

Department of Zoology

B.Sc. Courses offered 2017 - 2020

Semester	Course	Subject code	Paper	Hours/ week	Credits
I	Part I	TL1711/ FL1711	Language: Tamil/French	6	3
	Part II	GE1711	General English	6	3
	Part III	ZC1711	Major Core I - Invertebrate Zoology	4	4
		ZC17P1	Major Practical I	2	-
		CA1711	Allied I - Theory	4	4
		CA17P1	Allied I - Practical	2	-
	Part IV	AEC171	AECC – Ability Enhancement Compulsory Course: English Communication	2	2
		ZNM171	NMEC - Public Health and Hygiene	4	2
		VEC172	Foundation Course I – Values for Life	-	-
	Part V	SDP172	Skill Development Programme (SDP) – Certificate Course	-	-
		STP174	Student Training Programme (STP) – Clubs & Committees / NSS	-	-
II	Part I	TL1721/ FL1721	Language: Tamil/French	6	3
	Part II	GE1721	General English	6	3
	Part III	ZC1721	Major Core II - Chordate Zoology	4	4
		ZC17P1	Major Practical I	-	2
		ZC17P2	Major Practical II	2	2
		CA1721	Allied I- Theory	4	4
		CA17P1	Allied I - Practical	2	2
	Part IV	AEC172	AECC – Ability Enhancement Compulsory Course: Environmental Studies	2	2
		ZNM172	NMEC - Common Ailments and Simple Remedies	4	2
		VEC172	Foundation Course I – Values for Life	-	1
	Part V	SDP172	Skill Development Programme (SDP) – Certificate Course	-	1
		STP174	Student Training Programme (STP) – Clubs & Committees / NSS	-	-

III	Part I	TL1731/ FL1731	Language: Tamil/French	6	3
	Part II	GE1731	General English	6	3
	Part III	ZC1731	Major Core III - Cell Biology	4	4
		ZC1732	Major – Elective I (a) Biochemistry and Biophysics / (b) Clinical Laboratory Technology/ (c) Bioinstrumentation	4	4
		ZC17P3	Major Practical III	2	-
		ZA1731	Allied Zoology – General Zoology	4	4
		ZA17P1	Allied Practical	2	-
	Part IV	SBC173/ SBC174	SBC – Yoga / Computer Literacy	2	2
		VEC174	Foundation Course II – Personality Development	-	-
	Part V	STP174	Student Training Programme (STP) – Clubs & Committees / NSS	-	-
SLP173		Service Learning Programme (SLP): Extension Activity (RUN)	-	1	
IV	Part I	TL1741/ FL1741	Language	6	3
	Part II	GE1741	General English	6	3
	Part III	ZC1741	Major Core IV - Genetics	4	4
		ZC1742	Major – Elective II (a) Biostatistics and Computer Applications / (b) Bioinformatics/ (c) Apiculture	4	4
		ZC17P3	Major Practical III	-	2
		ZC17P4	Major Practical IV	2	2
		ZA1741	Allied II – Theory: Applied Zoology	4	4
	Part IV	ZA17P1	Allied II - Practical	2	2
		SBC173/ SBC174	SBC – Yoga / Computer Literacy	2	2
	Part V	VEC174	Foundation Course II – Personality Development	-	1
STP174		Student Training Programme (STP) – Clubs & Committees / NSS	-	1	
V	Part III	ZC1751	Major Core V - Physiology	6	5
		ZC1752	Major Core VI – Developmental Zoology	6	5
		ZC1753	Major Core VII - Ecology and Toxicology	5	5
		ZC1754	Major – Elective III	5	4

