

MCA-539

Fundamentals of ICT

Course Objective:

This course seeks to provide students with a thorough overview of why computers are necessary in business, education, and humanity. It also provides a fundamental understanding for non-computer science students to become acquainted with courses such as MCA.

Course Outcomes

After completing the course, the student should be able to:

- Be familiar with the fundamental architecture of computer systems.
- Know the fundamentals of number systems such as binary, octal, and hexadecimal.
- Know how to distinguish between different operating systems such as Windows and Linux

UNIT-I

Introduction: Computer, Data Processing, Computer System Characteristics, Evolution of Computers, Capabilities and Limitations, Generations of computers, Block diagram of computer, Basic components of a computer system- Input unit, Output unit, Storage unit, ALU, Control unit, Central Processing unit; Number Systems- Non-positional number system, Positional number system, Decimal Number system, Binary number system, Octal number system, Hexadecimal number system.

UNIT-II

Memory: Main memory organization, Main memory capacity, RAM, ROM, PROM, EPROM, Cache Memory, Secondary storage devices: Sequential access devices- Magnetic tape; Direct access devices- Magnetic disks, Floppy disks, Optical disks, Types of Optical disks: CD-ROM, CDR, CD-RW, DVD. Input devices: Keyboard, Pointing Devices-Mouse, Touch screens, Joystick, Electronic pen, Trackball, Scanning devices: Optical Scanners, OCR, OMR, Bar code reader, MICR, Electronic card reader, Image capturing devices, Digital cameras.

Output devices: Monitors- CRT, LCD, Printers-Dot matrix, Inkjet, Laser; Plotters, Screen image projector.

UNIT-III

Introduction: Software, Relationship between Hardware and Software, Types of Software-System Software, Application Software; System Software-Operating System, Utility Program; Programming Languages-Machine, Assembly, High Level; Assembler, Compiler, Interpreter.

UNIT-IV

Data Communication & Computer Networks, Basic elements of a communication system, Data Transmission modes-Simplex, Half duplex, Full duplex; Data Transmission speed-Narrowband, Voice band, Broadband; Data Transmission media-Twisted Pair Wire, Coaxial cable, Optical fibers; Modems, Types of Network-LAN, WAN, MAN; Internet, World Wide Web, Web Browsers.

Text Book:

1. Pradeep K. Sinha, Priti Sinha, "Computer Fundamentals", 6E ,BPB Publications.

Reference Books:

1. Rajaraman, V., "Fundamental of Computers", Fifth Edition, Prentice Hall India, New Delhi.
2. E. Balagurusamy, "Introduction to Computers (Special Indian Edition)", Tata McGraw Hill.