DEPARTMENT OF BOTANY

VALUE ADDED COURSE
(*MSc Botany I and II year*)

PGBOTVA22 BIOINFORMATICS – TOOLS, TECHNIQUES AND APPLICATIONS

Unit 1: Bioinformatics methods and tools (Theory: 2 hrs)

Introduction to Bioinformatics
Applications of bioinformatics

Unit 2: Bioinformatics in molecular biology (Theory:2 hrs; Practical: 2 hrs)

Drug Discovery
Crop Improvement
Gene Therapy
Biotechnology
Waste Clean up
Microbial Genome
Evolutionary Studies

Unit 3: In silico biological activity (Theory:4 hrs; Practical: 6 hrs)

Drug discovery process
Bioinformatics in drug designing
Structure-based drug discovery
Protein structure and databases
Bioactive compounds and databases
Molecular docking
Virtual screening
Post-Docking Analysis

Unit 4: Molecular modelling (Theory:3 hrs; Practical: 4 hrs hrs)

Introduction to protein structure
Protein visualization
Protein modeling types
Protein structure prediction
DNA Structure prediction

Unit 5: Biological data management (Theory:4 hrs; Practical: 3 hrs)

Introduction to databases
Retrieval of 3D structure of biomolecules.
Ways to analyze a 3D structure
Retrieval and submission of protein sequences to biological databases.

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