			(a) Aquaculture / (b) Sericulture/ (c) Marine Biology		
		ZC17P5	Major Practical V (Physiology & Developmental Zoology)	4	-
		ZC17P6	Major Practical VI (Ecology and Toxicology & Evolutionary Biology)	2	-
	Part IV	ZSK175	* SBC - Vermitechnology	2	2
		HRE175	Foundation Course III - Human Rights Education (HRE)	-	1
VI	Part III	ZC1761	Major Core VIII - Biotechnology	6	5
		ZC1762	Major Core IX - Immunology and Microbiology	6	5
		ZC1763	Major Core X - Evolutionary Biology	5	5
		ZC1764	Major – Elective IV (a) Applied Zoology / (b) Poultry Science / (c) Pest Management	5	4
		ZC17P5	Major Practical V (Physiology & Developmental Zoology)	-	2
		ZC17P6	Major Practical VI (Ecology and Toxicology & Evolutionary Biology)	2	2
		ZC17P7	Major Practical VII (Biotechnology & Immunology and Microbiology)	4	2
	Part IV	ZSK176	* SBC - Project	2	2
		WSC176	Foundation Course IV - Women's Studies (WS)	-	1
			Total	180	140 + 3

PROGRAMME OUTCOMES (POs)

PO No.	Upon completion of B.Sc. Degree Programme, the graduates will be able to :
PO - 1	Apply the acquired scientific knowledge to face day to day needs.
PO - 2	Create innovative ideas through laboratory experiments.
PO - 3	Carry out field works and projects independently and in collaboration with other institutions and industries.
PO - 4	Reflect upon green initiatives and take responsible steps to build a sustainable environment.
PO - 5	Face challenging competitive examinations that offer rewarding careers in science and education.
PO - 6	Impart communicative skills and ethical values.
PO - 7	Equip students with hands on training through various courses to enhance entrepreneurship skills.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO	Upon completion, B.Sc. Zoology graduates will be able to:	PO
PSO - 1	Acquire knowledge on biosystematics and functional organization of animals.	PO - 1
PSO - 2	Undertake studies in different Zoological disciplines like Biochemistry, Cell Biology, Genetics, Physiology, Developmental Biology, Ecology, Evolution, Immunology, Microbiology, Biostatistics and Computer applications.	PO - 3
PSO - 3	Demonstrate practical skills and to interpret results.	PO - 6
PSO - 4	Communicate appropriately and effectively, in a scientific context using current technology.	PO - 6
PSO - 5	Develop entrepreneurship skills by applying the knowledge gained from courses like Aquaculture, Sericulture, Apiculture, Poultry, Vermitechnology, Clinical Lab Technology and General Health Care.	PO - 2
PSO - 6	Plan their career goals and pursue higher studies to meet global challenges.	PO - 7
PSO - 7	Acquire the professional, ethical, legal issues and social responsibilities.	PO - 4
PSO - 8	Apply the knowledge attained from principles and concepts learnt from specific subject areas to create a local and global impact.	PO - 5
PSO - 9	Enhance professional empowerment to attain economic independence.	PO - 7

Course Outcomes (COs)

Semester : I Major Core I

Name of the Course : Invertebrate Zoology

Course code : ZC1711

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Identify major taxonomic groups, functional organization and their relationship with the environment.	PSO - 1	R
CO - 2	Communicate the major evolutionary innovations in invertebrate groups	PSO - 4	U
CO - 3	Discuss the ecological and economic importance of invertebrates.	PSO - 7	U
CO - 4	Investigate invertebrates in laboratory and field conditions and identify major taxonomic groups.	PSO - 3	Ap; R
CO - 5	Observe, draw and synthesize information into ideas and concepts.	PSO - 8	An
CO - 6	Evaluate the animal diversity and develop their career opportunities as a taxonomist.	PSO - 6	C

Semester : I NMEC

Name of the Course : Public Health and Hygiene

Course code : ZNM171

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Discuss the concepts of health and nutrition in relation to physical, mental, social and spiritual fitness.	PSO - 8	U
CO - 2	Manage personal health with respect to skin, hair, eye, ear and teeth.	PSO - 8	R
CO - 3	Apply the knowledge of maternity and child health.	PSO - 8	Ap
CO - 4	Design housing standards and employ good sanitary measures.	PSO - 8	Ap
CO - 5	Gain knowledge on first aid procedures and alternative medicine.	PSO - 7	U

