

**Programme:** M. Sc. (Zoology)

**Course Code:** ZOC-105

**Title of the Course:** Laboratory Course I (Based on ZOC 101, 102, 103 & 104)

**Number of Credits:** 4

**Effective from AY:** 2018-19

<b><u>Prerequisites for the course:</u></b>	Basic working knowledge of classical and animal taxonomy, systematics, animal anatomy, structural biochemistry, different components and functions of the cell.	
<b><u>Objective:</u></b>	Laboratory training based on courses ZOC 101, 102, 103 & 104.	
<b><u>Content:</u></b>	<p><b>Module 1:</b> Study of taxonomic characters, identification and classification (up to Orders) of members of Protozoa, Porifera, Coelenterate, Helminths, Annelids, Arthropods, Molluscs and Echinodermates, Fishes, Amphibians, Reptiles, Birds, Mammals and minor phyla. Study of techniques of collection, preservation and mounting of insects.</p> <p><b>Module 2:</b> Comparative study of bones of Tetrapod (limb bones, girdles, vertebrae); Appendicular and flight muscles of bird (bird to be collected from slaughter house); Afferent and efferent branchial system of fishes (dead fishes to be collected from market); Cranial nerves ( V- VII<sup>th</sup> and IX- X<sup>th</sup>) of dead teleosts. Reproductive system of dead fish collected from the market; Comparative study of heart and brain of Tetrapod (from the preserved or to be collected from slaughter house).</p> <p><b>Module 3:</b> Isolation and quantification of bio-molecules (carbohydrate, fat, and protein) of given tissues; Enzyme kinetics: P<sup>H</sup> optima, Temperature optima, determination of Km and Vmax and enzyme inhibition; Thin Layer Chromatography of lipid/ amino acid.</p> <p><b>Module 4:</b> Study of Mitotic metaphase chromosomes from permanent slides; Study of various stages of meiosis from permanent slides; Extraction/Isolation of genomic DNA from mammalian blood (man); Restriction digestion of lambda DNA with EcoRI and Hind III restriction enzymes; Agarose Gel Electrophoretic analysis of DNA, RNA, Isolation of cell organelles (Plasma Membrane, mitochondria and microsomes ) by differential centrifugation / sub cellular fractionation and monitoring of purity; Fluorescence In Situ Hybridization (FISH).</p>	24 hours  24 hours  24 hours  24 hours
<b><u>Pedagogy:</u></b>	Practicals, mini project.	
<b><u>References/Readings</u></b>	As mentioned under individual course ZOC 101, 102, 103 & 104.	
<b><u>Learning Outcomes</u></b>	Practicals will give hands on training based on courses ZOC 101, 102, 103 & 104	