

COMPUTER SCIENCE

SECTION- A

Introduction to Computer Science and Programming :

1. Algorithms to programs : Specification.
2. Introduction to system software.
3. Operating systems.
4. Compilers and multi-user environments.
5. Operating systems and system software.

Data Structures :

1. Introduction to programming methodologies and design of algorithms.
2. Survey of basic structures like arrays, stacks and queues.
3. Linked list structures.
4. Tree traversals.
5. Sorting techniques.

Numerical and Scientific Computing :

1. Review of matrices and linear systems.
2. Eigen values and singular value decompositions and linear systems sensitivity.
3. Review of convergence of iterative methods.
4. Newton's method.

Computer Architecture :

1. Basic combinational and sequential circuit design.
2. Subsystems of a computer.
3. Instructions and their formats.
4. Assembly programming.
5. Study of CISC & RISC m/cs.

SECTION - B

Programme Languages :

1. Notions of syntax and semantics of programming languages.
2. Data operating and central constructs.
3. List of array manipulation .
4. Object Oriental Programming,

Introduction of Logic Computer Science :

1. Syntax of propositional formals.
2. Validity of inconsistency.
3. Deduction systems for propositional logic.
4. Introduction to model theory.
5. Completeness and compactness theorems.
6. Applications of resolution to automatic theorem proving and Logic programming.

Super Computing for Engineering Applications :

1. Programming for vector processors.
2. Mapping Loops.
3. Process communication.
4. Load balancing.
5. Optimization.
6. Monte-carlo simulation.

Digital Hardware Design :

1. Asynchronies and pulse mode circuit design and implementation.
2. Hardware description language and synthesis.
3. Microprogramming control design.

Introduction to Microprocessors :

1. Introduction to digital hardware design.
2. Organization and programming of a microprocessor.
3. Programmed and interrupt based I/O interfacing.
4. Interrupt controller.
5. Microprocessor application.

File Structures and Information Systems Design :

1. Data processing concepts.
2. Auxiliary storage media.
3. External sorting techniques.

Database Management Systems :

1. Introduction to data based concept.
2. Difference between a file system and database system.
3. Concurrency control.

Software Engineering :

1. Techniques of structured programming.
2. Information hiding.
3. Organization and management of large software design projects.
4. Chief programmes terms.
5. Program libraries.
6. Documentation, testing, validation.