

CORE COURSE XIII – BIOPROCESS TECHNOLOGY

UNIT I

Introduction – Scope of Biotechnology in bioprocess engineering.

UNIT II

Enzyme kinetics – Introduction – Mechanistic models for simple enzyme kinetics – Michelis – Mendel type type kinetics – effect of P^H on enzyme kinetics.

UNIT III

Bioprocess consideration in using plant and animal cell cultures.

UNIT IV

Genetically engineering organisms – Introduction E.coli – Lower eukaryotic cells – metabolic and protein engineering.

UNIT V

Applications of bioprocess engineering – Introduction – tissue engineering – gene therapy – bioreactors.

REFERENCE:

1. Michael L. Shuler and Fikret Kargi (2003). Bioprocess engineering basic concepts. (2nd edition). Prentice Hall of India Pvt. Ltd. India.
2. Biochemical engineering, Aiba, S., Humphrey, A.E. and Mills, N.F. University of Tokyo Press, Tokyo.
3. Bioprocess technology : Fundamentals and applications, KTH Stockholm.
4. Process engineering in Biotechnology. Jackson, AT. Prentice Hill, Engelwood Cliffs.
5. Bioprocess engineering – Kinetics, Mass transport, Reactors and Gene expression, Vieth, W.F. John Wiley & Sons, Inc.