Semester : II Major Core II
Name of the Course : Chordate Zoology
Course code : ZC1721

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Identify the systematic position of Chordates.	PSO - 1	U
CO - 2	Describe the morphology and anatomy of selected chordates.	PSO - 2	R
CO - 3	Analyse the structural, ecological and behavioural adaptations pertaining to their mode of life.	PSO - 6	An
CO - 4	Employ taxonomic resources for animal collection and identification.	PSO - 3	Ap; C
CO - 5	Communicate knowledge both orally and in writing by means of assignments, group discussions and seminars.	PSO - 1	Ap

Semester : I Major Practical I
Name of the Course : Invertebrate Zoology
Course code : ZC17P1

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Identify and list the salient features of selected invertebrate types through the observation of both living and preserved specimens.	PSO - 1	R
CO - 2	Assess the anatomy of few invertebrates based on the dissection.	PSO - 3	An
CO - 3	Apply laboratory skills including microscopy, dissection and careful observation.	PSO - 3	Ap
CO - 4	Apply the skill of handling animals and identification in higher studies.	PSO - 6	Ap
CO - 5	Record the observation.	PSO - 9	Ap; An

Semester : II **Major Practical II**
Name of the Course : Chordate Zoology
Course code : ZC17P2

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Identify the Systematic position and external morphology of selected chordate specimen.	PSO - 2	U; R
CO - 2	Gain knowledge on the anatomy and structural arrangements in selected chordate animals like Frog and Pigeon.	PSO -3	An
CO - 3	Develop a love for nature through field visits to places of zoological importance by means of campus bird-watcher's diary.	PSO - 1	Ap
CO - 4	Develop the skill of team work and form a learning community with their peer group.	PSO - 9	Ap

Semester : II **NMEC II**
Name of the Course : Common Ailments and Simple Remedies
Course code : ZNM172

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Identify common health problems like anaemia, blood pressure, stroke and diabetes.	PSO - 1	U
CO - 2	Gain knowledge on the changing life style and its impact on human health.	PSO - 1	U
CO - 3	Discuss symptoms and treatment of common diseases.	PSO - 4	U; R
CO - 4	Analyse and put forth remedies for old age related ailments.	PSO - 8	U; R

Semester : III **Major Core III**
Name of the Course : Cell Biology
Course code : ZC1731

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Identify the cell organelles and discuss their functions.	PSO - 2	U
CO - 2	Explain the structural organization of chromosomes and their significance.	PSO - 2	R
CO - 3	Describe the structure and functions of nucleic acids.	PSO - 4	R
CO - 4	Apply the knowledge of cell biology in cancer and stem cell research.	PSO - 8	Ap
CO - 5	Demonstrate cytological techniques.	PSO - 3	Ap

Semester : III **Major Elective I (a)**
Name of the Course : Biochemistry and Biophysics
Course code : ZC1732

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Discuss the structure of an atom, molecule and their interactions.	PSO - 2	U
CO - 2	Evaluate the importance of buffer system and enzymes.	PSO - 8	R
CO - 3	Classify biological macromolecules and describe their structure and significance.	PSO - 2	R
CO - 4	Use methods and techniques of physics to study biological processes.	PSO - 4	Ap
CO - 5	Apply basic methods in the fields of biophysics, biochemistry.	PSO - 8	Ap

Semester : III **Major Elective I (b)**
Name of the Course : **Clinical Laboratory Technology**
Course code : **ZC1733**

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Acquire knowledge about laboratory techniques, maintenance of records and ethics of clinical labs.	PSO - 1	U
CO - 2	Perform basic clinical laboratory procedures using appropriate laboratory techniques.	PSO - 3	R; Ap
CO - 3	Use instruments in accordance with laboratory protocol.	PSO - 3	R; Ap
CO - 4	Calculate and interpret laboratory results using standard protocol.	PSO - 8	An

Semester : III **Major Elective II (c)**
Name of the Course : **Bioinstrumentation**
Course code : **ZC1734**

