

B.Tech. Biotechnology: Semester-V	
BBT 503: ANIMAL BIOTECHNOLOGY	
Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week	Class Test -12 Marks
Tutorials: 1 hr/Week	Teachers Assessment – 6 Marks
Credits: 4	Attendance – 12 Marks
	End Semester Exam – 70 marks

Course Objective

The course will provide basic concepts of Animal Biotechnology. The objective of this course is to familiarize students with cell culture techniques.

Course Learning Outcomes

After completing the course, the student shall be able to:

CO1: Understand the use of aseptic techniques.

CO2: Analyze the nutrient requirement of different types of tissues and cells, their growth and development.

CO3: Identify stem cells as a research tool..

CO4: Understand different methods used for gene transfer.

CO5: Evaluate the principle of PCR and gene libraries.

Unit 1: Laboratory requirements for animal cell culture

Sterilization of different materials used in animal cell culture i.e. Aseptic concepts, Instrumentation and equipments for animal cell culture.

Media and reagents: Types of cell culture media; Defined Media and Supplements and their physiochemical properties; Serum; Fetal bovine serum; Serum free media, Selection of medium and serum; Preparation and sterilization of cell culture media

Unit 2: Cell Culture

Different types of cell cultures, Continuous cell lines, Suspension culture, Hayflick limit theory-cellular Senescence Organ culture. Tissue disaggregation and types; Cell lines, Cell quantitation Haemocytometer and Flowcytometer; Cryopreservation, Cell culture contaminants Application of animal cell culture: Cytotoxicity (in vitro testing of drugs); Application of cell culture technology in production of human and animal viral vaccines. Current status and application in medicine Stem Cell Research: Stem Cells; Recombinant hemoglobin and artificial blood. General account of in vitro regulation of blood cells production.

Unit 3: Gene transfer technology in animals

Viral and non-viral methods, Production of transgenic animals and molecular pharming, current status of production of transgenic animals. Animalcloning: Techniques, relevance and ethical issues and Bioethics

Head

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