

MAT.O1.R0 : - Introduction to Information Technology

Detailed Syllabus

1. Computer Appreciation: 04 Hrs

What is a computer, basic structure of computer, data representation in computer [Binary number system, Hexadecimal number system, Binary to Decimal Conversion, Decimal to Binary Conversion, Binary Coded Decimal (BCD) Code, ASCII Code, UNICODE], representation of visual data.

2. Computer Organization: 11 Hrs

2.1 Central Processing Unit (02 Hrs)

Fundamentals of Control Unit, Arithmetic Unit; Instruction Set, Register. Concept of Processor Speed, illustration with popular processors. Basic introduction to GPU

2.2 Memory and Storage (02 Hrs)

Memory Organization, RAM., Read Only Memories, Flash memory. Basics of other storage devices – HDD, CD/DVD, Blue-Ray, magnetic tape etc.

2.3 Input Devices (02 Hrs)

Keyboard, Mouse, microphone, trackball, joystick, Scanner. OMR, Bar/QR-code reader, MICR Digitizer, Card Reader, cameras, fingerprint scanner and other biometric devices, tablets etc.

2.4 Output Devices (02 Hrs)

Display (CRT, LCD, LED), Printers - Dot matrix, Inkjet, laser, Plotters, Projector and visualiser,

2.5 Ports and Interfaces (01 Hrs)

Serial and Parallel ports, Connectors: DIN, RCA, AV; USB, Fire wire (IEEE1394), HDMI

2.6 Computer Software (02 Hrs)

Relationship between Hardware and Software; System Software, Application Software, compiler, assemblers, linkers, loaders

3. **Operating Systems:** **13 Hrs**
- 3.1 Basic concepts of OS** **(04 Hrs)**
Function of OS; Basic concept of resource management, CPU, memory, I/O; Power-up process: BIOS, Bootstrap Loader; File systems and user management
- 3.2 Case Study**
- 3.2.1 Microsoft Windows** **(03 Hrs)**
An overview of different versions of Windows, Basic Windows elements, files management through Windows. Using essential accessories: Systems tools- Disk cleanup, Disk defragmenter
- 3.2.2 Linux** **(03 Hrs)**
An overview of Linux, Basic Linux elements: System Features, Software features. File Structure, File handling in Linux
- 3.2.3 Mac Environment** **(03 Hrs)**
Overview of Mac OS, features of the Mac OS. File and User management, GUI and Mac devices and tools
4. **Office Automation:** **12Hrs**
Word Processing, Spreadsheet, Presentation tools, HTML Tools, Publishing tools.
5. **Intellectual Property Right and Copyright Issue:** **04Hrs**
Introduction to Intellectual Property Right and Copyright Issue, Exceptions to Copyright Protection, Guidelines for Clearance, Copyright Elements, Payments, Collaboration.
6. **Handheld Devices (Mobiles and Tabs)** **04Hrs**
Features of different handheld devices like – mobile phone, smart phone, Tablets, introduction to Android as OS for hand-held devices. Concepts of Apps, some popular applications
7. **Basic Networking & Internet:** **08Hrs**
Overview of the Internet, protocols, Basic definition: networks and topologies; Access networks and physical media, Concept of OSI protocol Layers. TCP/IP (features of IPV4, IPV6), WWW, FTP, Email, DNS, ISP. Concept of multimedia streaming. Basics of Wireless communications, Introduction to Wi-Fi, Bluetooth, GSM, CDMA, GPRS, 3G, 4G.

8. **Information Technology and Society:**

04Hrs

Social Networks, e-Governance, e-Commerce, e-Learning, IT-ethics

Laboratory Assignments (broad areas):

User Level hands-on experience of using Windows, Linux, Mac, Android
Use of I/O Devices & Connectors/Ports, network components and basic network configuration
Use of Office automation tools (Word-processor, spreadsheet, presentation tools)
Exposure to multimedia streaming, messaging, chatting, searching on Internet

Reference:

MAIN READING

1. P.K. Sinha and P. Sinha, "Foundations of Computing", BPB Publication, 2008.
2. Sagman S, "MS Office for Windows XP", Pearson Education, 2007.
3. ITL Educational Society, "Introduction to IT", Pearson Education, 2009.
4. Miller M, "Absolute Beginners Guide to Computer Basics", Pearson Education, 2009.

SUPPLEMENTARY READING

1. Turban, Mclean and Wetherbe, "Information Technology and Management" John Wiley & Sons.
2. Mansfield Ron, "Working in Microsoft Office", 2008, Tata McGraw-Hill
3. Balagurusamy E, "Fundamentals of Computers", 2009, Tata McGraw-Hill
4. Mavis Beacon, "All-in-one MS Office" CD based views for self learning, BPB
5. Publication, 2008
6. Perry G, "MS Office 2007", Pearson Education, 2008.
7. D'Souza & D'souza, "Learn Computer Step by Step", Pearson Education, 2006.
8. Kulkarni, "IT Strategy for Business", Oxford University Press

Refer: Open Office/ MS Office Environment for practice.