Name of the Programme: M. Sc. Zoology
Course Code: ZOO–602 **Title of the Course:** Animal Cell Culture (Theory)
Number of Credits: 01
Effective from AY: 2023-24

Pre-requisites for the Course:	Basic knowledge of anatomy, organization of cells, structures and functions of cell in animal body	
Course Objectives:	1. To provide theoretical knowledge on the basics of animal cell culture 2. T analyze the laboratory layout, sterile handling and requisites for animal cell culture 3. To assess the techniques involved in cell culture, maintenance and characterization 4. To analyze advantages of animal cells and specifically stem cells in various applications	
Content:	**Module 1** Basics of animal cell culture, Laboratory layout and sterile handling, Equipments, Chemicals and other requisites for animal cell culture, safety during Animal cell culture. Primary cell culture (Explant and free cell culture), subculture and cell line. Maintenance of cell culture, characterization of cultured cells, Advantages of Animal cell culture, Stem cells (Embryonic and Adult) and their applications.	15 hours
Pedagogy:	Lectures/tutorials/self-study/videos/presentations/mini projects/Group activities	
References/ Readings:	1. R. I. Freshney, Culture of animal cells: a manual of basic technique and specialized applications. John Wiley & Sons, 2015. 2. R. Lanza, J. Gearhart, B. Hogan, D. Melton, R. Pedersen, E. D. Thomas, and J.A. Thomson, Essentials of stem cell biology, Elsevier, 2005. 3. J. Masters Animal cell culture: a practical approach (Vol. 232). OUP Oxford, 2000. 4. A. A. Boulton, G. B. Baker, and W. Walz, Practical cell culture techniques (Vol. 23). Totowa, New Jersey: Humana Press, 1992.	
Course Outcomes:	The learner will 1. Explain the basis of animal cell culture 2. Defend the laboratory layout 3. Design the sterile handling techniques 4. Prioritize the cell culture isolation and maintenance technique as per requisition. 5. Value the advantages of cell culture in therapeutic applications	