FACULTY OF SCIENCE AND HUMANITIES

M.Sc. (Biotechnology/Microbiology) (Semester-2)

In Effect from Academic Year 2021-22

Subject Code: 2SC2000206	**Subject Title: Practical**
COURSE TYPE: CORE COURSE	

Course Objective: This practicals have been structured to provide all the students basic understanding on various tools of Molecular Biology, Immunology and r DNA.

Teaching scheme (hours) per week		**Credit**			**Theory Marks**		**Practical Marks**		**Total**
Theory	**Practical**	**Theory**	**Practical**	**Total**	**Uni. Assessment**	**Cont. Assessment**	**Uni. Assessment**	**Cont. Assessment**	
-	**8**	**-**	**8**	**8**	**-**	**-**	**120**	**80**	**200**

1. Standard operating procedure and validation of UV visible spectrophotometer
2. Isolation of Spontaneous Mutants (StrR) of E.coli using Replica Plate Technique
3. Isolation of StrR Mutants of E.coli using Gradient Plate Technique
4. Isolation of Biochemical Mutants (Lac- Mutants) of E.coli
5. Study of U.V.Survival Curve in E.coli
6. Isolation and quantification of DNA from Bacteria
7. Study & Visualization of DNA using Agarose Gel Electrophoresis
8. To isolate DNA from Animal source.
9. To isolate the DNA from a plant source.
10. Isolation of proteins from plant source and its analysis.
11. Demonstration HPLC and GC
12. Thin layer chromatography of fatty acids, sugars, amino acids
13. Extraction of plasmid DNA from bacterial cell
14. Extraction of bacterial DNA and purification by spin column technique
15. Fractionation of egg proteins and quantification by SDS-PAGE.
16. Serological Diagnosis of Infectious Diseases:
    (A) WIDAL Test : Slide & Tube Agglutination Tests (Qualitative & Quantitative Approach)
    (B) VDRL/RPR Test for the Diagnosis of Syphilis (Qualitative Approach)
17. Detection of Blood Group using ABO & RH Blood Grouping Method
18. Isolation of Medically Important Microorganisms from the given specimen & their Biochemical characterization
19. To study Antigen-antibody interaction by using Oucterlony Double Diffusion (ODD) and SRID
20. technique.
21. To estimate RNA by orcinol method.
22. To perform restriction digestion.(RFLP)
23. Ligation of digested DNA.
24. Transformation and selection of recombinants.
25. Amplification of DNA by PCR

Learning Outcome: At the end of the course, the students will be able to perform Molecular Biology, Immunology and r DNA experiments required in all future semesters.

LIST OF TEXTBOOKS: