

MBS-456: MICROBIAL BIOTECHNOLOGY

(40 h)

Unit-I

(12 h)

Over Expression of Recombinant Proteins in *E.coli* driven by lac, T7 and Tet regulatable Promoters, Expression in *B. subtilis*, Gene Expression in other Microorganisms, cDNA, *Saccharomyces cerevisiae* expression systems, Secretion of Heterologous Proteins, Baculovirus over expression system.

Unit-II

(14 h)

Screening of Microorganisms for Novel Products – protein pharmaceuticals, human interferons, optimizing gene expression, Vaccines, small biological molecules. Synthesis of L- Ascorbic acid, Amino Acids, Secondary Metabolites – Antibiotics Penicillin, Bacteriocins, Chloramphenicols, Streptomycin. Biopolymers – Polyhydroxy alkanoates, Polyhydroxy butyrates. Monoclonal Antibodies, Aromatic compounds, Single Cell Proteins, Functional Foods, Probiotics.

Unit-III

(14 h)

Patenting of Biotechnological Inventions, Copyrights, IPR, National and International Patent Laws, Patentability Requirements, Rights, Infringement, applying, obtaining, patent protection, Regulations in Biotechnological Research, NIH-RAC. Genetically Engineered food. Food ingredients, Deliberate release of GEOs, EPA, Public concern,