

Branch Name:	B.Sc. Biotechnology
Program Code:	SC101
Course Name:	Biotechnology Practical
Course Code:	2SC1010605
Pre-requisite Course:	

Course Objectives:

1. The course is designed to acquire basic knowledge of plant tissue culture and simple techniques of how the micropropagation done.
2. This will enable the student to understand basics of plant and animal media formulations.
3. This course is designed to enable students in understanding the basics of screening.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
--	--	12	6	--	--	120	80	200

Subject Contents: List of Experiments

1. Sterilization techniques: Theory and Practical: Glass ware sterilization, Media sterilization, Laboratory sterilization.
2. Sources of contamination and decontamination measures.
3. Preparation of Hanks Balanced salt solution.
4. Preparation of Minimal Essential Growth medium.
5. Preparation of complex nutrient medium (Murashige & Skoog's medium)
6. To selection, Prune, sterilize and prepare an explant for culture.
7. To study various steps of Micropropagation & to study the significance of growth hormones in culture medium
8. Callus culture development
11. Primary screening of (a) Enzymes: Protease, Lipase, Amylase, (b) Organic acid producers.(c) Antibiotic producers, i) crowded plate method, ii) Wilkin's method,
9. Bioassay of Penicillin using Bacillus subtilis.
10. Typical fermentation of alcohol, gluconic acid.
11. Sterility testing of Pharmaceutical products
12. Immobilization of cells/enzyme
13. Fermentative production of Amylase and determination of Amylase activity.

Text Books:

Experimental Microbiology by Rakesh Patel Volume-1 &2

Reference Books:

1. Annarita Leva and Laura M. R. Rinaldi (2012) Recent Advances in Plant in vitro Culture, InTech., UK.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Discuss the developing an understanding towards fundamentals of micropropagation.	2 Understanding
CLO2	List the applications of screening.	1 Remembering
CLO3	Enabling students to understand types, advantages and disadvantages different screening techniques.	2 Understanding,
CLO4	Development of capacity to formulate media for plant and animal tissue culture.	3 Applying, 2 Understanding
CLO5	Learn about bioassay, evaluate sterility testing procedure, identify and compare the conventional propagation and micropropagation.	5,3, 4 Evaluate,Applying, Analyze
CLO6	Discuss the mechanisms involved in amylase assay.	6 Creating

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO1	M	M	L	H		M	L	M		M	L	H		M	L
CLO2	L	H		M	M	L	M	H	M		M	L	M	M	L
CLO3	M	M	H	M		M	L		L	H		H	H		M
CLO4	H	H	H	M			H	M	H		M	L	H	L	L
CLO5	H	M	M	L	H	M	M		M	M		M	M		M
CLO6	L		M		M	L		M	M		M		L	M	

H:High, M:Medium, L:Low