Scripting and Computer Environments (SSCE131C)

(PERL, PYTHON, R)

(Credit hours: Theory-3, Lab-1)

UNIT I

Advanced Programming in PERL Packages, Object Oriented Programming**,** Difference between OOPs of PERL and Python

UNIT II

BIOPERL; Handling Software Interfaces with BioPerl APIs Handling Sequences, database & structures

UNIT III

Local & Global Alignment Algorithms, Differences**,** Dynamic Programming: Smith & Waterman, Algorithm with proof, Needleman & Wunsch Algorithm with proof.

UNIT IV

Multiple Sequence Alignment, Concepts & Implementations.

UNIT V

Amino Acid Substitution Matrices PAM & BLOSUM Derivation of Dayhoff Matrices

UNIT VI

Profiles & Motifs General Tools, Techniques & Resources Clustal W, BLAST, FASTA, HMM.

Text/Reference Books:

1. David Mount, Bioinformatics Sequence and Genome analysis

2. Baxvanis, Bioinformatics.

Guide lines for practicals:

One credit lab is to be conducted by covering the most relevant and useful topics from afore mentioned syllabus.