PCE6J001 FUNDAMENTALS OF BIOCHEMICAL ENGINEERING

Module I:
Overview of microbiology, aerobic &anaerobic fermentation processes, fermenter design, sterilization of microbial medium, kinetics of microbial growth, enzymes and its kinetics, immobilization of enzymes, chemostats.

Module II:
Transport phenomena in biochemical engineering, heat and mass transfer in bioprocessing, oxygen transfer in fermenter, monitoring and control of fermentation process.

Module III:
Downstream processing: Recovery and purification of products, allied unit operation for product recovery, production of biogas and ethanol, effluent treatment by biological methods.

Text and Reference Books:

1. *Biochemical Engineering Fundamentals, 2nd ed. by J E Bailey and D F Ollis, McGraw-Hill.*
2. *Biochemical Engineering: Principles and Concepts, 3rd ed. by S T Ahmed Inamdar, PHI.*
3. *Introduction to Biochemical Engineering, 2nd ed. by D G Rao, McGraw-Hill.*
4. *Bioprocess Engineering: Basic Concepts, 2nd ed. by M L Shuler and F Kargi, PHI.*
5. *Biochemical Engineering: A Textbook for Engineers, Chemists and Biologists, 1st ed. by S Katoh, J Horiuchi, and F Yoshida, Wiley-VCH*.