Paper code : ITA:103
Paper Name : IT Tools and Application

Teaching Hours (Per Week)		**Examination Scheme**		
TH. (hours)	Pr. (hours)	Internal	External	Total
		Th. (marks)	Th. (marks)	100 (marks)
3		30	70	

Lectures = 51 Hours

Objectives:

To learn the basic functional units and the working of a computer
To learn the basic computer operations of a computer
To learn the different devices related to the computer system
To learn the basic elements relevant to data transmission technology

Detailed Syllabus

UNIT I (13 Hrs.)
INTRODUCTION TO COMPUTERS

1. Computer: Hardware & Software , History of Computers, characteristics
2. Classification of computers
3. Information technology
4. Application of computer / information technology
5. Parts of a computer:
   a) **Input unit** - keyboard, Pointing Devices (Mouse, Trackball, Touch Panel, and Joystick), Light Pen, Scanners, web cam, Digitizers, MICR, OCR, OMR, Bar-code Reader.
   b) **Output**-**monitor**-CRT and LCD, **printers**- Impact Printers (Daisy Wheel, Dot Matrix, Line Printer, Chain Printer), Non-Impact Printers (inkjet, Laser Printer, Barcode Printers, Electro static printers and plotters).
   c) **Storage**- primary and secondary, Data Storage and Retrieval methods, Classifications- Volatile Memory and Non- Volatile , ROM, RAM, EPROM, PROM, EEPROM, Cache Memory, magnetic disks, optical disks (CDROM, WORM, DVD, Blue Ray Disc), Flash Memory, SD/MMC Memory cards, File system, File Allocation Table (FAT , FAT 32 & NTFS).
   a) **CPU**- ALU, CU, processor speed.

UNIT II **(6 Hrs.)**

FUNCTIONING OF COMPUTER/ COMPUTER OPERATION

1. Instruction set
2. main memory organization, I/O buses
3. BIOS, booting, Instruction Cycle
4. memory interleaving, Virtual Memory

UNIT III ***(12* Hrs.)**

COMPUTER ARITHMETIC

1. Information ,Data and its logical & physical concept
2. Coding system- What is the need for coding? BCD, EBCIDIC, ASCII code, Unicode.
3. Computer Arithmetic: - Number systems, binary, Octal, Hexadecimal, Binary Addition, Subtraction and Multiplication. Binary, decimal, hexadecimal number system conversion.
4. Introduction to logic gates & circuits and Boolean algebra

UNIT IV **(10 Hrs.)**

SOFTWARE

1. Relationship between hardware and software, need for S/w, system & application & free domain S/W, Embedded Software
2. Computer Language: Introduction to computer language, what is the need for computer language? Different generations of languages, High Level Language and Low Level Language, name of some computer languages, compiler, interpreter. Testing and Debugging.
3. Application Software and its types - Word-processing, Spreadsheet, Presentation Graphics, Data Base Management Software, characteristics and Uses
4. Virus, Types of viruses, virus detection and prevention
5. Some file formats
6. Operating System-Functions of the Operating system
7. Overview of different operating systems- DOS ,windows, Linux

UNIT V **(10 Hrs.)**

COMMUNICATION TECHNOLOGY

1. Concept of Analog and Digital Signal
2. Communication types- Simplex, Half Duplex, Full Duplex
3. Network components- NIC, NOS, Bridges, HUB, Routers, Repeater and Gateways, switch, routers, modems
4. Servers, Clients, hosts
5. Transmission techniques- wired & wireless
6. Transmission Media (Twisted Pair, Coaxial Cables, Optical Fiber, Micro Wave , and Satellite)
7. Bandwidth
8. Transmission Impairments (Attenuation, Dispersion)
9. Encoding/ Decoding
10. Networks: Type of Networks (LAN, MAN, WAN), Network configuration.
11. Internet:-Introduction to Internet, requirements for internet connection, application of internet, Protocol, why it is needed? , terminologies and concept of WWW, web page, web site, web browsers, HTTP, e-mail, GIAS, Search engine, Domain name etc.

RECOMMENDED BOOKS

MAIN READING

1. P.K. Sinha and P.Sinha, "Foundations of Computing", Third Edition, BPB Publication, 2010
2. "Operating System Concepts", Sixth Edition : Abraham Silberschatz, Peter Baer Galvin, Greg Gagne
3. "Data Communications and Networking", fourth edition, Behrouz A Forouzan

SUPPLEMENTARY READINGS

1. "Introduction to Information technology", ITL Education Solutions Ltd., Pearson Education
2. "Operating System", Second Edition, Milan MilenKovic
3. "Data and Computer Communications", eighth Edition, William Stallings
4. "Computer System Architecture", Third Edition, M. Morris Mano
5. "Fundamentals of computer", E. Balaguruswamy, McGraw Hill
6. "Introduction to Computer Science", ITL Education Solution Limited