VIVEKANANDA COLLEGE

TIRUVEDAKAM WEST, MADURAI DISTRICT - 625 234, TAMIL NADU

Vision & Mission and PEOs, PSOs & POs

DEPARTMENT OF ZOOLOGY

Choice Based Credit System (CBCS)
and
Learning Outcomesbased Curriculum Framework
(LOCF)

DEPARTMENT OF ZOOLOGY

Vision

- Unravel hidden research potentials & Entrepreneurial avenues in Zoology
- Bring a behavioural change in Course knowledge, scientific aptitude and instrumental skills to attract students with best caliber
- Raise students to international standards

Mission

- Strategic plans for translating goals and objectives by curriculum design, good teaching methods and evaluation
- Academic and research collaborations
- Bio-track –A forum to update knowledge
- Hands on training at Bio industries

Programme Educational Objectives (PEOs)

A graduate of B.Sc. Zoology programme after five years will

PEO 1	Acquire comprehensive knowledge of Zoology and excel in the chosen area
PEO 2	Develope confidence to prepare for competitive examinations
PEO 3	Inculcate students to pursue higher education and lifelong learning
PEO 4	Motivate students to develop an aptitude for animal preservation and research
PEO 5	Train the youth for self-employment generation to become an entreprenuer

Programme Outcomes (POs)

On completion (after three years) of B. Sc Zoology programme, the students are able to

P.No.	Programme Outcome	Description
PO1	Disciplinary Knowledge and Critical Thinking	Take informed actions after identifying the assumptions that frame our thinking and actions, checking out degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from perspectives.
PO2	Effective Communication and Digital Literacy	Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people , ideas, books, media and technology.
PO3	Social Interaction and Problem Solving	Elicit views of others, mediate disagreements and help reach conclusions in group settings.
PO4	Effective Citizenship and Social Responsibility	Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and life training.
PO5	Professional Ethics and Human Values	Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO6	Environment and Sustainability	Understand the issues of environmental contexts and Sustainable development.
PO7	Self –directed and life – long learning	Acquire the ability to engage in independent and life – long learning in the broadest context socio- technological changes

PART – III **: Core Theory**	Course Code: **09CT11**
Course Title **: INVERTEBRATES - I**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Acquire knowledge on general characteristic features, morphology and classification of Invertebrates (Protozoa – Helminthes)	K1
CO 2	Understanding the diversity and distribution of invertebrate fauna at different habitats	K2
CO 3	Study the lifecycle and adaptation of Protozoan and helminthes parasites of human, mode of transmission and treatment	K2
CO 4	Trace the origin, evolutionary relationships, phylogeny and affinities of minor phyla.	K2
CO 5	Applying studied information to have knowledge on cattle and human diseases, observe marine animals at their natural habitats and Understanding their biodiversity through field visit	K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Core Theory**	Course Code: **09CT12**
Course Title **: INVERTEBRATES - II**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Learn the general characteristics and classification of invertebrates (Annelida – Echinodermata)	K1
CO 2	Study the biodiversity of invertebrates in different habitats	K2
CO 3	Can trace the development and affinities of invertebrates	K2
CO 4	Acquire knowledge on social and economical importance of insects	K2, K3
CO 5	Learn the adaptive radiation of marine forms	K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Core Theory**	Course Code: **09CT21**
Course Title **: CHORDATES - I**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Learn the general characteristics, classification with common examples of chordates, Prochordates specialized characters and peculiar development	K1, K2
CO 2	Understanding the comparative external features of various vertebrates	K2
CO 3	Knowledge on morphological and anatomical features of vertebrates	K2, K3
CO 4	Acquire knowledge on organs of communicative and sensory systems of vertebrates	K1, K3
CO 5	Understanding the structural organization of skeletal system in vertebrates	K1, K2, K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Core Theory**	Course Code: **09CT22**
Course Title **: CHORDATES - II**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Study the origin, ancestors and descendents of chordates	K1, K3
CO 2	Understanding the adaptive characters and accessory organs of vertebrates	K1, K2
CO 3	Study the specialized features of Amphibians, identification features of poisonous and non-poisonous snakes	K2
CO 4	Study the structures, its mechanisms and adaptation in Aves	K2, K3
CO 5	Study the mammalia through origin, aquatic adaptations and feeding accessories	K1, K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Core Theory**	Course Code: **09CT31**
Course Title **: CELL BIOLOGY**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Inculcate knowledge on working principles of microscopes, cell fractionation, staining and identification of cell types	K1,K2,K3
CO 2	Get deeper Understandinging on organisation and functional aspects of cellular organelles, plasma membrane, endoplamic reticulum, golgi body and lysosomes.	K1,K2,K3
CO 3	Comprehends on morphological, chemical composition, structure and functions of synthesising organelles of mitochondria and ribosomes.	K1,K2,K3
CO 4	Develop analyse on structure of oncogenes and nucleus, differentiation of chromosomes, different types of cell division	K1,K2,K3
CO 5	Appreciate through principles of microscopes the organisation of DNA, RNA types, its role in gene regulation and protein synthesis.	K1,K2,K3

