DEPARTMENT OF BIOTECHNOLOGY				*CLASS: II B.Sc. Biotechnology*				
Sem	**Course Type**	**Course Code**	**Course Title**	**Credits**	**Contact Hours/week**	**CIA**	**Ext**	**Total**
IV	Major Practical	20U4LMP4	Major Practicals -IV	2	3	40	60	100

Nature of Course				
Knowledge and skill	✓		Employability oriented	
Skill oriented	✓		Entrepreneurship oriented	

Course Objectives

1.	To introduce students with an understanding of the basic of the basic techniques in cell biology.
2.	To acquire the ability to analyse the food samples.
3.	To understand the applicability of the analysis.

	Experiments
1	Measurement of cell diameter using micrometer.
2	Preparation of permanent slide of plant tissue.
3	Isolation of Mitochondria from liver tissue.
4	Isolation of Chloroplast from leaves.
5	Isolation & estimation of DNA.
6	Isolation & estimation of RNA.
7	Determination of moisture content in food samples.
8	Estimation of reducing sugar in food samples
9	Determination of titratable acidity in food samples.
10	Determination of total phenols in food samples.
	Spotters Telomeres, nucleosomes, Thymine dimers, Promoters, Muffle furnance, Kjeldahl apparatus, FSSAI

Books for study

1. ShaliniSehgal. 2010. A laboratory manual of food analysis. Wiley Inc.
2. Sadasivam S and Manickam A. Biochemical methods. 2009. New Age International Publishers

Course content designers

Ms. R. Suguna

Dr. P. Vimal

Rationale for Nature of the course

The laboratory course based on the Major core and skilled paper focuses on the ability to learn about the techniques in molecular biology. They gain knowledge in isolating cell organelles and identify

its key marker enzyme. They learn about the food analysis and its interpretation related to its preservation and nutritive value.

Activities having direct bearing on Skill development / Employability /Entrepreneurship

- Individual experimental activity to the students.
- Hands on training various instruments.
- Analysis and interpretation of results.

Course Learning Outcomes

On completion of this course the students will be able to

#	CLOs	K – Level
CLO-1	Associate the experimental results with normal biological range	Up to K-2
CLO-2	Analyse biological samples and interpret the results.	Up to K-4
CLO-3	Experiment with food samples.	Up to K-3
CLO-4	Apply basic principles of chemistry to biological samples.	Up to K-3
CLO-5	Demonstrate biochemical analysis.	Up to K-2

Mapping of Course outcomes with Program Outcomes

CO/PO	PO-1	PO-2	PO-3	PO-4	PO-5
CLO-1	3	3	2	2	2
CLO-2	3	3	3	3	3
CLO-3	3	2	3	3	1
CLO-4	3	1	2	1	2
CLO-5	3	3	3	2	2

Advance application-3; Intermediate level-2 & Basic level-1

Mapping of Course outcomes with Program specific Outcomes

CO/PSO	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5
CLO-1	3	3	3	3	2
CLO-2	3	3	2	2	2
CLO-3	3	3	2	3	2
CLO-4	3	3	2	2	2
CLO-5	3	3	2	3	3

Advance application-3; Intermediate level-2 &Basic level-1

Ancillary Biotechnology Papers for B.Sc., Microbiology

Semester	Subject Code	Paper	Title of the paper	H	C
III	20U3LAC1	Ancillary-I Theory	Concepts in Biotechnology	4	4
	20U3LAP1	Ancillary-I Practicals	Lab in Biotechnology - I	2	1
IV	20U4LAC2	Ancillary-II Theory	Biotechnology in Human Welfare	4	4
	20U4LAP2	Ancillary-II Practicals	Lab in Biotechnology-II	2	1