GOVt. DEGREE COLLEGE, RAJAMPETA

ANNAMAYYA-DISTRICT-ANDHRAPRADESH

DEPT:ZOOLOGY

ProgrammedOutcomes(U.G)

- **PO1**. *Disciplinary knowledge and skills: Capable of demonstratingcomprehensive knowledge and understanding of major concepts, theoretical principles and experimental findings in Zoology and its different subfields*.

- ***PO2***. *Critical thinker and problem solver: Ability to have critical thinking and efficient problem solving skills in the basic areas of Zoology***.**

- ***PO3***. *Skilled communicator: Ability to impart complex technical knowledge relating to Zoology in a clear and concise manner in writing and oral skills.*

- ***PO4***. *Skilled project manager: Capable of identifying/mobilizing appropriate resources required for a project, and manage a project to completion, while observing responsible and ethical scientific conduct; and safety and chemical hygiene regulations and practices.*

- ***PO5*** *Gain knowledge of Agro based Small Scale industries like sericulture, fish farming, butterfly farming and vermicompost preparation.*

- ***PO6***. *Analyse complex interactions among the various animals of different phyla, their distribution and their relationship with the environment.Apply the knowledge of internal structure of cell, its functions in control of various metabolic functions of organisms.*

Programme Specific Outcomes (PSOs) for B.Sc. Zoology

Sr.No.	After completion of B.Sc Zoology, students will be able to
PSO 1	*Understand the nature and basic concepts and life cycles of Invertebrates and Vertebrates, cell biology, genetics, taxonomy, physiology, immunology and Livestock management.*
PSO 2	*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.*
PSO 3	*Gain knowledge about research methodologies, and acquire skills of Drawing diagrams, preparation of charts, models and problem-solving methods.*
PSO 4	*Develop research-oriented skills. Make aware and handle the sophisticated instruments/equipment's.*
PSO 5	*Understand fundamental aspects of animal science relating to management of animals and products from animals.*
PSO 6	*Understand the special characteristic features and systems of animals, applications of laboratory methods of zoology.*

CourseOutcomes(U.G)

I Year B.Sc.-Zoology:I Semester

Course I: ANIMAL DIVERSITY OF NON-CHORDATES

On successful completion of this course, the students will be able to:

1) *Understand Classify Protista up to phylum using examples from parasitic adaptation.*
2) *Apply the Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.*
3) *Understand Describe general taxonomic rules on animal classification.*
4) *Examine phenomena of simple classifications in protozoa to Echinodermata/*
5) *Appreciate the formulation of the larval forms.*
6) *Figure out the formation of parasitic animals and adaptations of parasitic animals.*

I Year B.Sc.-Zoology: II Semester

Course-II: ANIMAL DIVERSITY OF CHORDATES

Course outcomes:

On successful completion of this course, the students will be able to:

1) *Understand the phenomenon of Imparts conceptual knowledge of vertebrates, their adaptations and associations in relation to their environment*
2) *Distinguish between Closed-book and open-book tests*
3) *Describe the construction and working of functions of brain structures*
4) *Regular reading habits in the students need to be inculcated through continuous monitoring and observation about weaker aspect of the students.*
5) *Explain about the different in phylogenic heart structure in fishes to mammals.*
6) *Explain the general characteristics and classification of different classes of Vertebrates.*
7) *Understand the Explain general characteristics and classification of different classes of Vertebrates.*

II Year B.Sc.-Zoology: III Semester

Course-III: CELL BIOLOGY,GENETICS,MOLECULAR BIOLOGY AND EVOLUYION

Course outcomes:

On successful completion of this course, the students will be able to:

1. *Understand the basic aspects of Develop deeper understanding of what life is and how it functions at cellular level. Describe cellular membrane structure and function, fine structure and function of cell organelles. Perform a variety of molecular and cellular biology techniques.*
2. *Understanding of basic concepts of genetics, laws of inheritance and central dogma of biology.*

   Mendelian and non mendielian inheritance.
3. *Gain knowledge on the basic concepts of Theories of Evolution. Knowledge of eras and evolution of species*
4. *Concept behind genetic disorder, gene mutations- various causes associated with inborn errors of metabolism.*
5. *Understand the animal cells and various cell organelles by using microphotographs.*
6. *Appreciate the contribution of great scientists.*
7. *Distinguishing characters between plant cell and animal cell. CO*

II Year B.Sc.-Zoology IV Semester

Course-IV: ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY

Course outcomes:

On successful completion of this course, the students will be able to:

1. *Understand the Students are taught the detailed concepts of digestion respiration excretion the functioning of nerves and muscles.*

