FUNDAMENTALS OF BIOCHEMICAL ENGINEERING

Course Code: BTBBT 30605

Course Objective:

The course material on the kinetics of enzyme catalyzed reaction, microbial growth, substrate utilization etc. may help the students to understand the various principles involved in instrumentation and control of bioprocesses.

Course Contents:

Module I
Kinetics of enzyme catalyzed reactions

Module II
Immobilized enzymes; Kinetics of microbial growth, substrate utilization and product formation;

Module III
Sterilization of air and medium;

Module IV
Batch, continuous and fed batch reactors; mass and energy balance in microbial processes

Module V
Mass transfer in Biological reactions; Scale-up principles; Instrumentation and control of bioprocesses.

Examination Scheme:

Component Codes	H/Q	S	CT2	EE
Weight age (%)	10	10	20	60

Text & References:

- Biochemical Engineering – Kinetics, Mass Transport, Reactors and Gene Expression, W.F. Weith, John Wiley and Sons Inc.
- Biochemical Engineering, S. Aiba, A.E. Humphery and N.F. Millis, University of Tokyo Press
- Biochemical Engineering Fundamentals, J.E. Baily and D.F. Ollis, McGraw Hill.
- Bioprocess Engineering Principles, P. Doran, Academic Press.
- Chemical Engineering, J.M. Coulson, and J.F. Richardson, Butterwirth Heinemann.
- Fermentation and Biochemical Engineering Handbook: Principles, Process Design, and Equipment, H.C. Vogel, C.L. Todaro, C.C. Todaro, Noyes Data Corporation/Noyes Publications.
- Process Engineering in Biotechnology, A.T. Jackson, Prentice Hall.