Recruitment of Temporary Faculty - Detailed Syllabus

Department of CSE

1. Data Structures and Algorithms:

Development of Algorithms - Notations, Concepts - Arrays - Linked lists - Stacks and queues Trees - Tree Traversing - Operations on Binary Trees – Sorting and Searching techniques - Graphs - BFS, DFS - Shortest path problems.

2. Operating Systems:

Basic OS Concepts - Thread and process scheduling - Synchronization - Semaphores - Critical regions - Deadlock prevention and recovery - Memory Management - File Management - I/O Management – Case Studies on Windows and Linux OS.

3. Computer Organization and Architecture:

Basic structure of Computers - Arithmetic - Addition & subtraction of signed numbers - Multiplication - Integer division - Floating point operations - Pipelining - Multiple bus organization - Micro programmed control – Hazards - Memory System - Semiconductor RAM memory - Cache memory - Virtual memory - Secondary storage - I/O Organization - Interrupts - DMA - Buses - Interface circuits - Serial communication links.

4. C Programming:

C programming – Memory Concepts – Arithmetic Operations - Control Statements – Functions - Pointers – Structures – User Defined Data types - File handling.

5. Microprocessors:

8085 processor - Architecture - Bus organization - Registers - ALU - Instruction set of 8085 - Instruction format - Addressing modes - System design using controllers - Microprocessor Interfacing Techniques - Segmented memory concepts - Bus concepts.

6. Computer Networks:
Introduction to Networks - Application of Networks - Architecture Topology Switching - SLIP, PPP -ALOHA protocols, CSMA/CD, Routing, Congestion control- Internetworking, Source routing, Bridges, Routers, Gateway. Network Protocol- IP datagram - hop by hop routing, ARP, RARP, DHCP -Sub net Addressing, Address Masking, ICMP, RIP, RIPV2, OSPF, DNS, LAN and WAN Multicast. Transport Layer-Connection Management, Transmission Control Protocol (TCP) - User Datagram Protocol (UDP). Application Layer Protocol- Telnet - TFTP - FTP - SMTP - Ping Finger, Bootstrap Network Time Protocol- SNMP.

7. Automata and Formal Languages, Compiler Design:

Regular expressions, NFA, DFA, Closure properties of Regular Languages, CFG, Derivation, Derivation trees, Ambiguity, Simplification of CFGs, Normal forms, PDA and Turing Machines Phases of a compiler, Lexical Analysis – Role of Lexical Analyzer, Context-Free Grammars – Top Down parsing – Recursive Descent Parsing – Predictive Parsing – Bottom-up parsing – Shift Reduce Parsing – Operator Precedent Parsing, Intermediate Code Generation, Code Optimization, and Code generation**.**

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Department of ECE

Devices and Electronic Circuits, Network Analysis and Synthesis, Signals & Systems, DSP, ADSP, Electromagnetic Theory, Transmission lines, Antennas and Wave Propagations, Metamaterial Antennas, MIC, MICROSTRIP and STRIPLINE fundamentals, Microwave electronics, Microwave Components and Circuits, Statistical theory of Communication, Analog and Digital Communication, Wireless Communication, Broadband Access Technologies, Fiber optics and Optical communication, Satellite Communication, Digital Systems, Analog Integrated Circuits, Microprocessors, Microcontrollers, Embedded systems, ARM system, DSP Processors, Basics of VLSI, Digital VLSI, Analog IC Design, Verilog HDL, ASIC, DSP for VLSI, VLSI Testing, Low Power VLSI, EDA Tools, Computer Networks and Protocols, Computer Architecture and Organization, DIP, Ad Hoc Networks.