VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
Post Graduate Diploma in Computer Application
(1st SEMESTER) SYLLABUS

Effective From : July – 2009
PAPER NO. : 101
Paper Title : COMPUTER ORGANIZATION & FUNDAMENTALS OF OPERATING SYSTEMS

1. Memory, Number System & Basic Computer Architecture
   1.1. RAM, ROM, PROM, EPROM etc, Virtual Memory, Cache 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. Introduction to bus architecture
   1.7. H/W parts of PC
   1.8. 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
   3.6. Introduction to Windows

4. Multi-user Operating System
   4.1. Introduction to Windows-NT, UNIX
   4.2. LAN Fundamentals
   4.3. Basic Commands of NETWARE, Windows-NT, UNIX

Reference Books:
1. Fundamentals of Computer – V. RajaRaman
2. How Computers work - Ron White – Techmedia
3. Introduction to computers - Peter Norton – TMH
5. Inside IBM PC - Peter Norton - PHI
6. Unix Concepts And Application - Das – McGrawHill
7. MS DOS 6.22 – Comdex Computer Publishing
8. Netware for dummies - Dummy Series
12. Operating Systems - Stallings – PHI
VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
Post Graduate Diploma in Computer Application
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Effective From : July – 2009
PAPER NO. : 102
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

2. Features of Database Systems
   2.1 Data abstraction & Data independence
   2.2 Type of Database Languages : DDL, DML, TCL
   2.3 Database users : Database manager, administrator and Users
   2.4 Overall system structure.

3. Relational Commercial Language - SQL

5. Commercial DBMS : Microsoft Access / DB2
   5.1 Basic Architecture as DBMS
   5.2 Working with databases and tables.
   5.3 Managing constraints and relationships.
   5.4 Using SQL queries.
   5.5 Introduction to other object : Forms, Reports, Macros, etc.

6. Integrity Constrain
   6.1 Domain Constrain, key Constrain, Referential Integrity Constrain
   6.2 Functional Dependencies

7. Relational Database Design
   7.1 Pitfalls in relational database design
   7.2 Normalization using Functional Dependencies
   7.3 Normalization using Multi valued Dependencies
   7.4 Normalization using Join Dependencies
   7.5 Domain – Key normal form

8. [Self Study]
   Security features provided by access / DB2
**Reference Books**

3. Database System : A practical approach to design implementation and management – THOMAS CONNOLLY, CAROLYN BEGG, Pearson Education
5. Access Database Design & Programming – Steven Roman - O' Reilly
6. Microsoft Access : Bible – Cary N. Prague

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Effective From : July – 2009
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. 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 –
3. Let US ‘C’ – Yashwant Kanitkar
4. Pointers in C – Yashwant Kanitkar
5. C Programming Language - Karnighan & Ritchie – TMH
6. 'C' Odyssey (6 Volumes) - Vijay Mukhi - PHI
10. Mastering Turbo C - Kelly & Bootle - BPB
11. Mastering Turbo C - Stan Kelly - BPB

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Effective From : July – 2009
PAPER NO. : 104
Paper Title : COMPUTER NETWORKS

1. Networking Fundamentals
   An Introduction to Networks, Network Topologies and Types
   What is Networking?
   Exchange, Sharing, preserving and protecting Information
   Sharing Hardware and Software Resources
   Need, Uses and Advantages of Network
   Networks in the workplace (Tools, Tasks and Personnel) Clients, Servers and Peers based and
   Hybrid Networks Server types
   Network Topologies (Bus, Star, Ring, Star Bus, Star Ring and Physical
   Mesh) Network ( Transmission) Media (Wires, Cables, Fibre Optics, Wave)
   Interface) The OSI Model
   Major Protocol Suites
   Review of Protocols, Models and Implementations
   NetWare IPX/SPX Protocols(Lower, Middle and Upper Layer
   Protocols) Internet Protocols(Middle and Upper Layer Protocols)
   Basics of Miscellaneous Protocols(SLIP, PPP, FDDI, X.25, Frame Relay, ISDN, B-ISDN, SONET, SDH, ATM, SMRS)

