

Subject Code: 2SC1010303	Subject Title: Biotechnology Practical
Course Type: Core Course	

Course Objective: This course is designed to make the students aware of protocols and assay methods used in various laboratories (industrial and academic research), and to improve their skill in laboratory work.

Teaching scheme (hours) per week		Credit			Theory Marks		Practical Marks		Total
Theory	Practical	Theory	Practical	Total	Uni. Assessment	Cont. Assessment	Uni. Assessment	Cont. Assessment	
-	6	-	3	3	-	-	60	40	100

List of Biotechnology Practicals

- Estimation of Protein & Sugar
 - ✓ Quantification of protein using by Biuret method/ Folin-Lowary assay/ Bradford's method
 - ✓ Estimation of Reducing Sugar by DNSA method/ Anthrone method
 - ✓ Estimation of blood glucose by glucose oxidase method
- To study activity of any enzyme under optimum conditions (Assaying of various enzymes):
 - ✓ Amylases
 - ✓ Phosphatases
 - ✓ Invertase
- Enzyme Kinetics: (Salivary amylase or other)
 - ✓ Effect of Substrate concentration (Determination of K_m and V_{max})
 - ✓ Determine temperature optima of the enzyme
 - ✓ Effect of pH on enzyme activity
 - ✓ Effect of enzyme concentration
- Analysis of waste water
 - ✓ To study sampling techniques, sample preservation
 - ✓ To visit local sewage treatment plant to study its design, operation of primary, secondary, tertiary systems and mode of disposal
 - ✓ To collect grab and composite sample
- Analysis of given sample (waste water or drinking water)
- ✓ Analysis of physical-Chemical parameters: TS, TDS, TSS, Color, Turbidity, pH, DO, COD, BOD, Total-N, PO_4^{4-} , NO_3^- , NO_2^- , NH_4^+ , chloride, Sulfate, Ca-Mg-hardness
- ✓ Bacteriological analysis by MPN technique
- ✓ Isolation of non-symbiotic nitrogen fixers from soil.
- ✓ Isolation of symbiotic nitrogen fixers.
- ✓ Study of air micro flora.

Learning Outcomes: Students will acquire the skill to handle the instrument and will be aware of various methods of estimation and analysis