

**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**  
**Post Graduate Diploma in Computer Application**  
**Semester - I**  
**Effective from: July - 2012**

**Paper No. : 101**

**Paper Title : Computer Organization & Office Automation**

1. Memory, Number System & Basic Computer Architecture
  - 1.1. RAM, ROM, PROM, EPROM, Cache Memory, Virtual Memory
  - 1.2. Secondary Storage Devices
  - 1.3. Binary, Hexadecimal, Octal Number System
  - 1.4. Integer & Floating Point representation
  - 1.5. Block Diagram of CPU and execution process
  - 1.6. Addressing Modes
  - 1.7. I/O devices: keyboard, display, pointing devices, modem, scanners, OMR, OCR, CD- ROM, DVD, printers.
  
2. Operating System Concepts
  - 2.1. Evolution of Operating System & History
  - 2.2. Need of an Operating System
  - 2.3. Single-User & Multi-User Operating System
  - 2.4. Elements of an Operating System
  
3. Single User Operating System
  - 3.1. BIOS, POST Operation, Vector Table, Device Drivers, TSR Programs
  - 3.2. System Files
  - 3.3. Configuration Files
  - 3.4. Disk Architecture
  - 3.5. Commands
  
4. Multi-user Operating System
  - 4.1. Introduction to Windows, UNIX
  - 4.2. Network Fundamentals
  - 4.3. Basic Commands of Windows, UNIX
  
5. Office Automation
  - 5.1. MS Word
    - 5.1.1. Typing, Editing, Proofing & Reviewing
    - 5.1.2. Formatting Text & Paragraphs
    - 5.1.3. Automatic Formatting And Styles
    - 5.1.4. Working With Tables
    - 5.1.5. Mail Merge
    - 5.1.6. Automating Your Work & printing Documents

## 5.2. MS Excel

- 5.2.1. Working & Editing In Workbooks
- 5.2.2. Creating Formats & Links
- 5.2.3. Formatting A Worksheet & creating graphic objects
- 5.2.4. Creating Charts (Graphs), formatting and analyzing data
- 5.2.5. Organizing Data In A List (Data Management)
- 5.2.6. Sharing & Importing Data
- 5.2.7. Printing

## 5.3. PowerPoint

- 5.3.1. Getting started in PowerPoint
- 5.3.2. Creating a presentation
- 5.3.3. Creating & editing slides, different types of slides
- 5.3.4. Previewing a slide show, automating slide show, applying effects
- 5.3.5. Slide Master, Handout Master, Notes Master
- 5.3.6. Adding autosshapes, picture & graph, sound & video etc.

### **Reference Books:**

1. Fundamentals of Computer – V. RajaRaman
2. Fundamentals of Computers – E Balaguruswamy – McGraw Hill
3. How Computers work - Ron White – Techmedia
4. Introduction to computers:- Peter Norton – TMH
5. Understanding Operating Systems - 4th Ed- Flynn – Thomson Course Technology
6. Inside IBM PC - Peter Norton - PHI
7. Unix Concepts And Application - Das – McGrawHill
8. MS DOS 6.22 – Comdex Computer Publishing
9. Advanced MSDOS - Ray Duncon - McGraw Hill
10. Advanced Unix -A Programmer's Guide - Stephen Prata - SAMS
11. User Manual of DOS, Windows-Windows-NT
12. Operating Systems - Stallings – PHI
13. L. Moseley, D. Boody – Mastering Microsoft Office – BPB

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**Paper No.: 102s**

**Paper Title: Data Base Management System (DBMS)**

- 1. Basic Concepts of Database Management System.**
  - 1.1 Fundamental concepts of File and databases
  - 1.2 Purpose of database system
  - 1.3 Introduction to Data models
    - 1.3.1 Conceptual Data model – E- R model
    - 1.3.2 Record – base Data models – Hierarchical. Relation, Network
  
- 3. Relational Commercial Language - SQL**
  
- 4. Commercial DBMS: Microsoft Access, DB2 & MySQL**
  - 5.1 Basic Architecture as DBMS
  - 5.2 Working with databases and tables.
  - 5.3 Managing constrains and relationships.
  - 5.4 Using SQL queries.
  - 5.5 Introduction to other object: Forms, Reports, Macros, etc.
  