2. Network H/W And S/W
   Cards and Cables, Repeaters, Hubs, Routers, and Bridges
   Network Cards
   Repeaters – its uses and selection
   criteria Hubs (Chassis Hubs and Stackable Hubs) Splitting Up
   Networks
   Bridges (The Spanning Tree Protocol, Traffic Segmentation and Monitoring with examples) Switches (Full Duplex Operation, Various Switching Modes, Avoiding
   Switch overload,
   VLAN technology, Applicability)
   Routers (Protocols, A Routed Network Example, Protocol Specificity, Bridging and
   Routing compared, Protocol Address Conventions)
   Switch Routers
   Network Operating Systems
   Peer Network Operating Systems ( Windows 95-98-NT workstation)
   Client-Server Operating System( Common Features, Windows NT-2000, Novell
   Netware, Various Flavours of Unix)
Client Software (DOS Clients, Windows Clients, Macintosh Clients) Novell Netware fundamentals
File system (volumes), Directories, files & flags (i.e. attributes) of the File.
Administrative command: Creating users & groups, assigning trustee directories & attributes, Login script, Security

3. Network Management And Security
Understanding IEEE Standards
Understanding Wireless Networks

Reference Books:

3. Computer Networks By- TenenBaum- PHI Publication
4. Mastering Local Area Networks By Christa Anderson & Mark Minasi – BPB Publication
5. Mastering Novell Netware-Currid C.C, C.A Gillett-BPB
7. Introduction to Local Area Networks

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(1st SEMESTER) SYLLABUS

Effective From : July – 2009
PAPER NO. : 105
Paper Title : OFFICE AUTOMATION & WEB DESIGNING TOOLS

1. WINWORD
   1.1. Typing, Editing, Proofing & Reviewing
   1.2. Formatting Text & Paragraphs
   1.3. Automatic Formatting And Styles
   1.4. Working With Tables
   1.5. Graphics And Frames
   1.6. Mail Merge
   1.7. Automating Your Work & printing Documents

2. EXCEL
   2.1. Working & Editing In Workbooks
   2.2. Creating Formats & Links
   2.3. Formatting A Worksheet & creating graphic objects
   2.4. Creating Charts (Graphs),formatting and analyzing data
   2.5. Organizing Data In A List (Data Management)
   2.6. Sharing & Importing Data
   2.7. Printing

3. PowerPoint
   3.1. Getting started in PowerPoint
   3.2. Creating a presentation
   3.3. Creating & editing slides
   3.4. Previewing a slide show
   3.5. Adding picture & graph
   3.6. Adding sound & video
   3.7. Adding auto shape
   3.8. Animating objects

4. Introduction to Internet
   4.1. Internet Protocols http, ftp, TCP/IP etc
   4.2. Internet Utilities e-mail, chat, searching etc.
5. Web Browsers

6. Web Server

7. HTML
   7.1. HTML Tags

8. JavaScript
   8.1. Fundamentals of JavaScript
   8.2. Syntax of JavaScript
   8.3. Use of JavaScript in HTML
   8.4. Validation using JavaScript

9. CSS
   9.1. What is CSS?
   9.2. Advantage & Disadvantage of CSS
   9.3. Creating CSS
   9.4. Use of CSS in HTML
   9.5. Formatting HTML page using CSS

Reference Books:

1. WORD 6 for Windows Quick & easy Reference - Mansfield – BPB
2. Mastering WORD 6 for Windows - Mansfield –
3. Mastering EXCEL 4 for Windows - Townsend -
4. Mastering EXCEL 4 for Windows - Chester - BPB
5. EXCEL 5 for Windows Quick & Easy - Jones - TECH
6. SAMS Teach Yourself JavaScript in 24 Hours – Michael G Moncus – Sams Publication
9. Speed up Your Site: Website Optimization – Andrew B King – New Riders

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Effective From : July – 2009  
PAPER NO.     : 106  

Paper Title : PRACTICALS  

Practical shall be conducted as mentioned in the Teaching Scheme for Papers 102, 103 and 105. Separate journals for Paper No. 102, 103 & 105 should be prepared.
1. Procedure Oriented Programming Vs. Object Oriented Programming

2. Classes and Objects
   2.1 Structure & classes
   2.2 Encapsulation & Data Hiding
   2.3 Constructors
   2.4 Friend Functions
   2.5 Inline Functions
   2.6 Dynamic Object Creation & Destruction
   2.7 Destructors

3. Polymorphism
   5.1 Operator Overloading
   5.2 Functional Overloading

4. Inheritance

5. Dynamic Polymorphism

Reference Books

1. Objected Oriented Programming with C++ - E Balagursamy
2. The C++ Programming Language, Stroustrup, Addison Wesley
4. OOP in Turbo C++, Robert Lafore, Galgotia Publication
5. C++ Primer, Lippman, Addition Wesley
6. Object Oriented Programming with ANSI and Turbo C++, Kamthane, Pearson Education
7. Thinking in C++, Bruce Eckel, Pearson
8. Object Oriented Modelling & Design, Rumbaugh..., PHI
9. Object Oriented Analysis & Design with Application, Grady Booch, LPE
10. Standard C++ with Object Oriented Programming, Paul S. Wang, Thomson
11. Object Oriented Design, Peter Coad, Prentice Hall
1. Overview of Microsoft .NET Framework
   1.1 The .NET Framework
   1.2 The Common Language Runtime (CLR)
   2.3 The .NET Framework class Library
   2.4 .NET Web Services

