

Certificate course on Bioinformatics

Course Code: BIS

Syllabus

Unit 1: Introduction to Bioinformatics- Introduction to bioinformatics, importance, aims, scopes, application,

Unit 2: Databases in bioinformatics-NCBI, Nucleotide databases (EMBL, DDBJ, GenBank), Protein databases (PDB, Swiss-Prot)

Unit 3: Introduction to tools, techniques and methods in Bioinformatics

Unit 4: Analysis through Bioinformatics- Sequence analysis and alignment, phylogenetic analysis, construction of phylogenetic tree, Protein modelling.

Practicals:

- a) Retrieve sequences in NCBI,
- b) Retrieve FASTA file and perform BLAST
- c) Hands on training to operate CLUSTAL X, MEGA and Bioedit software for sequence alignment
- d) Phylogenetic tree construction
- e) Protein modelling

Reference books:

1. Pevsner J. (2009) Bioinformatics and functional Genomics.
2. Ghosh Z. and Bibekanand M. (2008) Bioinformatics: Principles and Applications. Oxford University Press.