Subject Code : P8PYE1

EC I: MICROPROCESSOR AND COMMUNICATION ELECTRONICS

Unit 1: Microprocessor Architecture and Instruction set

8085, 8086/8088 microprocessor architectures – Various registers – Central processing unit of micro computers – Timing and control unit – Instruction and data flow – System timings – Examples – Instruction set -- Data transfer group – Logical group – Branch group – Stack and I/O control instructions – Addressing modes.

Unit 2 : Software Programs (8085 only)

Addition – Subtraction – Multiplication – Division – BCD arithmetic – Searching an array of a given number – Choosing the biggest and smallest numbers from a list – Ascending and descending orders – Square root of a number – Time delay – Square wave generator.

Unit 3 : Interfacing memory and I/O devices

Interfacing memory and devices -- I/O and Memory mapped I/O -- Type of interfacing devices -- Data transfer schemes -- Programmed and DMA data transfer schemes -- Programmable Peripheral Interface (8255A) -- 8253 Timer Interface -- DMA controller -- Programmable Interrupt controller (8259) -- Programmable communication Interface (8251).

Unit 4 : Digital Transmission Systems & Modulation Techniques

Point-to-point links -- Line coding coherent optical fiber communications -- Definition and classification coherent systems – Requirements on semiconductor lasers.
Modulation – Demodulation – Principles of amplitude, frequency and phase modulations – Simple circuits for amplitude, frequency and phase modulation and demodulation – Pulse modulation.

Unit 5 : Satellite Communications

Ground Station – Antenna, angle of elevation and transmission path – Height of geostation orbits -- Problems – Satellite works – Frequency allocation and polarization – Various blocks of equipment abroad the satellite – Transmit and receiver contour – Block diagram of network control station (NCS) interconnecting telephone traffic between remote stations – SS/TDMA concepts.

References

1. R. Goankar, *Micropressor Architecture, Programming and Applications* (Wiley Eastern, New Delhi, 1985).
2. B. Ram, *Fundamentals of Microprocessors and Microcomputers* (Dhanapet Rai & Sons, New Delhi, 1995).
3. M. Schwarts, W. R. Bennet and S. Stein, *Communication Systems and Techniques* (McGraw Hill, New Delhi).
4. G. Kennedy, *Electronic Communication Systems* (Tata McGraw Hill, New Delhi, 1995).
5. J. Millman and L. C. Halkias, *Electronic Devices and Circuits* (McGraw Hill, Singapore, 1972).