2. *Distinguish Knows the concept, process, physiology, and molecular basis of animal development. Also knows the methods of cultivation & economic importance of various species, honeybees, lac insects, fruit fly, Sericulture, Vermiculture etc.*
3. *Apply the students will gain skill to execute the roles of a biology teacher or medical lab technicians with training as they have basic fundamentals*
4. *Develop an understanding on the. Understand the terms: Gametogenesis, Fertilization and early development.*
5. *Apply the knowledge to collect various Biological data. Familiar with various stages involved in the developing embryo*
6. *Describe the Understand the structure and function of carbohydrate, amino acids, proteins, and lipids. Understand the concept Enzymes and also Vitamins and minerals. Understand the Principle role of Vitamins in metabolism and Deficiency diseases.*
7. *Understand the terms Histology and Physiology and cell, tissue, organ, system and organisms.*

II Year B.Sc.Zoology: IV Semester

Course V: IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY

Course outcomes:

On successful completion of this course, the students will be able to:

1. *Develop an Seeks to understand the mechanisms that work to keep the human body alive and functioning of vectors.*

2. *Develop critical understanding of Physiological and biochemical understanding through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed*

3. *Get familiarized with the principles of Imparts in depth knowledge of tissues, cells and molecules involved in host defense mechanisms. Understanding of types of immunity*
4. *Examine the basic properties of Interactions of antigens, antibodies, complements and other immune components. Understanding of immune mechanisms in disease control, vaccination, process of immune interactions*

5. *Get familiarized with the Imparts the Knowledge to culture animal cells in artificial media.*

6. *Knowledge of animal cells in culture, growth of cell lines.*

7. *Use in recombinant DNA technology, genetic manipulations and in a variety of industrial processes.*

8. *Increase the awareness and appreciation of Provides basics knowledge about immune system and allows the student to create insight as how to improve their immune system and good health.*

Domain Subject: **Zoology**

Semester – V, Paper- 6B: LIVE STOCK MANAGEMENT- I

BIOLOGY OF DAIRY ANIMALS (Skill Enhancement Course (Elective)

Course outcomes:

Students after successful completion of the course will be able to:

1. Identify various facilities required to set up a basic Instrumentation Laboratory.

2. Acquire a critical knowledge of various know the market of milk in different breed.

3. Demonstrate skills of using instruments like Understand the basic principle of sterilization, homogenization, and standardization of milk.

4. Understand the Principle Study the different nutrient value in milk.

5. Comprehend the applications of various breeds of cows and buffaloes.

6. Impact diagnosis of artificial insemination in cows.

Domain Subject: **Zoology**

Semester – V, Paper- 7B:LIVE STOCK MANAGEMEN – II

DAIRY PRODUCTION AND MANAGEMENT(Skill Enhancement Course (Elective)

Course outcomes:

Students after successful completion of the course will be able to:

1) Identify various facilities required to set up a Dairy form construction.
2) Students will learn about traditional systems of cattle and concepts of farming.
3) Learning about general classification,characteristicscope of microbes in dairy industry.
4) Study important aspects of cattle feed and nutritional requirements of cattle.
5) Students will learn about basic principles of milk products storage processing and nanotechnology.
6) Practical for microbial testing of dairy products

CO,PSO mapping

Titleofthepaper:ANIMAL DIVERSITY OF NON-CHORDATES

CO	PS0					
	1	2	3	4	5	6
1) *Understand Classify Protista up to phylum using examples from parasitic adaptation*	√	√	√	√	√	√
2) *Apply the Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.*	√	√	√	√	√	
3) *Understand Describe general taxonomic rules on animal classification.*	√		√	√	√	√
4) *Examine phenomena of simple classifications in protozoa to Echinodermata.*	√			√	√	√
5) *Appreciate the formulation of the larval forms*	√	√		√	√	√
6) *Figure out the formation of parasitic animals and adaptations of parasitic animals.*	√	√	√	√	√	√

Title of the paper:**ANIMAL DIVERSITY OF CHORDATES**

CO	PS0					
	1	2	3	4	5	6
1) *Understand the phenomenon of Imparts conceptual knowledge of vertebrates, their adaptations and associations in relation to their environment.*	√	√	√	√	√	√
2) *Distinguish between Closed-book and open-book tests*	√	√		√	√	√
3) *Describe the construction and working of functions of brain structures*	√	√		√	√	√
4) *Regular reading habits in the students need to be inculcated through continuous monitoring and observation about weaker aspect of the students. ..*	√		√	√	√	√
5) *Explain about the different in phylogenic heart structure in fishes to mammals.*	√		√	√	√	√
6) *Explain the general characteristics and classification of different classes of Vertebrates.*	√	√		√	√	√
7) *Understand the Explain general characteristics and classification of different classes of Vertebrates*	√	√	√	√	√	√

