

Programme: M. Sc. (Zoology)

Course Code: ZOO-301

Title of the Course: Animal Cell Culture

Number of Credits: 2

Effective from AY: 2018-19

<u>Prerequisites for the course:</u>	Basic knowledge on organization of cells, their structure and function in animal body.	
<u>Objective:</u>	This course is designed to understand structure, growth and function of animal cells and technology involved in cell and tissue culture establishment, characterization and its maintenance in vitro condition.	
<u>Content:</u>	Module 1: Introduction, Equipments and materials requisite for animal cell culture and their roles, establishment of explants and free cell culture and its maintenance. Concept of cell line, Continuous cell line.	12 hours
	Module 2: Scaling up of animal cell culture. Application of various methods for characterization of cultured cells and cell line, Stem cells (Embryonic and adult) and their applications	12 hours
<u>Pedagogy:</u>	Lectures/ tutorials/assignments/self-study	
<u>References/Readings</u>	<ol style="list-style-type: none">1. Boulton A, Glenbaker, Wolfgang W, Practical Cell Culture Techniques. Human Press. Iowa. New Jersey. Conn PM, Cell Culture. Academic Press. Sandeigo. USA2. Freshney RI. Culture of Animal Cells, Wiley Liss New York.3. Freshney RI, Pragnell IB and Freshney MG, Culture of Epithelial Cells, Wiley Liss, New York4. Shahar A, De Vellis J, Vernadakis A and Haber BA(1990), Dissection and Tissue Culture Manual of Nervous system.5. Allan Liss. New York Robert Lanza, Anthony Atala, Essentials of Stem Cell Biology, 140464th Edition, Academic Press	
<u>Learning Outcomes</u>	<ol style="list-style-type: none">1. Ability to describe the basic components of culture media and the conditions required to grow and maintain cells in culture for its immediate application.2. Ability to explain sterile techniques used for growing cells in culture, the sources of bacterial and fungal contamination and be able to identify contamination.3. Theoretical idea to perform all common cell culture techniques to grow and maintain cells without contamination and further evaluation of cell health, viability, and functional properties	