

COMPUTER ORGANISATION AND BASIC BIOINFORMATICS

Unit I

Basics on Computers : Types of Computers (Main, Mini and Macro). Anatomy of Computers, Input / Output Devices, Concepts of operating systems.

Unit II

Memory Organization : Basic memory cell, RAM, ROM, DRAM, main memory, auxiliary memory, associative memory, cache memory, virtual memory.

Input / Output Organization : Peripheral devices input interface, data transfer.

Unit III

Introduction to data base systems, Data abstraction, data models, Instances and schemes, E-R model, creating data base. Building data base tables, sorting, filtering and querying data base, generating reports.

Unit IV

Uses of Computers in Biology, Structure and functional analysis of Biological macromolecules (Proteins, DNA and RNA). Transfer of Information in biological systems, Digital nature of biological information, representation of biological molecules as strings of symbols.

Unit V

Information Retrieval : Information systems, Internet basics, Information access, LAN, WAN, WWW, NICNET, ERNET, VSNL, ISDN.

Unit VI

Introduction to Biological Databases; Protein sequence data bases, Swissprot, PIR; Protein structural data bases, PDB, CATH, SCOP; Nucleotide sequence data bases, Gen Bank, EMBL, DDBJ.

Suggested Reading :

1. M.M. Mano, "Computer Systems Architecture" PHI, 1994
2. Leon A., and Leon M. Fundamentals of Information Technology, Leon Tech world 1999.
3. Dennis P. Curting, Kin Foley, Knal Sen, Cathleon Movin, Information Technology – The Breaking wave – Tata McGraw Hill Pub. 1999
4. Pierre Baldi and Soren Brunak, Bioinformatics : The machine learning approach, MIT press 1998.
5. Henry Korth Abraham and Silberschay – Database Systems concepts, Tata McGraw Hill Publications
6. Hwang K., Briggs E. Computer Architecture and parallel processing, McGraw Hill, 1987.
7. C.J.Date In Introduction to Data base systems" Addison Wesley.