PBT5I103 INDUSTRIAL MICROBIOLOGY AND ENZYME TECHNOLOGY

Module-I:

Microbial Processes and fermentation technology: Introduction to fermentation technology, Microbial growth and product formation kinetics in batch, continuous and feed batch fermentation, Large scale production: submerged, solid and semi-solid fermentation, Microbiological processes for production of organic acids; solvents; antibiotics, enzymes, polysaccharides; lipids; pigments and aroma.

Module-II:

Commercial media and strain development: Media selection and development for industrial production, Isolation, selection, characterization of microorganisms, stock culture, development inocula, strain improvement: induced mutation, over producing decontrolled mutants, genetically engineered strain and fermentation.

Module-III:

Stability of enzyme: Enzyme stabilization by selection and genetic engineering, protein engineering. Application of enzymes in industry, analytical purpose and medical therapy. Application of Biocatalyst, Group transfer redox, Elimination, isomarization and rearrengement, C-C bond cleavage, Reaction environment rebuilding, chemical modification, intramolecular cross linking and immobilization.

Text Books

1. Principle of Fermentation Technology , P.F. Stanbury, A. Whitaker and S.J. Hall, Elsevier
2. Industrial Microbilogy, Prescot and Dunn,
3. Biochemical Engineering and Biotechnology Handbook, Atkinson, B and Marituna, F., The Nature Press, Macmillan Publ. Ltd.
4. Biochemical Engineering Fundamentals, Bailey & Olis. MGH.