Programme Code: PGZOO, Programme name: M.Sc. Zoology						
Sl. No.	**Course code**	**Title of the Course**	**Need**			**Remarks (EM - Employability, EN - Entrepreneurship, SD - Skill development)**
			Employability	**Entrepreneurship**	**Skill development**	
1	PGZOOCC 1.1T	Diversity and biology of Nonchordates	✓		✓	EM - apply the biological and medicinal importance of various larvae and sponges respectively. SD - Acquire skills in teaching the structural and functional features of invertebrate animal life's diversity.
2	PGZOOCC 1.2T	Diversity and biology of Chordates			✓	SD - Demonstrate, analyse and discuss structural adaptation of different vertebrates.
3	PGZOOCC 1.3T	Cell biology & Instrumentations	✓	✓	✓	EM - Acquire and apply various knowledge on tolls and techniques in cell biology. EN - Apply various knowledge on instrumentation to a start up diagnostic lab in cell biology. SD - Explain and apply centrifugation, spectrophotometry, electrophoresis & bloating and microscopy.
4	PGZOOCC 1.4T	Genetics			✓	SD - Demonstrate, analyse and apply the concept of crossing over & linkage to construct gene map.
5	PGZOOCC 1.5P	Structures & systems of organisms	✓		✓	EM - Demonstrate and apply the knowledge of hypophysation technique. SD - Acquire, apply and evaluate knowledge on aquaculture firm operation.
6	PGZOOCC 1.6P	Tools & techniques in biological study	✓	✓	✓	EM - Analyse the adulteration and estimate the insulin applying the knowledge on HPLC and ELISA respectively EN - Apply various knowledge on instrumentation to a start up diagnostic lab in bichemistry. SD - Apply the knowledge on preparation, purification and gel ectrophoresis of DNA
7	PGZOOSOC 1	Yoga			✓	SD - Understand and improve the decision-making capacity, build up confidence in their life
8	PGZOOCC 2.1T	Biochemistry & Metabolism	✓	✓	✓	EM - Understand, apply and discuss the synthesis of fatty acids and nucleic acids EN - Apply various knowledge on instrumentation to a start up diagnostic lab in bichemistry. SD - Demonstrate, evaluate and analyse the different metabolic pathways
9	PGZOOCC 2.2T	Molecular biology & Biotechnology	✓	✓	✓	EM - Understand and apply the gene regulation, gene silencing and non-coding RNAs interference for drug development EN - Apply various knowledge on Molecular biology and Biotechnology to set a start up biotech farm SD - Explain, adapt and apply different genetic engineering tools

10	PGZOOCC 2.3T	Animal behaviours & chronobiology	✓	✓	✓	EM -Understand and apply the animal's communications system in resource exploration and discuss the significance EN - Apply various knowledge on resource exploration to set up animal husbandary SD - Define, Understand and analyse the various types of social organization in animals
11	PGZOOCC 2.4T	Ecological sciences	✓	✓	✓	EM - Understand, apply and formulate the riverine and wetland ecosystem management EN - Apply various knowledge on ecosystem and envirnmental to provide consultancy service SD - Demonstrate, analyse and design models in the population and community ecology
12	PGZOOCC 2.5P	Biochemical and molecular aspects of life	✓	✓	✓	EM - Apply the knowledge of cell culture lab protocols EN - Apply various knowledge on molecularbiology to a start up diagnostic lab in cell biology. SD -Identify, analyse and solve DNA sequence
13	PGZOOCC 2.6P	Ethology & Ecology	✓	✓	✓	EM - Perform toxicity test, physicochemical parameters of water and soil EN - Apply various knowledge on ecosystem and envirnmental to provide consultancy service SD - Apply, analyse and adapt the knowledge of population ecology to solve ecological problems
14	PGZOOSOC 2	Communicative English	✓		✓	EM - Enhance their English language proficiency in the aspects of reading, writing, listening and speaking SD - Apply the requisite communicative skills and strategies to future careers
15	PGZOOCC 3.1T	Parasitology and Immunology	✓		✓	EM - Remember, explain and analyse the parasites detection, diagnosis, prophylaxis and host parasite interactions SD - Explain and apply the knowledge on immunological mechanisms of infectious and noncommunicable disease formation
16	PGZOOCC 3.2T	Developmental biology and Neurobiology			✓	SD - Demonstrate the brain aging and various neuropathological diseases
17	PGZOOCC 3.3T	Endocrine physiology			✓	SD - Illustrate and discuss the reproductive disorders endocrine disruptions
18	PGZOOEC 3.4T-1A	Elective paper -Entomology	✓		✓	EM - Demonstrate, evaluate, and discuss the application of social insects SD - Attain a solid foundation in insect biology, including general entomology, basic systematics, morphology, physiology, and biodiversity
19	PGZOOEC 3.4T-2A	Elective paper-Cellular and Molecular Biology	✓	✓	✓	EM - Demonstrate, apply and elaborate the role of various enzymes in disease formation and disease diagnosis EN - Apply various knowledge on genetic engineering to set a start up biotech farm SD - Understand and elaborate the application of tools for genetic engineering

