

# **DEPARTMENT OF ZOOLOGY**

## **CORE & PROGRAMME COURSE**

### **PROGRAMME OBJECTIVES (PO)**

Inspiring the students to pursue higher studies in the field of zoology that will be the foundation stone for their future study & research works. It will also do the other advancement in most specific biological fields.

### **CORE AND PROGRAM SPECIFIC OUTCOMES (PSO)**

#### **SEM-I**

#### **CORE T1-Non Chordate I- PROTISTA TO PSEUDOCOELOMATES**

Introduction to non chordate is the first foot step in the zoological science. There is a brief taxonomic study starting from classification to nomenclature. This part deals with the invertebrates, starting from protista to pseudocoelomates which are the pioneers in this field with their evolutionary significance both theoretically as well as practically.

#### **CORE T2- PERSPECTIVES IN ECOLOGY**

The subject ecology deals with the interaction of living and nonliving components in relation to the environment. Students will get the ideas about population, community & their interaction. The flow of energy through several trophic layers in food chain open a vast area of thermodynamics in living world. The practical aspect of this paper make the students enthusiasts about several ecological factors and estimation in life. A field study make the students concerned about conservation.

#### **SEM-II**

#### **CORE T3-Non Chordates II-COELOMATES**

The invertebrate world is so vast, it is quiet natural to divide in two successive parts: acoelomates and coelomates. Here remains the classification of coelomates phylum, various peculiar / specialised features of them along with their evolutionary significance. In practical course students will be introduced with several museum specimens as identifying objects.

#### **CORE T4-CELL BIOLOGY**

This area decipher the knowledge about cell ; the structure and function of various cell organelles , dividing process, cell cycle, cell- signalling ,so that it becomes clear that how a cell becomes the unit of life. It also gives the idea about cell death and special

reference with some specialised genes which have a major role. Practically students equipped with preparation of cytological slides on cell division process.

### **SEM-III**

#### **CORE-T5 DIVERSITY OF CHORDATA**

As the zoological world is not only consist of non chordates students will also be introduced with other part the chordate. They explore the distribution of chordate animals in different regions of the globe in light of zoogeography. In practical, they will be introduced with these theoretical topics along with powerpoint presentation.

#### **CORE-T6 Animal physiology-CONTROLLING & COORDINATING SYSTEMS**

This field deals about different biological systems, their specific structure, how they function to regulate our body. Various physiological parameters like muscle twitching reflexes and preparation of histological slides through microtomy is done practically.

#### **CORE -T7 FUNDAMENTALS OF BIOCHEMISTRY**

It is the study of chemical reactions that take place inside living body which regulates the living process .It introduces the students about the prime macromolecules like sugar, protein, lipid and nucleic acid that constitute the cellular structure and functions associated with living process. Students will know about the initial biochemical process like preparation of different experimental solutions at various concentration; quantity estimation of protein using colorimetry.

#### **SEC-I AQUARIUM FISH KEEPING**

Students will be acquainted with the fundamental of fish keeping, preparation and handling of aquarium, importance of ornamental fish in trading and marketing. So that they will prepare themselves as skilled in this field. This world open a new avenue as an alternative source of income.

### **SEM IV**

#### **CORE T8-COMPARITIVE ANATOMY OF VERTEBRATES**

This comparative study of anatomical structures of important system in different groups of vertebrates show the line of descent in light of evolution. Which enables the students about make up of body systems and their function as evolution proceeds.

#### **CORE T9-Animal Physiology-LIFE SUSTAINING SYSTEMS**

This area confers the study of physiology; how living organism functions in the changed environment, students will understand how the vital system of animal body like

circulatory , excretory , nervous system function; how to maintain body's homeostasis . They get the chance of different haematological test as well as recording of blood pressure.

### **CORE T-10 IMMUNOLOGY**

This area deals with the body's natural defence mechanism along with the related cells and organs of the system , ideas about immunogen and immunogenicity.It also gives the student idea about vaccination agents of different disease.In practical they will know about several immunological organs.

### **SEC-II-SERICULTURE**

In this skill enhancing course students will get the opportunity to know the culture of silk including different species of silk worm, rearing method ,extraction and reeling of silk; about the predators and disease of silk moth .This study will help the students to understand the significance importance of silk marketing in Indian economy; open a new avenue of occupation.

## **SEM V**

### **CORE T-11 MOLECULAR BIOLOGY**

As the world is based on molecule this area introduces the students about the molecular make up of life;the core molecule DNA and RNA and protein; how they interact to make a successful life. Student will observe the chromosome, demonstration about gel electrophoresis & spectrophotometer.

### **CORE T-12 PRINCIPLES OF GENETICS**

Genetics is the study of genes.The hereditary unit gives the concept of heredity,variation,mutation on living world. This area deals with the advance study of gene at molecular level like genomic analysis together with gene replacement and their expression pattern.In the practical aspect students get the chance of solving genetical problems by linkage, genetic mapping, pedigree analysis etc.

## **DSE**

### **ANIMAL BIOTECHNOLOGY**

Biotechnology is the most advance study in lifescience.It is an integrated subject comprising biology, chemistry, computer science, physics starting from genome to cell culture.Various specialised advance studies accumulated here to give a complete picture of gene manipulation and gene therapy with its practical applications.

### **WILDLIFE CONSERVATION AND MANAGEMENT**

This field of study deals with importance, conservation & management of wildlife as well as estimation of its population and diversity analysis by various method.

## **SEM VI**

### **CORE T-13 DEVELOPMENTAL BIOLOGY**

This branch deals with the process of development of life starting from gametogenesis to organogenesis. It also includes some teratogenic effects on embryo ; the process of amniocentesis, IVF, stem cell study. It also delivers the idea about placenta and different developmental slopes in chick embryo and *Drosophila*.

### **CORE T-14 EVOLUTIONARY BIOLOGY**

This branch gives the idea of life , how it starts and its evolution on earth. Ideas about several evolutionary process including Lamarckism, Darwinism, molecular evolution, variation different evolutionary forces leads to evolution. Students will also know about the human evolution. In practical portion there are some problem solving with Hardy Weinberg law, study of homology and analogy, fossil study etc.

## **DSE**

### **BIOSTATISTICS AND BIOINFORMATICS**

This part deals with the application of statistics methodology to analyse biological varieties. This is very much applicable in project report research work, specially in medical science, in every sphere of calculation. It helps the students by giving the ideas about data, distribution type, probabilities. Bioinformatics represent the biological data and analysing using computer. In practical students will make a small project report based on any statistical tool.

### **PARASITOLOGY**

Many organism lives in a host parasitic relationship starting from protista to mammals specially the group Helminthes. This study deals with the life cycle of the parasite , host, mode of infection, pathogenic effect epidemiology, prophylaxis and their control measures.