K1-Remembering **K2-**Understanding **K3-**Applying

PART – III **: Core Theory**	Course Code: **09CT32**
Course Title **: GENETICS**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Get overall idea of Mendelian works on inheritance and the deviation from Mendelian concepts.	K1,K2,K3
CO 2	Understanding the architect of differential inheritance due to multiple allelism, polygene and their associated problems.	K1,K2,K3
CO 3	Impart knowledge on the deviation of Mendelian concepts through the linkage and crossing over and also mapping of chromosome.	K1,K2,K3
CO 4	Find out the methods of sex determinations, factors, and also acquire how sex related diseases and their transmission.	K1,K2,K3
CO 5	Trace and identify the mechanism of non-genetic inheritance, genetic diseases and pedigree. Promotional methods of genetic mechanism through qualitative traits.	K1,K2,K3

K1-Remembering **K2-**Understanding **K3-**Applying

PART – III **: Core Theory**	Course Code: **09CT41**
Course Title **: DEVELOPMENTAL BIOLOGY**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Understanding the historical theories of development and Understanding the origin shapes and types of gametes.	K1, K2, K3
CO 2	Acquire knowledge on events of the fertilization, cleavage pattern and causes for the cellular differentiation of blastomeres.	K1, K2, K3
CO 3	Understanding the differential modifications and functions of developmental and embryonic cells and the process of development of brain, heart, eye and kidney.	K1, K2, K3
CO 4	Analyse the reproductive cycles and events of human reproduction, mechanism of various metamorphosis and regeneration.	K1, K2, K3
CO 5	Trace the applications and methods of human welfare in embryology.	K1, K2, K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Core Theory**	Course Code: **09CT42**
Course Title **: PHYSIOLOGY**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Acquire knowledge on physiological role of major and minor nutrient.	K1, K2, K3
CO 2	Impart knowledge on structure and physiology of circulatory and respiratory systems in animals.	K1, K2, K3
CO 3	Analyse the physiology of excretion, ionic balance and chemical coordination in animals.	K1, K2, K3
CO 4	Obtain knowledge on types and constructions, physiological and chemical coordination of neuromuscular system.	K1, K2, K3
CO 5	Gain the knowledge on structure and physiology of receptors (ear and eye) and endocrine glands and circadian rhythm	K1, K2, K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Core Theory**	Course Code: **09CT51**
Course Title **: BIOCHEMISTRY AND BIOPHYSICS**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Acquire knowledge in biomolecule structure, classification and biophysical principles.	K1,K2 & K3
CO 2	Understanding the properties of biomolecules and various law's bio-physical principles.	K1,K2 & K3
CO 3	Explore the metabolic pathways and their products in the living system.	K1,K2 & K3
CO 4	Applying the biophysical principles in the living systems.	K1,K2 & K3
CO 5	Analyse the products of biomolecules and biophysical principles in living system.	K1,K2 & K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Core Theory**	Course Code: **09CT52**
Course Title **: BIOTECHNOLOGY**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Acquire knowledge on concepts and various tools and techniques in biotechnology	K1,K2
CO 2	Understanding the functions of the tools under various disciplines of biotechnology	K2,K3
CO 3	Explore the culture techniques, gene modification, gene amplification and environmental bioremedies using in biotechnology	K2,K3
CO 4	Gain knowledge on the principles and applications of various molecular techniques	K2, K3
CO 5	Inculcate the entrepreneurial skills using the tools and techniques in biotechnology	K1, K2, K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Core Theory**	Course Code: **09CT53**
Course Title **: MICROBIOLOGY AND IMMUNOLOGY**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Acquire knowledge on basic concepts of microbiology and immunology	K1&K2
CO 2	Understanding the classification , structure and behaviour of microbes and immune system	K1&K2
CO 3	Analyze the microbial physiology in various media and the cellular morphology of immune system	K1&K2&K3
CO 4	Explore the impact of microbes in different media and to gain the knowledge on types and response of different immune system	K1&K2&K3
