

Module Specification:

Credit Hours:

4(2+2)

Course Description:

The main objectives of this course are to introduce the modern and emerging approaches in Molecular Biotechnology and its applications in Biochemistry. The course is divided into four rotations, each with its own theoretical and practical sessions with emphasis on the theoretical basis of each technique, the actual working method, hands-on experience, pitfall and strengths of each technique.

Marks Distribution:

30 marks divided as following:

Reports	10 marks
Mid-Term Exam	5 marks
Oral Exam	3
Final Exam	12 marks

Topics to be Covered:

1. Plasmid Isolation and Purification
2. Competent Cells Formation
3. Transformation of Competent Cells with DNA
4. Extraction and Purification of Bacterial Proteins
5. SDS-Polyacrylamide Gel Electrophoresis
6. Western Blotting
7. ELISA
8. Quantitative Analysis of Antigens by Radial Immunodiffusion
9. Immunoelectrophoresis

Book References:

- Sambrook J., Fritsch E.F. & Maniatis T. (2003) *Molecular Cloning. A laboratory Manual*. (3rd Edition), Cold Spring Harbor Laboratory Press. New York.
- Ausubel F.M., Brent R., Kingston R.E., Moore D.D., Seidman J.G., Smith J.A. & Struhl K. (2003) *Current Protocols in Molecular Biology*. John Wiley & Sons, Inc. New York.
- Gallagher S. (2000) *Current Protocols in Protein Science*. John Wiley & Sons, Inc.