DEPARTMENT OF BIOTECHNOLOGY				*CLASS: I B.Sc. Biotechnology*				
Sem	**Course Type**	**Course Code**	**Course Title**	**Credits**	**Contact Hours/week**	**CIA**	**Ext**	**Total**
II	Major Practicals	20U2LMP2	Major Practical-II	3	3	40	60	100

Course Objectives

1.	To introduce students to various analytical experiments.
2.	To understand and analyse the Mendelian Inheritance pattern.
3.	To identify problem, Interpret results of bio-analytical techniques.

Lab Experiments

1. Estimation of Oxygen consumed by fishes by Winkler's method.
2. Identification of nitrogenous waste from excreta.
3. Plasmolysis experiments using onion cells.
4. Verification of Beer's Law.
5. Amino-acid separation using paper and thin layer chromatography.
6. Agarose Gel Electrophoresis – demonstration.
7. SDS-PAGE – demonstration
8. Determination of pH of various samples

Spotters

Compound microscope, types of rotors, UV spectrophotometer, GM counter, neurons, pituitary gland, stomata

Books for Study

1. Rajan&Selvi Christy. 2010. Experimental Procedures in Lifesciences. Anjanaa Book House.
2. Kanika Sharma. 2011. Manual of Microbiology: Tools & Techniques. Ane books Pvt. Ltd
3. Sinha et al., 2011. Advanced Practical Zoology. Books & Allied (P) Ltd.

Books for Reference

1. AbhijitDutta. 2011. Experimental Biology: A laboratory Manual. Narosa.
2. John Vennison. 2009. Laboratory Manual of Genetic Engineering. PHI.

Pedagogy

The teaching methods may include: Demonstrations, hands on experiments and Problem solving

Course Learning Outcomes

On completion of this course the students will be able to

#	CLOs	K - Level
CLO-1	Interpret the result with physiological process	Up to K-2
CLO-2	Categorize various electrophoretic techniques	Up to K-4
CLO-3	Determine biophysical parameters in a biological samples	Up to K-3
CLO-4	Experiment with various chromatographic methods	Up to K-3
CLO-5	Estimate the abiotic components	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	2	2	--	--	3
CLO-2	2	1	--	--	3
CLO-3	3	3	1	2	3
CLO-4	1	2	2	2	1
CLO-5	3	2	2	2	3

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	PSO-6	PSO-7
CLO-1	3	3	3	3	2	--	--
CLO-2	3	1	2	1	1	2	--
CLO-3	3	3	1	3	1	1	1
CLO-4	3	3	2	2	2	2	1
CLO-5	3	3	2	3	3	3	3

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