CO 5	Impart the knowledge on microbes in daily life and to empower to develop the skills in immunotechniques	K1&K2&K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Elective Theory**	Course Code: **09EP51**
Course Title **: BIOSTATISTICS, COMPUTER APPLICATION & BIOINFORMATICS**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	To acquire knowledge on history, data and instruments of statistics and bioinformatics	K1,K2 &K3
CO 2	To retrieve, present and evaluate the data using statistics and computational tools	K1,K2 &K3
CO 3	Interpertate retried, analyzed data using methods, techniques through soft packages and statistical tools	K1,K2 &K3
CO 4	Explore, predict and to study the applications of statistical and computational biology	K1,K2 &K3
CO 5	To develop the skills in computational biology and computer data based works by using concepts, tools and techniques	K1,K2 &K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Core Theory**	Course Code: **09CT61**
Course Title **: EVOLUTION**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Acquire knowledge on process of evolution through principles, theories and evidences	K1,K2, & K3
CO 2	Understanding the basic concept of evolution through various evolutionary processes.	K1,K2, & K3
CO 3	Ensure the progress, barriers and attainments in the events of evolutionary processes.	K1,K2, & K3
CO 4	Analyse the structure and outcomes of the evolutionary processes of speciation	K1,K2, & K3
CO 5	Impart the knowledge on fossil and fossilization and also in evolutionary sequences / ancestral behaviours of mammals.	K1,K2, & K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Elective Theory**	Course Code: **09EP61**
Course Title **: DAIRY FARMING**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Acquire knowledge on the dairy breed animals, their digestive physiology and ingredients.	K1,K2,K3
CO 2	Understanding the modern techniques in breeding and management of dairy animals at various stages.	K1,K2,K3
CO 3	Impart knowledge on management of dairy products, its production and by-products	K1,K2,K3
CO 4	Analyze the quality production of dairy animals and dairy products	K1,K2,K3
CO 5	Trace the employability and marketing methods using dairy techniques and through field visits.	K1,K2,K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Elective Theory**	Course Code: **09EP62**
Course Title **: ENVIRONMENTAL BIOLOGY**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Acquire knowledge on fundamental concepts, structure and types of ecosystem	K1,K2,K3
CO 2	Understanding the behavioral patterns found in organisms at different ecological levels.	K1,K2,K3
CO 3	Ensure the reciprocal relationship and impact between organisms and environment.	K1,K2,K3
CO 4	Trace the problems of adverse environment and its management	K1,K2,K3
CO 5	Create awareness on protects patterns, conservation and management of environment	K1,K2,K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Allied Theory**	Course Code: **09AT01**
Course Title **: ANIMAL ORGANISATION**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Inculcate knowledge on animal classification and taxonomical methods with suitable examples.	K1
CO 2	Understanding the structure ingestion and egestion of bioprocesses in feeding and respiration of representative animals.	K2
CO 3	Make awareness on movement of fluids, body and structural in invertebrates and chordates representatives.	K2
CO 4	Observe a structure and functional aspects of nervous system, receptors in earthworm, insects and human.	K2
CO 5	Trace the structure and processes of excretion, reproduction in selected invertebrates and chordates.	K3

K1-Remembering **K2**-Understanding **K3**-Applying

PART – III **: Allied Theory**	Course Code: **09AT02**
Course Title **: BIOLOGY AND HUMAN WELFARE**	

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Acquire knowledge on structure, mode of infection, development and remedies of virus and viral diseases.	K1
CO 2	Understanding the structure, mode of infections, biology and remedies of bacteria and bacterial diseases.	K2
CO 3	Impart knowledge on differential diseases caused by fungal, protozoan and helminthes.	K2
CO 4	Explore the avenues, opportunities and limitations of sericulture, fish culture and vermiculture	K2
CO 5	Trace the organisation, characteristics, candidates, culture and entrepreneurial values of biogas, mushroom culture, apiculture.	K3

K1-Remembering **K2**-Understanding **K3**-Applying