

**DETAILED SYLLABUS  
FOR  
Post Graduate Diploma in Computer Applications (PGDCA)  
(Effective From July 2007)  
(REVISED)**



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## SYLLABUS FOR PGDCA COURSE

### COURSE OBJECTIVES

Course Duration : 1 Year (TWO SEMESTERS)

Eligibility : Any Graduate

There are three main objectives of this degree course.

To prepare a person who can work as Assistant Programmer in an organization and to train students to a level where they can readily compete for seats for lateral entry to advanced degree courses like MSc(CS).

To prepare Computer Operator to operate various office packages effectively with some analytical approach and who can be directly employed by many organization

To prepare Computer Assistant to Chartered Accountant

The course has been designed keeping in mind the desirable characteristics of a competent computer professional. We have identified these characteristics to be the following.

1. Strong knowledge and skill base of the followings from the core field :
  - Office Application packages.
  - Web designing
  - Programming methodology & techniques
  - LAN and Internet
  - Database user
2. Ability to work in a team

Strict standards would be maintained, to ensure quality.

In addition, students have the option to select viz., FoxPro/MSAccess and OOPS with C++/Financial Accounting described in detail below.

### SCHEME OF EXAMINATION FOR POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA) (EFFECTIVE FROM JULY 2007)

#### SEMESTER I

SUBJECT CODE	SUBJECT NAME	MARKS
1PGDCA1	FUNDAMENTALS OF COMPUTERS & INFORMATION TECHNOLOGY	100
1PGDCA2	OPERATING SYSTEMS	100
1PGDCA3	PC PACKAGES	100
1PGDCA4	ELECTIVE – 1 (CHOOSE ONE OF THE FOLLOWING) (A). FOXPRO (B). MS ACCESS	100
1PGDCA5	COMPUTER LAB -I	100

#### SEMESTER II

SUBJECT CODE	SUBJECT NAME	MARKS
2PGDCA1	PROGRAMMING WITH VISUAL BASIC.NET	100
2PGDCA2	INTERNET & E-COMMERCE	100
2PGDCA3	SYSTEM ANALYSIS AND DESIGN	100
2PGDCA4	ELECTIVE - 2 (CHOOSE ONE OF THE FOLLOWING) (A). OOPS & PROGRAMMING WITH C++ (B). FINANCIAL ACCOUNTING WITH TALLY	100
2PGDCA5	COMPUTER LAB- II	100
2PGDCA6	PROJECT WORK	100

**General Instructions :-**

- For passing the examination minimum 40% marks must be scored in each passing head individually.
- For passing the overall aggregate marks must be at least 45% in theory & practical separately.
- For the purpose of award of merit or division only the marks obtained in theory heads of all semester together shall be considered.

**1PGDCA1 - FUNDAMENTAL OF COMPUTERS AND INFORMATION TECHNOLOGY****UNIT – I**

Brief history of development of computers, Computer system concepts, Computer system characteristics, Capabilities and limitations, Types of computers Generations of computers, Personal Computer (PCs) – evolution of PCs, configurations of PCs- Pentium and Newer, PCs specifications and main characteristics. Basic components of a computer system - Control unit, ALU, Input/Output functions and characteristics, memory - RAM, ROM, EPROM, PROM and other types of memory.

**UNIT – II**

Input/Output & Storage Units:-Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light pen, Touch Screen, Monitors - characteristics and types of monitor -Digital, Analog, Size, Resolution, Refresh Rate, Interlaced / Non Interlaced, Dot Pitch, Video Standard - VGA, SVGA, XGA etc, Printers& types - Daisy wheel, Dot Matrix, Inkjet, Laser, Line Printer, Plotter, Sound Card and Speakers, Storage fundamentals - Primary Vs Secondary Data Storage and Retrieval methods - Sequential, Direct and Index Sequential, SIMM, Various Storage Devices - Magnetic Tape, Magnetic Disks, Cartridge Tape, Hard Disk Drives, Floppy Disks (Winchester Disk), Optical Disks, CD, VCD, CD-R, CD-RW, Zip Drive, flash drives Video Disk , Blue Ray Disc, SD/MMC Memory cards, Physical structure of floppy & hard disk, drive naming conventions in PC. DVD, DVD-RW.

**UNIT – III**

Software and its Need, Types of Software - System software, Application software, System Software - Operating System, Utility Program, Programming languages, Assemblers, Compilers and Interpreter, Introduction to operating system for PCs-DOS Windows, Linux, File Allocation Table (FAT & FAT 32), files & directory structure and its naming rules, booting process details of DOS and Windows, DOS system files Programming languages- Machine, Assembly, High Level, 4GL, their merits and demerits, Application

Software and its types - Word-processing, Spreadsheet, Presentation Graphics, Data Base Management Software, characteristics, Uses and examples and area of applications of each of them, Virus working principles, Types of viruses, virus detection and prevention, viruses on network.