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Discuss the basic principles and working mechanism of laboratory instruments.	PSO - 3	U
CO - 2	Gain insight into the molecular methods for understanding biology.	PSO - 1	U
CO - 3	Know the different types of biosensors and its applications.	PSO - 8	U
CO - 4	Select appropriate biophysical methods to characterize biological samples.	PSO - 4	AP; An
CO - 5	Develop skills necessary for advanced study or research.	PSO - 6	Ap

Semester : III **Allied ZooCOgy**
Name of the Course : General Zoology
Course code : ZA1731

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Describe general principles of taxonomy on animal classification.	PSO - 1	U
CO - 2	Explain the specific characteristics of invertebrates and vertebrates.	PSO - 1	R
CO - 3	Explain the structure of cells, chromosomes and apply the knowledge of genetics in identifying genetic disorders.	PSO - 5	R ; Ap
CO - 4	Explain the development and evolution of animal life.	PSO - 1	R
CO - 5	Recognize the major functions of organ systems in human body and the role played by animals in their environment.	PSO - 7	R
CO - 6	Apply diverse taxonomic resources for animal identification and simple experimental procedures pertaining to the course.	PSO - 2	Ap

Semester : IV **Major Core IV**
Name of the Course : Genetics
Course code : ZC1741

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Describe the fundamental principles of genetics based on Mendelian concepts.	PSO - 2	U
CO - 2	Gain knowledge on chromosome mapping and genetic concepts affecting society.	PSO - 8	U
CO - 3	Select and apply experimental procedures to solve genetic problems.	PSO - 9	R; Ap
CO - 4	Interpret the phenotype, genotype and karyotype and derive conclusions based on genetic data.	PSO - 3	Ap
CO - 5	Evaluate biological factors that influence human heredity.	PSO - 8	An
CO - 6	Recognize the experimental rationale of genetic studies and develop skills necessary for advanced study or research.	PSO - 6	R; An

Semester : IV **Major Elective II (a)**
Name of the Course : **Biostatistics and Computer Applications**
Course code : **ZC1742**

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Define terminologies applied in biostatistics.	PSO - 2	U
CO - 2	Collect, present and analyse biological data by appropriate statistical methods.	PSO - 3	Ap; An
CO - 3	Evaluate critically the statistical concepts.	PSO - 3	E; Ap
CO - 4	Utilize the computer skill for biological data management, analysis and graphical presentation.	PSO - 8	Ap; An
CO - 5	Develop the skill to apply statistical packages.	PSO - 3	Ap

Semester : IV **Major Elective II (b)**
Name of the Course : **Bioinformatics**
Course code : **ZC1743**

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Gain basic knowledge on computer and information technology.	PSO - 1	U
CO - 2	Describe the contents and properties of the most important bioinformatics databases.	PSO - 3	R
CO - 3	Use appropriate programme for sequence analysis and trace phylogeny of an organism.	PSO - 6	Ap
CO - 4	Apply bioinformatics tools for drug designing.	PSO - 9	Ap; An; C
CO - 5	Use effective written and verbal communication in the bioinformatics research projects.	PSO - 9	Ap

Semester : IV **Major Elective II (c)**
Name of the Course : Apiculture
Course code : ZC1744

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Attain knowledge on beekeeping and management.	PSO - 5	U
CO - 2	Identify apiary equipments and demonstrate the assembling of apiary.	PSO - 3	R
CO - 3	Describe bee biology and anatomy from the perspective of managing bees.	PSO - 5	R ; Ap
CO - 4	Discuss the importance of honey, wax and bee venom.	PSO - 5	U; R
CO - 5	Outline the social behaviors of honey bees and associate apiculture with agriculture.	PSO - 8	Ap

Learning Outcome

Semester : IV **Major Practical III**
Name of the Course : Cell Biology, Biochemistry and Biophysics
Course code : ZC17P3