20	PGZOOCC 3.5P	Immunology, Developmental biology & Endocrinology	✓	✓	✓	EM - Apply the knowledge of preparation of stains, fixatives, culture media for parasites, and their spot identifications and blood smear examination EN - Apply various knowledge on histology and immunology to set a start up dignostic lab SD - Demonstrate and apply the knowledge of preparation of stains, fixatives, culture media for parasites, and their spot identifications and blood smear examination
21	PGZOOEC 3.6P-1A	Dissertation and practical of elective paper - Entomology	✓		✓	EM -Demonstrate, analyse and apply the knowledge of Collection, Preservation, Curation, Identification and Classification of Major Insect Orders SD - Design and perform original research work in Entomology
22	PGZOOEC 3.6P-2A	Dissertation and practical of elective paper - Cellular and Molecular Biology	✓	✓	✓	EM - Demonstrate and perform bacterial culture and plasmid DNA preparation EN - Apply various knowledge on molecular dignostic to set a start up dignostic lab SD - Demonstrate, and apply the knowledge of DNA and protein isolation and evaluate the DNA quality through visualization
23	PGZOOSOC 3	Value Education and Indian Culture	✓		✓	EM - Define, understand and apply the daily routine, self-evaluation & Integral Personality Development SD - Demonstrate and practice the Four Yogas
24	PGZOOCC 4.1T	Taxonomy and Biostatistics	✓		✓	EM - Demonstrates, analyse and apply the descriptive statistics and construct skills in diagrammatic representations SD - Apply various sampling techniques and statistical inference to solve various problems
25	PGZOOCC 4.2T	Bioinformatics and Computational Biology	✓		✓	EM - Analyses nucleotide and protein sequences using various databases and software tools SD - Evaluate RNA interference and RNA regulatory networks. Predict gene, ORF, protein structure and their functional role.
26	PGZOOCC 4.3T	Bio python and LaTeX	✓		✓	EM - Organize documents into different sections, subsections, etc., Formatting pages , Formatting text, create presentations using Beamer SD - Learn, evaluate and apply the handling and analysis of nucleotide, protein sequences and databases.
27	PGZOOEC 4.4T -1B	Elective paper -Entomology	✓	✓	✓	EM - Apply the insect biology and its diversity in the field of agriculture, forest ecology, vector biology and forensic science EN - Apply the knowledge of insect biology in apiculture, sericulture, and lac culture SD - Understand, access and apply the insect diversity in environment monitoring and the global environmental impact on insects

28	PGZOOEC 4.4T -2B	Elective paper -Cellular and Molecular Biology	✓	✓	✓	EM - Remember, understand and apply the gene transfer and gene manipulation methodologies in biotechnology EN - apply the tools and techniques in molecular biology viz. PCR, Cloning SD - Understand, analyse and apply various nucleotide sequencing techniques
29	PGZOOCC 4.5P	Phylogenetics, Biostatistics and Bioinformatics	✓		✓	EM - Demonstrate and apply the Basics operations in R, data Visualization with R and construct graph SD - Demonstrate and apply the python for bioinformatic analysis
30	PGZOOEC 4.6P -1B	Submission of final dissertation and practical of elective paper Entomology	✓	✓	✓	EM - Demonstrate and evaluate the knowledge of morphology of typical insects under different orders EN - Apply the knowledge of insect biology in apiculture, sericulture, and lac culture SD - Design, examine and interpret original research work in Entomology
31	PGZOOEC 4.6P -2B	Submission of final dissertation and practical of elective paper - Cellular and Molecular Biology	✓	✓	✓	EM - Apply the knowledge of DNA barcoding, cloning and sequencing EN - EN - apply the tools and techniques in molecular biology viz. PCR, Cloning, barcoding, cloning and sequencing SD - Design, examine and interpret original research work using molecular biology techniques
32	PGZOOSOC 4	Fundamentals of remote sensing and GIS	✓		✓	EM - Understand and evaluate the basics of GIS and remote sensing and its application SD - Demonstration and apply the basic Map preparation in ArcGIS