Subject Code : CCN2X6

CORE COURSE VI – BIOCHEMICAL ENGINEERING

Unit I

A detailed account of Secondary metabolic pathway and product formation. Isolation, screening of industrially important microorganisms. Strain improvement, safety in fermentation laboratory.

Unit II

Basic principles of bioprocess, kinetics, types of reactor, design, application of bioreactors, mass and energy flow their application in scale up processes.

Unit III

Computer application in fermentation technology, Primary and secondary metabolites extracellular & intracellular products, bioseparation.

Unit IV

Methods of cell disruption immobilization of cells, enzyme co-immobilization, purification, HPLC & FPLC, circular anular chromatography, stability of products.

Unit V

Some examples of bioprocess for the production of biomass, genetically important intracellular products. Transport phenomena in biorprocess. Biosensor – types, chemistry of different reactions and applications – Enzyme engineering.

Reference:

1. Chemical Engineering by J.M.Coulsor & J.F. Richardson 1984, Pergamon Press.
2. Principles of fermentation technology – P.F. Stanbury and A.Whitacar 1984, Pergamon Press.
3. Fundamentals of Biotechnology by P.Prave, V.Faurst, W.Sitting & D.A. Sukatech, 1987, WCH Weinhein.
4. Recent books to be added 4) Biochemical Engineering Fundamentals 2nd Ed. By James E.Bailey & David F.Ollei.,
5. Downstream Processing.