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Prepare squash and smear of Biological samples and identify the cells.	PSO - 1	Ap
CO - 2	Develop skills in handling analytical instruments.	PSO - 3	Ap
CO - 3	Analyse biochemical constituents qualitatively and quantitatively.	PSO - 4	An
CO - 4	Use paper chromatography to separate biomolecules.	PSO - 3	Ap
CO - 5	Understand the structure of biomolecules and the Principles of biological processes.	PSO - 8	U

Semester : IV

Major Practical IV

Name of the Course: Genetics, Biostatistics and Computer Applications

Course code : ZC17P4

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Demonstrate Mendelian genetic principles in a controlled experimental set up.	PSO - 2	R
CO - 2	Identify the own Blood group.	PSO - 3	Ap
CO - 3	Perform experiments with the model organism, <i>Drosophila</i> .	PSO - 6	An
CO - 4	Design experiments, collect, analyze, interpret the data statistically and draw conclusion.	PSO - 8	Ap
CO - 5	Use computing skill for typing text.	PSO - 4	Ap

Semester : IV

Allied ZooCOgy

Name of the Course : Applied Zoology

Course code : ZA1741

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Describe the various aspects of animal husbandry in economic development.	PSO - 6	U
CO - 2	Explain the appliances used in bee keeping and discuss the significance of apiculture.	PSO - 6	R; Ap
CO - 3	Rear silkworms, identify the disease and cocoon marketing.	PSO - 7	Ap
CO - 4	Gain knowledge for the establishment of poultry and Dairy farm.	PSO - 7	An; Ap
CO - 5	Adopt aquaculture practices as a profitable hobby.	PSO - 6	C

Semester : IV Allied Zoology Practical

Name of the Course : General Zoology & Applied Zoology

Course code : ZA17P1

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Identify and classify invertebrates and chordates.	PSO - 1	R
CO - 2	Estimate the salinity and oxygen content of water samples.	PSO - 2	An
CO - 3	Identify aquatic culturable organisms and their diseases.	PSO -6	Ap
CO - 4	Develop skill in dissection and microscopy.	PSO - 7	Ap
CO - 5	Gain knowledge through field visit.	PSO - 3	Ap

Semester : V Major Core V

Name of the Course : Physiology

Course code : ZC1751

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Understand the basic anatomy of digestive, respiratory, excretory, homeostatic, neuromuscular, endocrine and reproductive system.	PSO - 1	U
CO - 2	Describe the functional mechanism of internal regulation by different organ systems.	PSO - 1	U; R
CO - 3	Compare various organ systems and discuss the adaptations exhibited by animals.	PSO - 1	U; E
CO - 4	Analyze the reason for diseases in man and other organisms.	PSO - 8	U; An
CO - 5	Use anatomical knowledge to predict physioCOgical consequences.	PSO - 8	Ap; C; An

Semester : V

Major Core VI

Name of the Course : Developmental Zoology

Course code : ZC1752

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Explain gametogenesis, fertilization and parthenogenesis.	PSO - 2	U
CO - 2	Describe cleavage, morphogenetic movements and gastrulation.	PSO - 2	R
CO - 3	Acquire knowledge on Organizer, gradient system foetal membranes and placentation in mammals	PSO - 6	U
CO - 4	Demonstrate metamorphosis and regeneration	PSO - 2	R
CO - 5	Discuss Nuclear cytoplasmic interaction, assisted reproductive technology and birth control measures.	PSO - 8	R

Semester : V

Major Core VII

Name of the Course : Ecology and Toxicology

Course code : ZC1753

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Discuss the abiotic and biotic factors of the natural ecosystem.	PSO - 1	U
CO - 2	Identify the natural resources and its conservation.	PSO - 2	R
CO - 3	Critically evaluate the environmental degradation and suggest measures for remediation.	PSO - 3	Ap; E
CO - 4	Identify hazardous environmental factors and assess their effects.	PSO - 7	Ap; An
CO - 5	Utilize scientific literature and database to effectively communicate aspects of toxicology.	PSO - 5	Ap

Semester : V Major Elective III (a)

