Course Code: ZO0 333 **Course Title: Laboratory course on Life processes**
Number of Credits: 3
Effective from AY: 2020 -21

Prerequisite for the Course:	Knowledge on Neuro-physiology and Stem cell biology.	
Objectives:	Laboratory training based on skilled based courses on Physiology.	
Content	**Module 1:** 1. Effect of thermal stress on the excretory rates in bivalves. 2. Effect of salinity stress on the respiratory rates of bivalves. 3. Effect of salinity acclimation in the osmo-regulatory processes of mud crab / tilapia fish. 4. Rates of Na^+, K^+ ion transport, K_m V_{max} of Na^+-K^+ ATPase, rates of excretion and rates of respiration). 5. Effect of salinity stress on the membrane fluidity of gill epithelial cells of mud crab / tilapia fish. 6. Isolation of different parts of brain membrane by sucrose gradient centrifugation and characterization of those isolated membranes 7. Estimation of neurotransmitters from fish brain regions (any two neurotransmitters using any two techniques). **Module 2:** 1. Evaluation of learning and memory experiments using Freshwater Snail or Bivalves or crabs. 2. Primary cultures of neurons from chick embryo brains. 3. Isolation and Culture of Chicken Cartilage Stem/Progenitor Cells. 4.Isolation and Differentiation of Mesenchymal Stem Cells from Broiler Chicken Compact Bones. 5. Isolation and maintenance of chicken embryonic stem cell from blastodem. 6. Isolation and culture of Dermis-Derived Mesenchymal Stem/Progenitor Cells from chick embryo. **Module 3:** Every student must go for the Internship programme for **1 month**. DC will select the Institution / Industry with in Goa for the Internship programme at Pharma Industries, National as well state laboratories at Various Institute etc.	12 x 2 hrs 12 x 2 hrs