Course: DCA Semester: **I**

Sub Code: 1DCA1 Subject Name: Fundamentals of Computers

UNIT–I

Brief History of Development of Computers: Generation Period, Hardware Technology, Key Software Technology, Key Characteristics, Some Representative Systems of each generation.

Computer System Concept: Overview of a computer System, Data, Computer Hardware, Software.

Computer System Characteristics: Speed, Accuracy, Reliability, Memory Capability, Capabilities and Limitations of Computer System.

Types of Computers: Analog, Digital and Hybrid Computers. Micro,   Mini and Mainframes.

Personal Computer (PCs) - IBM PCs.

 Types of PCs: Desktop, Laptop, Notebook, Palmtop characteristics advantages and Limitation.

Basic Components of a Computer System: Control Unit, ALU, Input/Output, semiconductor Memory.

Storage fundamentals: Importance of Storage in Computer System, Types of Memory , Primary Vs Secondary memory .

UNIT–II

Input Devices: Keyboard, Its Types and working, Key board layout. Key Types. Use of Following Short Cut: Alt + F, Alt + E,F1,Ctrl + A, Ctrl + X, Ctrl + S, Shift + Del, Ctrl + C, Ctrl + Ins, Ctrl + V, Shift + Ins, Ctrl + P, Home, Ctrl + Home, End, Ctrl + End, Shift + Home, Shift + End, Ctrl + Left arrow, Ctrl + Right arrow

 Mouse : Pointing Input Device Basics, Types and working of each type of Mouse, Trace Ball , Joystick as moving stick pointing device , Characteristics and Use , Scanner : Video Input Device Fundamental, Types of Scanner:Imae,3D and Fingerprint Scanner Features. , Digital Camera as Imaging Input Device, Features and Working of Digital camera. Other Image input Devices. MICR, OCR, OMR, What are they, Example Usage. Light pen, Type of Device, Usage, Touch Screen: Characteristics, Type, Application. Output Devices: Definition, Application and Examples, Monitors - Characteristics and types of monitor Monochrome and Color, CRT, LCD, LED Monitors technological difference and Application Area.

Monitor Features: Size, Resolution, Refresh Rate, Aspect Ratio, Color Depth.

Video Standard - VGA, SVGA, XGA etc.

Printers – Impact Non Impact Printer and Examples. Printing Speed. Daisy wheel, Dot Matrix, Inkjet, Laser Characteristics, Applications, Advantages and Limitations of Each.

Plotter : Definition and Applications.

Sound Card and Speakers Characteristics and Applications. Example Manufacturer.

Inbuilt Sound Card vs Extended Sound Card.

UNIT–III

Various Storage Devices: Magnetic Disks, Data recording, Tape Drive Mechanism, Processing Characteristic, Limitation.

Hard Disk Drives: Characteristics, Advantage, Physical Structure, Storage and Access Mechanism.

Floppy, Disks, Optical Disks Characteristics, Storage mechanism.

Computer Software Need: Types of Software's - System software, Application software.

System Software – Definition and Type of System Software. Operating System, compiler, Assemblers, Interpreter: Definition, Specific Working of each and Example.

UNIT–IV

Operating Systems – Functions, Types - Batch, Single, Multiprogramming, Multiprocessing.

Programming languages - Machine, Assembly, High Level, 4GL Features and examples.

Application Software: Definition, Word-processing, Spreadsheet, Presentation Graphics Example of Each.

Data Base Management Software: Definition, Advantage, Example.

Number System, Number System In computers, Decimal VS Binary, Octal and Hexadecimal. Characteristics of Each . Their conversion. Decimal to Binary, Octal and Hexadecimal.

Coding System - ASCII, EBCDIC.

UNIT–V

Direction of Transmissions Flow: Data Communication System and Concept of Data Communication, Communication Rate, Digital and Analog Communication, Simplex, Half Duplex Full Duplex, Multiplexing.

Types of Network: LAN Features, Topologies, Components, LAN operating System.

WAN Definition, Public and Private Network, WAN Applications and Design Principles.

MAN etc.

Topologies of LAN: Ring, Bus, Star, Mesh and Tree topologies.

Computer Virus: Virus working principals, Types of viruses, Virus detection and Prevention Viruses on network Example Virus and AntiVirus.

TEXT & REFERENCE BOOKS :

COMPUTERS TODAY BY S.K. BASANDRA, GALGOTIA PUBLICATIONS.

FUNDAMENTALS OF INFORMATION TECHNOLOGY BY ALEXIS LEON & MATHEWS LEON, VIKAS

PUBLISHING HOUSE, NEW DELHI.

DOS QUICK REFERENCE BY RAJEEV MATHUR, GALGOTIA PUBLICATIONS.