Name of the Course : Aquaculture

Course code : ZC1754

CO	Upon completion of this course the students will be able to:	PSOs addressed	CL
CO - 1	Explain the construction of aquatic ponds and water quality management.	PSO - 5	U
CO - 2	Culture finfish and shellfish and live feed organisms.	PSO - 9	R; Ap
CO - 3	Demonstrate different culture methods.	PSO - 5	U
CO - 4	Gain knowledge on artificial feed preparation, diseases and their control measures.	PSO - 5	U
CO - 5	Describe capture techniques, fish preservation and marketing	PSO - 9	U
CO - 6	Establish aquarium as a profitable hobby.	PSO - 5	Ap

Semester : V Major Elective III (b)

Name of the Course : Sericulture

Course code : ZC1755

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Explain the cultivation and maintenance of mulberry plantation.	PSO - 5	U
CO - 2	Identify the diseases and pests of mulberry plant and silk worm.	PSO - 8	R
CO - 3	Rear silkworms and gain knowledge on silk reeling.	PSO - 8	Ap
CO - 4	Evaluate the quality of cocoon and marketing.	PSO - 9	An; E
CO - 5	Acquire skills necessary for self-employment in sericulture.	PSO - 5	Ap; C

Semester : V

Major Elective III (c)

Name of the Course: Marine Biology

Course code : ZC1756

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Explain the influence of physico-chemical factors on marine organisms.	PSO - 5	U
CO - 2	Identify the impact of waves and tides on animal and plant population.	PSO - 2	U
CO - 3	Discuss the energy cycle in the marine environment.	PSO - 5	U
CO - 4	Evaluate the economic importance of marine resources and the impact of pollutants.	PSO - 3	Ap; E
CO - 5	Use scientific technology to assess quantitative parameters in relation to distribution of marine biota.	PSO - 1	Ap; E

Semester : V

Skill Based Course

Name of the Course : Vermitechnology

Course code : ZSK175

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Discuss the classification and categories of earthworms.	PSO - 1	U
CO - 2	Explain the biology of earthworms.	PSO - 1	U
CO - 3	Assess the importance of earthworms in soil fertility, medicine and pharmaceuticals.	PSO - 5	E
CO - 4	Design the methodology for vermiculture and for the production of vermicompost and vermivash.	PSO - 8	Ap
CO - 5	Prepare and market the vermicompost.	PSO - 7	Ap

Semester : VI

Major Core VIII

Name of the Course : Biotechnology

Course code : ZC1761

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Acquire knowledge of basic concepts of biotechnology and central dogma.	PSO - 3	
CO - 2	Discuss the rDNA technology, DNA library, hybridoma technology, animal cell and tissue culture and gene therapy.	PSO - 4	U
CO - 3	Decide and apply appropriate tools and techniques in biotechnological manipulation.	PSO - 6	U
CO - 4	Explain the general principles of generating transgenic plants, animals and application of microbes pharmaceutical products.	PSO - 6	Ap
CO - 5	Undertake any responsibility as an individual and as a team in a multidisciplinary environment for landing in a job.	PSO - 8	Ap

Semester : VI

Major Core IX

Name of the Course : Immunology and Microbiology

Course code : ZC1762

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Identify the major components of the immune system at organ and cellular level.	PSO - 1	R
CO - 2	Discuss the types of immune response and mechanisms to eliminate antigens.	PSO - 1	U
CO - 3	Culture and identify the microorganisms based on morphological and staining techniques.	PSO - 3	Ap
CO - 4	Apply knowledge of microorganisms on common pathological diseases,	PSO - 5	R; Ap
CO - 5	Develop skills to monitor and maintain food safety.	PSO - 4	Ap
CO - 6	Design analytical and experimental tasks involving microbiology and immunology.	PSO - 3	Ap; An

Semester : VI Major Core X
Name of the Course : Evolutionary Biology
Course code : ZC1763