Title ofthepaper: **CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION**

CO	PS0					
	1	2	3	4	5	6
1) *Understand the basic aspects of Develop deeper understanding of what life is and how it functions at cellular level. Describe cellular membrane structure and function, fine structure and function of cell organelles. Perform a variety of molecular and cellular biology techniques.*	√		√	√	√	√
2) *Understanding of basic concepts of genetics, laws of inheritance and central dogma of biology.Mendelian and non mendielian inheritance.*	√	√	√	√	√	√
3) *Gain knowledge on the basic concepts of Theories of Evolution. Knowledge of eras and evolution of species*	√			√	√	√
4) *Concept behind genetic disorder, gene mutations- various causes associated with inborn errors of metabolism.*	√	√	√	√	√	√
5) *Understand the animal cells and various cell organelles by using microphotographs.*	√	√	√	√	√	√
6) *Understand the animal cells and various cell organelles by using microphotographs.*	√		√	√	√	
7) *Distinguishing characters between plant cell and animal cell.*		√	√	√		V

Title of the paper:

ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY

CO	PS0					
	1	2	3	4	5	6
1) Understand the Students are taught the detailed concepts of digestion respiration excretion the functioning of nerves and muscles.	√		√	√	√	√
2) Distinguish Knows the concept, process, physiology, and molecular basis of animal development. Also knows the methods of cultivation & economic importance of various species, honeybees, lac insects, fruit fly, Sericulture, Vermiculture etc.	√		√	√	√	√
3) *Apply the students will gain skill to execute the roles of a biology teacher or medical lab technicians with training as they have basic fundamentals*	√			√	√	√
4) Develop an understanding on the. Understand the terms: Gametogenesis, Fertilization and early development.	√		√	√		√
5) Apply the knowledge to collect various Biological data. Familiar with various stages involved in the developing embryo.	√	√	√	√	√	√
6) Describe the Understand the structure and function of carbohydrate, amino acids, proteins, and lipids. Understand the concept Enzymes and also Vitamins and minerals. Understand the Principle role of Vitamins in metabolism and Deficiency diseases.	√	√	√	√	√	√
7) Understand the terms Histology and Physiology and cell, tissue, organ, system and organisms.	√		√	√	√	√

Title of the paper:**IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY**

CO	PS0					
	1	2	3	4	5	6
1) *Develop an Seeks to understand the mechanisms that work to keep the human body alive and functioning of vectors.*	√		√	√	√	√
2) *Develop critical understanding of Physiological and biochemical understanding through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed*	√			√	√	√
3) *Get familiarized with the principles of Imparts in depth knowledge of tissues, cells and molecules involved in host defense mechanisms. Understanding of types of immunity*	√			√	√	√
4) *Examine the basic properties of Interactions of antigens, antibodies, complements and other immune components. Understanding of immune mechanisms in disease control, vaccination, process of immune interactions*	√	√	√	√	√	√
5) *Get familiarized with the Imparts the Knowledge to culture animal cells in artificial media.* .	√	√	√	√	√	√
6) *Knowledge of animal cells in culture, growth of cell lines.*	√	√	√	√	√	√
7) *Use in recombinant DNA technology, genetic manipulations and in a variety of industrial processes.*		√	√	√		√
8) *Increase the awareness and appreciation of Provides basics knowledge about immune system and allows the student to create insight as how to improve their immune system and good health.*	√	√		√	√	√

Titleofthe paper: 6B:**LIVE STOCK MANAGEMENT- I**

BIOLOGY OF DAIRY ANIMALS (Skill Enhancement Course (Elective)

CO	PS0					
	1	2	3	4	5	6
1. Identify various facilities required to set up a basic Instrumentation Laboratory.	√	√	√		√	
2. Acquire a critical knowledge of various know the market of milk in different breed.	√	√	√		√	√
3. Demonstrate skills of using instruments like Understand the basic principle of sterilization, homogenization, and standardization of milk.	√	√	√	√	√	√
4. Understand the Principle Study the different nutrient value in milk	√	√	√	√	√	√
5. Comprehend the applications of various breeds of cows and buffaloes.	√	√	√	√	√	√
6. Impact diagnosis of artificial insemination in cows.		√	√	√	√	√

Title of the paper:7B:**LIVE STOCK MANAGEMENT- II**

DAIRY PRODUCTION AND MANAGEMENT (Skill Enhancement Course (Elective)

CO	PS0					
	1	2	3	4	5	6
1) Identify various facilities required to set up a Dairy form construction.	√	√	√		√	√
2) Students will learn about traditional systems of cattle and concepts of farming	√	√	√		√	√
3) Learning about general classification,characteristics,scope of microbes in dairy industry	√			√	√	√
4) Study important aspects of cattle feed and nutritional requirements of cattle	√	√	√	√	√	√
5) Students will learn about basic principles of milk products storage processing and nanotechnology	√	√	√	√	√	√
6) Practical for microbial testing of dairy products		√	√		√	√