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. Object Oriented Programming
   3.1 Creating Classes, Object Construction & Destruction
   3.2 Class Libraries : DLL's & Static Classes
   3.3 Abstraction, Encapsulation & Polymorphism
   3.4 Interfaces & Inheritance
   3.5 Object Serialization
4. Database access using ADO.NET
   4.1 Visual Database Tools
   4.2 ADO.NET Object Model
   4.3 ADO.NET Programming
   4.4 Working With DataSets
   4.5 Integration with XML
   4.6 The Middle Tier

5. Introducing ASP.NET
   5.1 Overview of ASP.NET
   5.2 Building Web Forms
   5.3 Maintaining State in Web Applications
   5.4 Caching & Configuration
   5.5 Accessing Databases from ASP.NET

6. The Web Data Controls
7. Working With WebServices

References:
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
5. .NET – Complete Development Cycle, G. Lenz, T. Moeller, Pearson Education
1. Relational Database Design
   1.1. Structure of Relational Database
   1.2. Database Manager
   1.3. Database Administrator
   1.4. Pitfalls in Relational Database Design
   1.5. Functional Dependencies
   1.6. First, Second & Third Normal Form, BCNF

2. R.D.B.M.S. package & its tools
   2.1. SQL Commands: SELECT, CREATE TABLE, INSERT, UPDATE, DELETE,
       ALTER TABLE, DROP TABLE, CREATE SEQUENCE, ALTER SEQUENCE,
       DROP SEQUENCE, CREATE INDEX, ALTER INDEX, DROP INDEX,
       ROLLBACK, COMMIT, SAVEPOINT, TRUNCATE, CREATE VIEW, DROP
       VIEW
   2.2. Built-in Functions & Group Functions
   2.3. PL/SQL: Data types in PL/SQL, user-defined RECORD data type, Control
       statements (IF, LOOP, WHILE, FOR), Cursor, Passing Parameter to Cursor,
       Implicit Cursor, Exception Handling, Stored & Local Procedures & Functions,
       Packages, Triggers

Reference Books:

2. SQL & PL/SQL Programming Language of Oracle – IVAN BAYROSS -
3. An Introduction to Database Systems - C.J.Date - Narosa
7. Introduction to Database Management - Navin Prakash – TMH
VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
Post Graduate Diploma in Computer Application
(2nd SEMESTER) SYLLABUS

Effective From : July – 2009
PAPER NO. : 204
Paper Title : SOFTWARE ENGINEERING

1. Introduction to software engineering.
   1.1. Software, software characteristics, software engineering
   1.2. Software development phases - Requirement analysis, design, coding, testing
   1.3. Software maintenance
   1.4. Effort distribution
   1.5. Software development process models: Waterfall model, Prototyping, Volutionary Model

2. Requirement Analysis
   2.1. Study of requirements
   2.2. Structured analysis
   2.3. Data flow diagrams and Data dictionary

3. Requirement specifications
   3.1. Characteristics and Components of SRS
   3.2. Requirement specification document

4. System Design
   4.1. Design methodology: Structured design, Object Oriented Design
   4.2. Design documentation

5. Testing & Implementation
   5.1. Testing fundamentals
   5.2. Functional and Structural testing
   5.3. Testing process
   5.4. Implementation process

6. Software Reliability & Quality

7. CASE tools
   7.1. Introduction
   7.2. Characteristics

Case studies may be carried out at appropriate stages of the course.

Reference Books:
2. An integrated approach to software engineering - Pankaj Jalote - Narosa Publication
3. Fundamentals Of Software Engineering - Rajib Mall - PHI
4. Elements of system analysis - Marvin Gore - Galgotia Publication
VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT D. C. A.
(2\textsuperscript{nd} SEMESTER) SYLLABUS

Effective From : July – 2009
PAPER NO. : 205
Paper Title : PRACTICAL (BASED ON PAPER NOS. 201 TO 203)

Practical shall be conducted as mentioned in the Teaching Scheme for Papers 201, 202 and 203. Separate journals for Paper No. 201, 202 & 203 should be prepared.

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