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Explain the concepts of evolution, origin of life, geological time scale and evidences of evolution.	PSO - 1	U
CO - 2	Explain the theories of evolution, mechanism of speciation and extinction of organism.	PSO - 3	R
CO - 3	Apply Hardy-Weinberg equilibrium in population genetics.	PSO -6	Ap; E
CO - 4	Outline the major transitions in evolution, from the origin of life to hominid evolution.	PSO - 6	Ap
CO - 5	Perform, analyse and report experimental observations in evolutionary biology.	PSO - 2	Ap; An

Semester : VI Major Elective IV (a)
Name of the Course : Applied Zoology
Course code : ZC1764

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Apply the knowledge of animal husbandry in economic development.	PSO - 5	U
CO - 2	Identify the kinds of bees and the methods of bee keeping.	PSO - 8	U
CO - 3	Rear silkworms, harvest and market the cocoons.	PSO - 9	Ap
CO - 4	Apply skills and experience about the management of poultry and Dairy farming.	PSO - 9	Ap
CO - 5	Culture of economically important finfish and shell fishes.	PSO - 8	Ap

Semester : VI Major Elective IV (b)

Name of the Course : Poultry Science

Course code : ZC1765

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Explain different aspects of raising poultry for meat and eggs.	PSO - 5	U
CO - 2	Construct and maintain poultry house and management of poultry animals.	PSO - 5	R; Ap
CO - 3	Identify the diseases and implement control measures.	PSO - 5	R
CO - 4	Develop entrepreneurship skills and commercialize indigenous poultry farming.	PSO - 9	Ap
CO - 5	Provide consultancy service to the local community.	PSO - 8	Ap

Semester : VI Major Elective IV (c)

Name of the Course : Pest Management

Course code : ZC1766

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Outline the pest groups affecting different agricultural crops and control measures.	PSO - 1	U
CO - 2	Evaluate the control measures adopted for pests of household and stored products.	PSO - 3	E
CO - 3	Select correct IPM in cropping systems, with traditional and alternative control measures.	PSO - 3	Ap
CO - 4	Analyze the impact of pesticides on environment and adopt better agricultural practices.	PSO - 4	An
CO - 5	Pursue advanced programme in entomology and seek employment opportunities.	PSO - 5	Ap

Semester : V Major Practical V
Name of the Course : Physiology and Developmental Zoology
Course code : ZC17P5

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Explain the effect of abiotic factors on physiological process.	PSO - 3	Ap
CO - 2	Analyse major nutrients qualitatively and describe the principles of analytical instruments and its uses in physiology.	PSO - 4	An; Ap
CO - 3	Perform scientific mode of thinking; planning experiments, analyzing and evaluating data skills as scientific laboratory reports.	PSO - 6	Ap; An
CO - 4	Develop methodological approach to embryonic development.	PSO - 7	An
CO - 5	Identify instruments, tissues, embryonic structures in preparations, photographs and diagrams.	PSO - 8	R; An

Semester : VI Major Practical VI
Name of the Course : Ecology and Toxicology & Evolutionary Biology
Course code : ZC17P6

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Analyse the water quality of an aquatic ecosystem.	PSO - 3	Ap ; An
CO - 2	Examine and identify the zooplanktons.	PSO - 1	Ap
CO - 3	Assess the evolutionary concepts through experiments.	PSO - 4	E
CO - 4	Study the natural ecosystem and report.	PSO - 7	C; Ap

Semester : VI Major Practical VII
Name of the Course : Biotechnology, Immunology and Microbiology
Course code : ZC17P7

CO	Upon completion of this course the students will be able to:	PSO addressed	CL
CO - 1	Isolate genomic DNA.	PSO - 3	Ap
CO - 2	Perform quantitative, immunological and microbiological analysis.	PSO - 6	Ap
CO - 3	Differentiate Gram positive and negative bacteria.	PSO - 3	An; Ap
CO - 4	Identify lymphoid organs in a vertebrate model.	PSO - 4	R
CO - 5	Develop skills needed for future research in immunology, microbiology and biotechnology.	PSO - 6	Ap