

SEMESTER I
101: Fundamentals of Information Technology
No. of credits: 5

Objectives:

The main objective is to introduce IT in a simple language to all undergraduate students, regardless of their specialization. It will help them to pursue specialized programs leading to technical and professional careers and certifications in the IT industry.

The focus of the subject is on introducing skills relating to IT basics, computer applications, programming, interactive medias, Internet basics etc.

Learning Outcomes:

At the end of this course, student should be able to

- (a) Understand basic concepts and terminology of information technology.
- (b) Have a basic understanding of personal computers and their operations.
- (c) Be able to identify issues related to information security.

Pre-requisites:

Preliminary knowledge of computer, their operations and applications.

Text Books:

1. **Computer Fundamentals by P.K.Sinha**

Unit I: Introduction to Computers:

Introduction, Definition, .Characteristics of computer, Evolution of Computer, Block Diagram Of a computer, Generations of Computer, Classification Of Computers, Applications of Computer, Capabilities and limitations of computer.

Unit II: Basic Computer Organization:

Role of I/O devices in a computer system. **Input Units:** Keyboard, Terminals and its types. Pointing Devices, Scanners and its types, Voice Recognition Systems, Vision Input System, Touch Screen, **Output Units:** Monitors and its types. Printers: Impact Printers and its types. Non Impact Printers and its types, Plotters, types of plotters, Sound cards, Speakers.

Unit III: Storage Fundamentals:

Primary Vs Secondary Storage, Data storage & retrieval methods. Primary Storage: RAM ROM, PROM, EPROM, EEPROM. Secondary Storage: Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, Flash Drives.

Unit IV: Software:

Software and its needs, Types of S/W. **System Software:** Operating System, Utility Programs
Programming Language: Machine Language, Assembly Language, High Level Language their
advantages & disadvantages. **Application S/W** and its types: Word Processing, Spread Sheets
Presentation, Graphics, DBMS s/w.

Unit V: Operating System:

Functions, Measuring System Performance, Assemblers, Compilers and Interpreters.
Batch Processing, Multiprogramming, Multi Tasking, Multiprocessing, Time Sharing, DOS,
Windows, Unix/Linux.

Unit VI: Data Communication:

Communication Process, Data Transmission speed, Communication Types (modes), Data
Transmission Medias, Modem and its working, characteristics, Types of Networks, LAN
Topologies, Computer Protocols, Concepts relating to networking.

Unit VII: Business Data Processing:

Introduction, data storage hierarchy, Method of organizing data, File Types, File Organization,
File Utilities.

Unit VIII: Computer Arithmetic:

Binary, Binary Arithmetic, Number System: Positional & Non Positional, Binary, Octal,
Decimal, Hexadecimal, Converting from one number system to another , Converting from one
number system to another , Converting from one number system to another.