Course Outcome (CO):

1 Integrate multi-domain knowledge of the basic concepts of biology, computer science and mathematics.

2 Analyze the biological data through relevant computer algorithms.

3 Assess and evaluate structure-function relationships of biomolecules in-silico.

4 Assign formulations to rapidly probe various aspects of bioinformatics.

5 Acquire insights about analyzing big datasets.

6 Interpret sequence analysis results.

S.No.	Content	Contact Hours
Unit 1	Human Genetic Variation: Databases and Concepts: Introduction, Forms and mechanisms of genetic variation, Databases of human genetic variation, SNP databases, Mutation databases, Genetic marker and microsatellite databases, Nonnuclear and somatic mutation databases, Tools for SNP and mutation visualization.	8
Unit 2	Structure Databases: PDB and MMDB, visualizing structural information	8
Unit 3	Pharmacogenomics and Personalized Medicine: Introduction, Historical Perspectives and Current Status, Management of Pharmacogenomic Information:PharmGKB, DrugBank.	8
Unit 4	Phylogenetic prediction: Types,Tree building methods and tree interpretation analysis	9
Unit 5	Soft Computation: Machine learning, support vector machines, Neural Networks,fuzzy logic, genetic algorithms - applications to bioinformatics.	9
	Total	42