

**A.S. D GOVT.DEGREE COLLEGE FOR WOMEN (A), KAKINADA**

**DEPARTMENT OF ZOOLOGY & AQUACULTURE TECHNOLOGY**

2020-2021

**ZOOLOGY Courses offered**

Semester	Paper	Course Title	Course type (T/L/P)
I	PAPER-I	Animal Diversity Biology of Non-Chordates	T
		Animal Diversity Biology of Non-Chordates Practical	P
II	PAPER-II	Animal Diversity Biology of Chordates	T
		Animal Diversity Biology of Chordates Practical	P
III	PAPER-III	Cell Biology ,Genetics and Evolution	T
		Cell Biology ,Genetics and Evolution Practical	P
IV	PAPER-IV	Embryology, Physiology & Ecology	T
		Embryology, Physiology & Ecology Practical	P
V	PAPER-V	Animal Biotechnology	T
		Animal Biotechnology Practical– V	P
	PAPER -VI	Animal Husbandry	T
		Animal Husbandry Practical– VI	P
VI Elective	PAPER- VIIA	Immunology	T
		Immunology Practical- VIIA	P
Cluster	PAPER VIIIA	Principles Of Aquaculture	T
		Principles Of Aquaculture Practical- VIIIA	P
	PAPER VIIIB	Aquaculture Management	T
		Aquaculture Management Practical- VIIIB	P
	PAPER VIIIC	Post-Harvest Technology	T
		Post-Harvest Technology Practical –Project- VIIIC	P

## Course Outcomes:

### SEMESTER-I

#### Animal Diversity Biology of Non chordates

**Course Outcomes:** By the completion of the course the graduate should be able to –

**CO1:** Describe general taxonomic rules on animal classification

**CO2:** Classify Protozoa to Coelenterata with taxonomic keys

**CO3:** Classify Phylum Platyhelminthes to Annelida phylum using examples from parasitic adaptation and vermin composting

**CO4:** Describe Phylum Arthropoda to Mollusca using examples and importance of insects and Molluscs

**CO5:** Describe Echinodermata to Hemichordata with suitable examples and larval stages in relation to the phylogeny

### SEMESTER-II

#### Animal Diversity Biology of Chordates

**Course Outcomes:** By the completion of the course the graduate should be able to –

**CO1:** Describe general taxonomic rules on animal classification of chordates

**CO2:** Classify Protochordata to Mammalian with taxonomic keys

**CO3:** Understand Mammals with specific structural adaptations

**CO4:** Understand the significance of dentition and evolutionary significance

**CO5:** Understand the origin and evolutionary relationship of different phyla from Protochordata to mammalian.

### SEMESTER-III

#### Cell Biology, Genetics and Evolution

**Course Outcomes:** The overall course outcome is that the student shall develop deeper understanding of what life is and how it functions at cellular level. This course will provide students with a deep knowledge in Cell Biology, genetics, Molecular biology and Evolution and by the completion of the course the graduate shall be able to–

**CO1:** To understand the basic unit of the living organisms and to differentiate the organisms by their cell structure.

**CO2:** Describe fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.

**CO3:** 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

**CO4:** Acquiring in-depth knowledge on various aspects of genetics involved in sex determination, human karyotyping and mutations of chromosomes resulting in various disorders.

**CO5:** 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 for the benefit of the society.

### SEMESTER-IV (paper-IV)

#### Embryology, Physiology, & Ecology

**Course Outcomes:** This course will provide students with a deep knowledge in Physiology, Cellular metabolism and Embryology and by the completion of the course the graduate shall be able

to –

**CO1:** Describe the key events in early embryonic development starting from the formation of gametes upto gastrulation and formation of primary germ layers & the importance of placenta in mammals

**CO2:** Understand the functions of important animal physiological systems including digestion, cardiorespiratory and renal systems.

**CO3:** 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.

**CO4:** Describes the basics of ecology

**CO5:** Explain the community interactions in species, Ecological Succession & distribution of animals on the earth

### **SEMESTER –V (paper –V)**

#### **ANIMAL BIOTECHNOLOGY**

**CO1:** Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering.

**CO2:** Get familiar with the tools and techniques of animal biotechnology.

**CO3:** To provide knowledge on animal cell and tissue culture and their preservation

**CO4:** To empower students with latest biotechnology techniques like stem cell technology, genetic engineering, hybridoma technology, transgenic technology and their application in medicine and industry for the benefit of living organisms

**CO5:** To explain in vitro fertilization, embryo transfer technology and other reproduction manipulation methodologies.

**CO6:** To get insight in applications or recombinant DNA technology in agriculture, production of therapeutic proteins.

**CO7:** To understand principles of animal culture, media preparation.

### **SEMESTER –V (paper –VI)**

#### **ANIMAL HUSBANDRY**

**Course Outcomes:** This course will provide students with a deep knowledge in

**CO1:** Understand the field level structure and functioning of poultry sector and its role in food production.

**CO2:** Comprehend pertaining skills and their application to establish poultry industry. Understand the pre-requisites for starting a Dairy farm

**CO4:** Recognize different breeds of Cows & buffaloes following safety precautions.

**CO5:** Prepare and give recommended feed and water for livestock. Maintain health of livestock along with productivity

**CO6:** Vaccination of cattle, nutrients requirements. Entrepreneurship i.e., Effectively market dairy products

**CO7:** Ensure safe and clean dairy farm and Standard safety measures to be taken in establishing an industry. Efficiently start and manage to establish or develop a Dairy Industry

### **SEMESTER –VI**

**IMMUNOLOGY Course Outcomes:** This course will provide students with a deep knowledge in immunology, and by the completion of the course the graduate shall able to –

**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:** To trace the history and development of immunology

**CO4:** To provide students with a foundation in immunological processes

**CO5:** To be able to compare and contrast the innate versus adaptive immune systems and humoral versus cell-mediated immune responses

**CO6:** Understand the significance of the Major Histocompatibility Complex in terms of immune response and transplantation

### **SEMESTER –VI**

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

**CO1:** Students can understand basic scenario of aquaculture.

**CO2:** Can identify different cultivable species

**CO3:** Can differentiate types of aquacultures and its systems

**CO4:** Can get the basic knowledge of construction of fish pond,

**CO5:** Know the sources of seed and feed available for aqua forms. Know the knowledge management of carp and shrimp culture

### **SEMESTER –VI**

#### **Cluster Elective Paper: VIII-B-2 AQUACULTURE MANAGEMENT**

**CO1:** Can understand the breeding and hatchery management in aquaculture.

**CO2:** Understand the importance of water quality.

**CO3:** Should know the feed management practices.

**CO4:** Analyse the importance of disease management

**CO5:** Understand the importance of fisheries in income generation food production and employment and researches.

### **SEMESTER –VI**

#### **Cluster Elective Paper: VIII-B-3 POSTHARVEST TECHNOLOGY**

**CO1:** Can get the techniques of handling of fish for preservation

**CO2:** Get the knowledge of fish preservation.

**CO3:** They should know processing and by-products of fish.

**CO4:** Get the knowledge of importance of sea weed products.

**CO5:** They should know the importance of sanitation quality assurance and certification for aqua products.