Bioinformatics_CBSC_DISCIPLINE SPECIFIC ELECTIVE-II

(Credits: Theory-4, Practicals-2)

Semester VI   **Course Title: Informatics in omics and application**

UNIT –I

Genomics: Genome Annotation, Genome Assembly, Structural and Functional Genomics. Comparative Genomics . Genomics Microarray: technique, Design, Analysis.

UNIT –II

System biology: Introduction, Associated disciplines, Interactomics (PPI), Phenomics, Interferomics, Biomics. Metagenomics: Introduction, metagenome. Tool's in metagnomics- MEGAN, Application: Gene survey, Enviornmental genomes, Microbial diversity.

UNIT –III

Introduction to Chemoinformatics, Chemoinformatic Tools for drug discovery, Chemical Structure Representation (SMILE & SMART).Chemical databases: DrugBank, and ChemBank. Pathway databases: KEGG pathway database.

UNIT –IV

Drug Discovery and design: Target identification, Target Validation, Lead Identification, lead optimization, preclinical Pharmacology & Taxology.

PRACTICALS

1. Comparative genomics
2. Demonstration of Micro array Technique.
3. Chemical structure drawing tool – chemsketch.
4. Accession to drug bank, Chembank, Pubchem.

REFERENCES

- Basic Bioinformatics - S. Ignacimuthu
- Introduction to Bioinformatics: A Theoretical and Practical Approach
- Introduction to Bioinformatics- Tramontano, A Chapman & Hall
- Understanding Bioinformatics- Zvelebil, M. and Baum, J.O Taylor and Francis.
- Introduction to Bioinformatics - Teresa K. Attwood, David Parry-Smith