- 6. Integrity Constrains**
  - 6.1 Domain Constrains, key Constrains, Referential Integrity Constrains
  - 6.2 Functional Dependencies
  
- 7. Relational Database Design**
  - 7.1 Pitfalls in relational database design
  - 7.2 Normalization using Functional Dependencies
  
- 8. [Self Study]**

Security features provided by access, DB2 & MySQL

**Reference Books:**

1. Database System Concepts – SILBERSCHATZ, KORTH, SUDARSHAN- McGraw-Hill
2. An introduction to Database Systems- C.J.DATE – Addison Wesley
3. Database System: A practical approach to design implementation and management – THOMAS CONNOLLY, CAROLYN BEGG, Pearson Education
4. Access - The Complete Reference – Virginia Andersen – McGraw - Hill
5. Access Database Design & Programming – Steven Roman - O' Reilly
6. Microsoft Access: Bible – Cary N. Prague
7. The Definitive Guide to MySQL 5, Micheal Kofler, Apress
8. MySQL in a Nutshell, Russell Dyer, O'Reilly

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**Paper No. : 103**

**Paper Title : Computer Programming & Programming Methodology**

**1. Algorithm & Flowcharting**

**2. Constants & Variables**

- 2.1. Character Set
- 2.2. Constants - needs & definition
- 2.3. Variables - needs & definition
- 2.4. Storage Class
- 2.5. Scope of Variables

**3. Expressions & Operations**

- 3.1. Operators: Assignment, Arithmetic, Increment, Decrement, Relational, Logical, Bitwise, Conditional
- 3.2. Expression
- 3.3. Evaluation & Assignment of Expression

**4. Basic Input & Output Functions**

**5. Jumping, Branching & Looping Statements**

**6. Array**

**7. Built-in Functions: Arithmetic functions, Data Conversion functions, String functions, Character Classification functions**

**8. Structure Union & Enumerated data types**

**9. User Defined Functions**

- 9.1. Call by value
- 9.2. Passing Structures & Array
- 9.3. Recursion

**10. Pointers**

**11. Files**

- 2.1 Reading & Writing from a file
- 2.2 Reading & writing structures
- 2.3 Random accessing a file

## **12. Program Bugs & Testing**

- 11.1. Program Bugs
- 11.2. Preparing Test data
- 11.3. Functional & Structural Testing

### **Reference Books:**

1. C Language Programming - Byron Gottfried - TMH
2. Programming ANSI C – E Balagurusamy – McGraw Hill
3. Let US 'C' – Yashwant Kanitkar
4. Pointers in C – Yashwant Kanitkar
5. C Programming Language - Kernighan & Ritchie – TMH
6. 'C' Odyssey (6 Volumes) - Vijay Mukhi - PHI
7. The Complete Reference - C - Herbert Schildt, Tata Mc Graw Hill
8. Structured programming concepts - La Budde - (Mc.Graw Hill)
9. Programming in 'C' - Stephan Kochan - CBS
10. Mastering Turbo C - Kelly & Bootle - BPB
11. Mastering Turbo C - Stan Kelly - BPB

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**Paper No. : 104**

**Paper Title : Computer Network**

**1. Networking Fundamentals**

- 1.1. An Introduction to Networks
- 1.2. Analog & Digital Signals
- 1.3. Need, Uses and Advantage of Network
- 1.4. Network Topologies – Bus, Ring, Star, Mesh
- 1.5. LAN, MAN, WAN
- 1.6. Transmission Media (Guided and Unguided)
- 1.7. Transmission categories – Simplex, Half Duplex, Full Duplex
- 1.8. Modes of Transmission – Synchronous, Asynchronous
- 1.9. Switching and its techniques
- 1.10. The OSI Model and brief functions of each of 7 layers
- 1.11. Comparison of OSI and TCP-IP model

