Subject Code : ECNXB

ELECTIVE COURSE II – PROTEIN ENGINEERING

Unit I

A general account of proteins – structural analysis using X-ray diffraction studies – Hydrophobic, intrinsic and extrinsic proteins – Structural and functional role of proteins, properties.

Unit II

Enzyme engineering – site – directed mutagenesis – Fusion proteins – Bifunctional, trifunctional and multifunctional enzymes – Enzyme engineering with special reference to stability of enzymes in Fermentation / bioreactors for massculturing – specific examples.

Unit III

Mechanism of induction of stress tolerant enzymes. Antibiotic production, B-Lactmase, drug designing – therapeutic agents. Protein databases – combinational chemistry.

Unit IV

Structure and function of engineered enzymes – Enzyme Kinetics – efficiency in substrate conversion and product formation – Crystallography – Structure of Immunoglobulin.

Unit V Immobilisation technique

Methods of immobilization of enzymes and cells – Immobilised enzyme reactors – operation – stability of enzymes / cells – product isolation, purification drying and packaging.