SARDAR PATEL UNIVERSITY
S. Y. B. Sc.
CS-201
Effective from June: 2006

UNIT: 1

CONCEPT OF ALGORITHM AND FLOWCHART DEVELOPMENT

- Requirement of Algorithm
- Symbol used to draw a flowchart.
- Examples of Algorithm and Flowchart.

UNIT: 2

LANGUAGE FUNDAMENTAL

- Generation of computer languages.
- High level languages.
- Translator Machine language.
- Editors and detail about editors.

UNIT: 3

LOGIC DEVELOPMENT

- Problem Analysis.
- Variable, expression and its manipulation.
- Data types, operators.
- Input Output Statement.
- Assignment Statement.

UNIT: 4

STRUCTURED PROGRAMMING AND ADVANCED COMPUTING

- Control strategies, conditions and loop statement.
- Method of structured programming.

UNIT: 5

COMPLEX DATA TYPES AND FUNCTIONS.

- Functions
- Arrays
- String handling
- Structure and union

UNIT: 6

FILE HANDLING

- Register Reference
- Command Line Argument
- File
- Input / Output statement related to File.

SARDAR PATEL UNIVERSITY
S. Y. B. Sc.
CS-202: Structured Computer Organization
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UNIT: 1

NUMBER SYSTEM

- Representation of numbers.
- Binary , Octal, Hexadecimal numbers and its arithmetic.
- Character Codes (ASCII, EBCDIC)
- Representation of integers.
- Representation of fractions.
- Binary multiplication and division using Register Method.
- Conversion of number system.
- Concept of error detection and correction codes.

UNIT: 2

DIGITAL LOGIC CIRCUIT – 1

- Basic gates and its applications.
- De-morgan's Law, XOR, NOR, NAND, XNOR gates and its application (Word comparator, Odd & Even Parity generator, inverter.
- Multiplexer (8 to 1, 10 to 1, Word nibble)

UNIT: 3

DIGITAL LOGIC CIRCUIT – II

- Half Adder, Full Adder, Binary Adder, 2's Complement adder-subtractor
- RS-latch (NOR & NAND), D-latch with time diagram.
- Boolean algebra (Rules, Properties and equations.)

UNIT: 4

MEMORY & I/O DEVICES

- RAM, ROM, PROM, EPROM, EEPROM.
- Floppy Disk & Hard Disk
- VDU, KB, Mouse
- CD-ROM
- Printers (Line, Dot-Matrix, Inkjet, Laser)

UNIT: 5

PROCESSOR & ITS FUNCTIONS.

- Processor : Function & Components

- Instruction execution cycle
- Parallel instruction execution (Multi-user, Multi-functional, Array Processor, Pipelining)
- Immediate addressing, Direct addressing, Indirect addressing, Register addressing, Index addressing, Stack addressing.
- Introduction to operating system and its functions.
- Different types of operating system (Real-time, Multiuser, Distributed, Time Sharing)
- Disk Operating System (Internal & External commands)

UNIT: 6

WINDOWS AND MICROSOFT WORD, EXCEL AND POWERPOINT.

- Windows 98 : Operating & its basic components.
- Usage of word processor
- Formatting of Text & Paragraph, Fonts styles, Bullets and numbering, Border and Shading, Drawing objects.
- Options of print windows, Page Setup dialogue box.
- Table Creation, Insertion and deletion of rows, Cells split and merge, sorting of data.
- Mail-merge features.
- What is mail merge ?
- Main document and data file
- Creation of data file at time of creating a mail merge document & using already created data file.
- Editing in data file through mail-merge toolbar.
- Query option.
- Introduction to MS-Excel and Powerpoint.

BOOKS:

1. Computer Fundamentals By V. Rajaraman, PHI
2. Structured Computer Organization By A.S. tanenbaum, PHI
3. Digital Computer Electronics By Malvino, TMH
4. Operating System Design & Implementation By A.S.Tanenbaum
5. PC Software for Windows Made Simple By R.K.Taxali

SARDAR PATEL UNIVERSITY
S. Y. B. Sc. (Information Science)
IS-202: Introduction to Communication Systems
Effective from June: 2003

UNIT: 1

BASIC OF COMMUNICATION SYSTEM

- Definition of Communication System.
- Importance of Communication System.
- Simple model of Communication System.
- Types of Communication System.
    - Parallel & Serial Communication.
    - Asynchroous & Synchronous
    - Analog & Digital
- Concept of Bandwidth, Band, Baud rate, frequency signal, spectrum, analog-digital, Halt-Display, full display, Simpler, Band Amplitude Periodic & Aperiodic Signal.
- Transmission Impairments.
    - Attenuation
    - Distortion
    - Noise
        - Thermal Noise
        - Impulse Noise
        - Induce Noise
- Broad cast & Point to Point communication.

UNIT: 2

COMMUNICATION SYSTEM

- Types of communication system
- What is Switching?
- Switching Techniques
    - Circuit Switching
    - Placket Switching
    - Message Switching
- Telephone Network
    - Structure of Telephone Network
    - The politics of Telephone Network
    - The local loop
    - The Trunks
    - PSTN
- Radio System
    - Radio Frequency Allocation
    - Propagation of Radio Waves
- Television System
    - Analog System
    - Digital System

UNIT: 3

TRANSMISSION MEDIA

- Media
  - Guided
  - Unguided
- Guided media
  - Magnetic Media
  - Twisted Pair
  - Coaxial cable
    - Base
    - Broad
- Fiber optics
- Comparison between Copper wire and Fiber
- Unguided Media
- Wireless Communication
- Microwave
- Satellite
- Cellular Phone

UNIT: 4

COMPUTER NETWORK

- Introduction to Computer Network
- Advantage & Disadvantage of Computer Network
- Components of Computer Network
  - Server, Client, Media Workstation, Host, NIC, Network Resources
- Introduction to types of Network (LAN, MAN, WAN)
- LAN
  - What is LAN ? Characteristics of LAN
  - Difference between LAN and Multiuser System
  - LAN V/S Single User
  - LAN Topologies
    - BUS, Star, view, mesh, tree
- Function and Benefits of NOS (Network Operating System)

UNIT: 5

WAN (Wide Area Network)

- Introduction to WAN
- Characteristics of WAN
- Types of WAN (Public & Private Area Network)
- Topologies in WAN (Irregular)
- Host, Subnet
- Modem
- DTE-DCE Interface
- Functions of Modem
- Modem Trouble Shooting

UNIT: 6

APPLICATIONS OF COMPUTER NETWORK

- E-mail
- Newsgroups (USENET, etc)
- File Transfer
- Remote Login (TELNET, etc)
- Client Server Technology
    - Two Tier Architecture
    - Three Tier Architecture

Books:

1. Computer Network By Andrew S. Tanenbaum
2. Data Communication & Networking By Behrouz A. Forouzan
3. Data Communication By William Stalling.
4. Local Area Network By S.K.Basandra