A7:MICROPROCESSORSANDSOFTWAREENGINEERING

The CPU : CPU register, ALU Control Unit, status, flags, introduction, execution, instruction, timing diagrams, instruction cycles, microprogamming and the control unit, chip slice units.

Logic beyond the CPU - Interfacing programs and data. Memory program i/o interrupt, error detection, various protocols, synchronous serial data transfer, programmable control/ timers. Real time clock, logic distribution among microcomputer devices.

Programming microcomputer, review of programming language, source program, object program, assembly language, memory addressing, the stack indirect addressing, indexed addressing, base relative addressing, memory segmentation., Introduction to set a - CPU architecture. A description of instructions, advanced microprocessor instruction set concepts.

Boolean algebra, postulates and theorems, standard forms, formulation of switching functions, simplification of Boolean expressions. Basic building block, realization of switching function using NAND and NOR gates. Flip flops, counters and shift registers.

Introduction to computers, computer characteristics, types of programming languages. Introduction to BASIC, fundamental concepts of BASIC language such as numbers, variables and formulas. BASIC statements, BASIC programs, branching and looping, additional features of BASIC.

Advanced BASIC, functions and sub-routines, vectors and materials, data files, introduction to micro computer BASIC.

Programming using Fortran IV, Fortran statement constants and variables, arithmetic operation and expressions, logical constants and operations, logical expressions, rading and printing formats, control and decision statements, GO TO statement, IF statement, DO loop - DO statement, continue statement. Multi-dimensional arrays and nested DO loops, library functions, sub-routines and simple Fortran programmes, Computer Languages such as C and C+.

- Central Maintenance Computer Systems
- Data Loading Systems
- Electronic Library Systems

Text Books :

1. A P Mathur, Introduction to Microprocessors, Tata McGraw Hill
2. P D Choudhari, Computer Organization and Design, Prentice Hall
3. Glenn A Gibson, Microcomputer Systems, Prentice Hall

Reference Books :

1. C W Gear, Computer Organisation and Programming
2. Rajaram V, Computer Programming in Fortran IV, Prentice Hall
3. Heaps H S, An Introduction to Programming Languages