

IT-774 : Molecular Technique in Genome Analysis

Pre-requisites: There is no additional pre-requisite for the course, as students having passed Pre Ph.D. semester I exam are considered suitable for the course.

Objective: This course aims at covering the experimental techniques, which generate biological data. In particular, genomic-scale data generating techniques are discussed.

Syllabus:

Concept of Genome and genome evolution (2 hrs)

Methods in Genome Sequencing (2 hrs)

Detection of point mutations and SNPs (2 hrs)

Analysis of repeat based polymorphism caused by transposable and retrotransposable elements and their detection (4 hrs)

Genome-wide detection of DNA and Chromatin modification (4 hrs)

Detection of genome wide transcription, discovery of small RNAs and promoter elements (8 hrs) Proteomic approaches for expression analysis (6 hrs)

Methods for detection of glycoconjugate in large scale (4 hrs)

Methods used in metabolomics (4 hrs)

Suggested Readings:

Concepts and Techniques in Genomics and Proteomics, Saraswathy and Ramalingam (2016) Woodhead Publishing