

OBJECTIVES: To enable the students to

- Learn concepts of Biosafety and Good Laboratory practices of Microbiology
- Isolate pure cultures from natural sources
- Understand the methods of antibiotic or antimicrobial assays
- Comprehend the concepts in Blood grouping
- Isolate the genetic material from plant source

Course Outcomes- The students will be able to

CO1: Perform sterilization of various microbial media

CO2: Design fermentation media and execute fermentations by batch methods

CO3: Assay antibiotics using microbial techniques

CO4: Analyze blood groups of any individual

CO5: Understand concepts of Cloning and PCR

List of Practical Experiments

1. Biosafety and good laboratory practices (GLP) of Microbiology.
2. Sterilization of microbial media by autoclave.
3. Isolation of pure cultures: (i) Streak plate method. (ii) Serial dilution method.
4. Demonstration of alcohol fermentation.
5. Antibiotic sensitivity by paper disc method.
6. Effect of nitrogen sources on growth of E. coli
7. Immunodiffusion by Ouchterlony method.
8. Blood group analysis.
9. Isolation of DNA from plant tissues.
10. Spotters.

Recommended books:

1. Willey MJ, Sherwood, LM & Woolverton C J (2013) Prescott, Harley and Klein's Microbiology by. 9th Ed., McGrawHill.
2. Atlas RM. (1997). Principles of Microbiology. 2nd edition. WM.T.Brown Publishers.
3. Pelczar MJ, Chan ECS and Krieg NR. (1993). Microbiology. 5th edition. McGraw Hill Book Company.
4. Fermentation Technology (2nd ed.) Standury (Pergman press)
5. Biotechnology: Textbook of Industrial microbiology 2nd Edit. By Crueger and Crueger (2000).
6. Principles of Biochemistry, White. A, Handler, P and Smith.

7. Goldsby RA, Kindt TJ, Osborne BA. (2007). Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.
8. Richard C and Geiffrey S. (2009). Immunology. 6th edition. Wiley Blackwell Publication.
9. Watson JD, Baker TA, Bell SP, Gann A, Levine M and Losick R (2008) Molecular Biology of the Gene, 6th edition, Cold Spring Harbour Lab. Press, Pearson Publication.
10. Molecular biology by David Freifelder