5. COMPUTER SCIENCE & ENGINEERING

Paper - I

1. Digital Logic : Logic families, gates, Boolean algebra, minimisation, Combinational circuit design adder circuits ,Multiplexers, decoders, sequential circuit design, flip-flops, registers, counters, number systems, inter conversion, number representation.

2.Computer organisation& Architecture: Instruction formats, addressing modes, Basic computer operation Computer configuration , Functional units ,ALU organisation, multiplication and division algorithms, memory hierarchy, cache and associate memories, virtual memory, memory IC's, I/Oo organisation schemes, interrupts, arbitration, DMA, IOP

3. Microprocessor: 8-bit microprocessor architecture, CPU, module design, memory interfacing, I/O, Peripheral controllers, Application. IBM PC architecture : overview, introduction to DOS, Advanced microprocessors.

4.Discrete Mathematics: Logical Identities , proposition and predicate logic's, methods of deduction, set theory, relations, functions, algebraic structures, lattices, recursion, graph theory, representation, paths and walks, Connected graphs &Cycles, warshall's algorithm, Matrix representation of graphs, Spanning Trees & connector problems , Hamiltonian graph, Closure of a graph , Planner graphs, Combinatories.

5. Theory of Computation: Regular Languages& finite Automata, Automata, Deterministic finite Automaton & Non deterministic finite Automaton , pushdown automation, Turing machine, grammars, type 0, 1, 2, and 3, LL and LR grammars.

Paper - II

1.Programming in C: Algorithms, flow-charts, programming methodology, Programming in 'C' languages, An overview of C.

2.Data Structure & Algorithms: Pointers, array, Link list , Stack , Queue , Trees, Binary search trees, Binary tree traversal, Breadth first search, Spanning trees, Shortest path, Tree balancing, B-trees, searching and sorting methods

3. Databases: DBMS, RDBMS, database models, Database design, Normalisation, file structures, query languages

4.Operating System & System Programming: Functions of Operating system, process scheduling, memory allocation, paging and segmentation, device management, deadlocks and prevention, concurrent processing, directory concept DOS and UNIX features, language processors, Compiler, syntax and semantic analysis, code generation, optimisation, assemblers, loaders and linkers.

5.Computer networks: OSI model, digital modulation techniques, modems, error detection and error correction, Flow Control, TCP/IP reference Model, BISYNC and HDLC protocols, , network routing algorithms, LAN operation methods

6.Computer graphics: DDA algorithms, graphic primities, 2-D transformations, graphic input devices.

7.Software Engineering :Software engineering development life-cycle, system analysis, modular design, testing and validation, CASE tools,

8. Artificial Intelligence :AI techniques, natural language understanding, learning, knowledge representation, expert systems, LISP, PROLOG.