**2. DataLink & Network Layer Services, Elementary Transport Protocols**

- 2.1. Error detection methods
- 2.2. Elementary sliding window protocols
- 2.3. Ethernet and its various 802 standards
- 2.4. Classful addressing using IPV4 addresses
- 2.5. What is Routing?
- 2.6. Elementary routing protocols
- 2.7. Elementary transport protocols – TCP & UDP

**3. Network Hardware & Software**

- 3.1. Network Cards
- 3.2. Network Connecting Devices like Hubs, Switches, Bridges, Routers, Gateways
- 3.3. Installing Network Card and its drivers
- 3.4. Configuring Network Card – Wired and Wireless connections
- 3.5. Troubleshooting Network services using commands like ping, traceroute, nslookup etc.

**4. Presentation Layer and Application Layer Services**

- 4.1. Compression, Encoding and Encryption techniques, Formatting of data, VOIP
- 4.2. DNS, E-Mail, FTP, Telnet, HTTP

**5. Network Management And Security**

**Reference Books:**

1. Data Communication and Networking – B. Forouzan – MCGrawth Hill
2. Computer Networks - A. S. Tanenbaum- PHI Publication
3. Networking Complete- 1<sup>st</sup> Edition 2002, BPB Publication (Text Book)
4. Networking, Second Edition – Jeffrey S. Beasley, Pearson Education
5. Black, “Computer Networks - Protocols, Standard, Interface”, 2<sup>nd</sup> Edition, Prentice Hall of India
6. MCSE: Networking Essentials Study Guide- Tata McGraw Hill Publication

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**Paper No. : 105**

**Paper Title : Programming in .NET**

**1. Overview of Microsoft .NET Framework**

- 1.1 The .NET Framework
- 1.2 The Common Language Runtime (CLR)
- 1.3 The .NET Framework class Library

**2. Visual Basic .NET programming**

- 2.1 Working with Tool box controls
- 2.2 Working with Menus and Dialog Boxes
- 2.3 Tapping Errors Using Structured Error Handling
- 2.4 Using Modules and Procedures
- 2.5 Using Arrays and Collections

**3. Database access using ADO.NET**

- 3.1 Visual Database Tools
- 3.2 ADO.NET Object Model
- 3.3 ADO.NET Programming
- 3.4 Working With DataSets
- 3.5 Integration with XML
- 3.6 The Middle Tier

**Reference Books:**

- 1. Moving to VB.NET: Strategies, Concepts, and Code by Dan Appleman
- 2. Microsoft Visual Basic .NET Step By Step, Michael Halvorson, PHI
- 3. Database Programming with Visual Basic .NET and ADO.NET by F. Scott Barker - Sams Publishing
- 4. Beginning .NET Web Services Using Visual Basic .NET, Joe Bustos and Karlli Watson, Wrox Publication
- 5. .NET – Complete Development Cycle, G. Lenz, T. Moeller, Pearson Education
- 6. Professional VB.NET, 2nd Edition by Fred Barwell, et al - Wrox Publication
- 7. Mastering Visual Basic .NET Database Programming - Bilgin - BPB Publication.

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**Paper No. : 106**

**Paper Title : Practical - I**

**Practical based on Paper No: 101 (MS Word, MS Excel, MS PowerPoint) &  
102 (Microsoft Access, DB2 & MySQL)**

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**Paper No. : 107**

**Paper Title : Practical - II**

**Practical based on Paper No: 103 (C Language)**

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**Paper No. : 108**

**Paper Title : Practical - III**

**Practical based on Paper No: 105 (VB.Net)**