledge on media preparation and cell culture techniques	✓	✓	✓	✓	✓	✓	✓	✓
	4. Understand the manipulation of reproduction with the application of biotechnology						✓		✓

	5. Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering.	✓	✓	✓	✓	✓	✓	✓	✓
COURSE 8: EVOLUTION AND ZOOGEOGRAPHY	1. Understand the principles and forces of evolution of life on earth, the process of evolution of new species and apply the same to develop new and advanced varieties of animals	✓	✓		✓	✓	✓	✓	✓
	2. Explain the different evidences of evolution	✓	✓	✓	✓	✓	✓		✓
	3. Understand the theories of evolution	✓	✓	✓		✓	✓	✓	✓
	4. Explain the various tools for evolution	✓	✓	✓	✓	✓	✓	✓	✓
	5. Map the distribution of animals according to zoological realms	✓	✓		✓	✓	✓	✓	✓

SEMESTER–IV

COURSE	Cos ↓	PSOs ↓							
		1	2	3	4	5	6	7	8
COURSE 9: EMBRYOLOGY	1. Understand the historical perspective and concepts of embryology	✓	✓	✓	✓	✓		✓	✓
	2. Acquire knowledge on gametogenesis, fertilization and cleavage patterns	✓	✓	✓		✓	✓	✓	✓
	3. Understand the fate of germinal layers and extra embryonic membranes	✓	✓	✓	✓	✓	✓	✓	✓
	4. Explain the process of regeneration in certain animals	✓	✓		✓	✓	✓	✓	✓
	5. Examine the process of organogenesis	✓	✓	✓	✓	✓		✓	✓
COURSE 10: ANIMAL PHYSIOLOG	1. Understand the physiology of digestion and hormonal control of digestion	✓	✓	✓		✓	✓	✓	✓
	2. Develop a comprehensive picture of respiratory physiology	✓	✓	✓	✓	✓	✓	✓	✓

	3. Acquire knowledge on the Renal physiology	✓	✓	✓	✓		✓	✓	✓
	4. Understand the physiology of Nerve and muscle	✓	✓	✓			✓		✓
	5. Understand the physiology of heart	✓	✓	✓	✓	✓	✓	✓	✓
COURSE 11: IMMUNOLOGY	1. Articulate the roles of innate recognition receptors in immune responses	✓	✓	✓	✓	✓	✓	✓	✓
	2. Compare and contrast humoral versus cell-mediated immune responses	✓	✓	✓	✓	✓	✓	✓	
	3. Distinguish various cell types involved in immune responses and associated functions;	✓	✓	✓	✓	✓	✓	✓	✓
	4. Distinguish and characterize antibody isotypes, development, and functions	✓	✓	✓		✓	✓	✓	✓
	5. Understand the role of cytokines in immunity and immune cell activation;	✓	✓	✓	✓	✓	✓	✓	✓

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COURSE	Cos ↓	PSOs ↓							
		1	2	3	4	5	6	7	8
COURSE 12: POULTRY MANAGEMENT-I (POULTRY FARMING)	1. Evaluate the status of Indian Poultry Industry	✓	✓	✓	✓	✓	✓		✓
	2. Explain the Scientific Poultry keeping	✓	✓	✓		✓	✓	✓	✓
	3. Compare the diversified Poultry practices	✓	✓	✓	✓	✓	✓	✓	✓
	4. Inspect the different breeds of chicken	✓	✓	✓	✓	✓	✓		✓
	5. Understand Breeds from Central Avian Research Institute	✓	✓	✓		✓	✓	✓	✓
COURSE 13: POULTRY MANAGEMENT -II (POULTRY PRODUCTION	1. Suggest measure for Health care in Poultry	✓	✓	✓		✓	✓	✓	✓
	2. Evaluate the economics of poultry production	✓	✓	✓	✓	✓	✓	✓	✓
	3. Elaborate the poultry Breeder flock management	✓	✓	✓	✓	✓	✓		✓
	4. Differentiate the poultry hatchery practices	✓	✓	✓	✓		✓		✓

	5. Understand the importance of different hybrid breeds in poultry	✓	✓	✓		✓	✓	✓	✓
COURSE 14 B: LIVE STOCK MANAGEMENT -I (BIOLOGY OF DAIRY ANIMALS)	1. Select the suitable breeds of livestock for rearing	✓	✓	✓	✓	✓		✓	✓
	2. Relate the anatomy of udder with let-down of milk	✓	✓		✓	✓	✓		✓
	3. Identify and manipulate the reproductive behaviour of cattle	✓	✓	✓		✓	✓	✓	✓
	4. Inspect economics of dairy farming	✓	✓	✓	✓		✓	✓	✓
	5. Apprise the various breeding techniques employed in live stock	✓	✓	✓	✓	✓	✓	✓	✓
COURSE 15 B: LIVE STOCK MANAGEMENT -II (DAIRY PRODUCTION AND MANAGEMENT)	1. Identify and suggest the suitable housing system for the dairy farming	✓	✓	✓		✓	✓	✓	✓
	2. Understand management practices for the dairy farming	✓	✓	✓	✓	✓		✓	✓
	3. Learn the process of milk pasteurization	✓	✓	✓	✓	✓	✓	✓	✓
	4. Prepare cream from milk	✓	✓	✓	✓	✓	✓	✓	✓
	5. To Identify various important management practices in dairy farming	✓	✓	✓		✓	✓	✓	✓

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