

**CORE COURSE – XII (CC) – INDUSTRIAL MICROBIOLOGY**

**UNIT – I**

Historical development of Industrial Microbiology, Industrially important microorganisms, Major classes of products and processes. Improvement of Industrially important microbial stains.

**UNIT – II**

Design of a fermenter, types of fermenters and basic functions. Fermentation media formulation strategies, economical means of providing energy, carbon, nitrogen, vitamin and mineral sources, role of buffers, precursors, inhibitors, inducers and antifoams, types of fermentation.

**UNIT – III**

The recovery and purification of fermentations products (intracellular and extracellular), cell disruption, precipitation, filtration, centrifugation, solvent recovery, chromatography, ultrafiltration, drying, cell immobilizations and its applications.

**UNIT – IV**

Microbial products of pharmaceutical value – raw materials, organism and Industrial processes involved in the production of penicillin, Vitamin B12 and rabies vaccine.

**UNIT – V**

Microbial products of industrial value – raw materials, organism and Industrial processes involved in the production of ethanol, vinegar, amylase, protease, glutamic acid. Recycling and safe disposal of industrial wastes through microbes.

**Reference:**

- Click, B.R., .Pasternak, J.J. (1994). Molecular Biotechnology – ASM Press.
- Demain A.L. Solomon, N.A. (1986). Manual of Industrial Microbiology and Biotechnology. ASM Press
- Prave, P. Faust, V, Sitting, W., Sukatsch, D.A. (1987). Fundamentals of Biotechnology. ASM Press.
- Reed. G. (1982). Prescott and Dunn's Industrial Microbiology. Macmillian Publishers.
- Sikyta, B.(1983). Methods in Industrial Microbiology, Ellis Horwood limited.
- Stanbury, P.F. Whitaker, A. Hall, S.J. (1995). Principles of Fermentation Technology, Pergamon Press.