#### UNIT – IV

Use of communication and IT , Communication Process, Communication types- Simplex, Half Duplex, Full Duplex, Communication Protocols, Communication Channels - Twisted, Coaxial, Fiber Optic, Serial and Parallel Communication, Modem - Working and characteristics, Types of network Connections - Dialup, Leased Lines, ISDN, DSL, RF, Broad band ,Types of Network - LAN, WAN, MAN ,Internet, VPN etc., Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies, Components of LAN -Media, NIC, NOS, Bridges, HUB, Routers, Repeater and Gateways.

#### UNIT-V

Computer Applications in Business-Need and Scope, Computer Applications in Project Management, Computer in Personnel Administration, Information System for Accounting-Cost and Budgetary Control, Marketing and Manufacturing, Computer Applications in Materials Management, Insurance and Stock-broking, Production planning and Control, Purchasing, Banking, Credit and Collection, Warehousing. Use of computers in common public services and e-governance.

#### TEXT & REFERENCE BOOKS :

- Anurag Seetha, “Introduction to Computers and Information Technology”, Ram Prasad & Sons, Bhopal.
- S.K.Basandra, “Computers Today“, Galgotia Publications.
- Alexis Leon & Mathews Leon, “ Fundamentals of Information technology “, Vikas Publishing House, New Delhi.

## 1PGDCA2- OPERATING SYSTEMS

### UNIT-I

#### DISK OPERATING SYSTEMS (DOS)

Introduction, History & versions of DOS

DOS basics- Physical structure of disk, drive name, FAT, file & directory structure and naming rules, booting process, DOS system files.

DOS commands : Internal - DIR, MD, CD, RD, COPY, DEL, REN, VOL, DATE, TIME, CLS, PATH, TYPE etc.

External - CHKDSK, XCOPY, PRINT, DISKCOPY, DISKCOMP, DOSKEY, TREE, MOVE, LABEL, APPEND, FORMAT, SORT, FDISK, BACKUP, EDIT, MODE, ATTRIB, HELP, SYS etc

Executable V/s Non executable files in DOS.

### UNIT-II

#### WINDOWS XP

- Introduction to Windows XP and its features .
- Hardware requirements of Windows. Windows concepts, Windows Structure, Desktop, Taskbar, Start Menu, My Pictures ,My Music,
- ,working with recycle bin-restoring a deleted file, emptying the recycle bin. Managing files ,folders and disk-navigating between folders ,manipulating files and folders ,creating new folder ,searching files and folders .My computer-exploring hard disk ,coping and moving files and folder from one drive to another, formatting floppy drive.
- Windows Accessories - Calculator, Notepad, Paint, WordPad, Character map,paint,command prompt
- Windows Explorer - -exploring hard disk ,coping and moving files and folder from one drive to another, formatting floppy drive. and other Explorer facilities. burning CD
- Entertainment- CD player, DVD Player, Media Player, Sound Recorder, Volume Control, movie maker

### UNIT-III

#### ADVANCED FEATURES OF WINDOWS XP

- Managing Hardware & Software - Installation of Hardware & Software, Using Scanner web camera, printers sharing of printers
- System Tools - Backup, Character map, Clipboard Viewer, Disk Defragmenter, Drive Space, Scandisk, System Information,

- System Monitor, Drive converter (FAT 32) ,disk cleanup ,using windows update.
- ❑ Communication - Dial up Networking, Direct Cable Connection, Hyper Terminal, Phone Dial ,Browsing the Web with internet explorer ,communication through outlook express
  - ❑ Multiple Users Features of Windows. Creating and deleting user, changing user password,etc
  - ❑ Accessibility Features of Windows.-Sharing Information between Programs ,sharing folders and drives browsing the entire network, mapping windows shared drives, Using shared printers
  - Understanding OLE - Embed/Link Using Cut and Paste a Embed/Link Using Insert Object
  - Manage Embedded/Linked Object

**UNIT - IV***LINUX*

History &amp; Features of Linux

Linux Structure

File system of Linux

Hardware requirements of Linux

Various flavours of Linux

Program &amp; Process

Process creation and process identifiers

Functions of profile and login files in Linux

Linux kernel

**UNIT-V**

Multi-user features of Linux

Login and logout from Linux system

Linux commands - bc, cal, cat, cd, chgrp, chmod, chown, clear, cmp, copy, date, find, ps, kill, ls, mail, mkdir, more, mv, rm, rmdir, tty, wc, who, whois, grep, write, telnet.

Pipeline concepts

Using floppy and cdrom in linux.

vi editor

**TEXT & REFERENCE BOOKS :**

- DOS Quick reference by Rajeev Mathur, Galgotia Publications
- Linux Complete by BPB Publications

- Peter Norton Complete Guide to Linux by Peter Norton, Techmedia Publications
- Level Module M 1.1 Information technology by Khanna Book Publications, NewDelhi
- **Windows XP Complete Reference. BPB Publications**

**1PGDCA3 - PC PACKAGES****NOTE:-**

- 1. Theory and Practical of this course is based on at least Windows XP and MS Office XP Version, newer versions can also be used for performing practical in Lab.**
- 2. Demonstration of StarOffice and OpenOffice must be given in the classroom, comparison can be asked in the theory & practical exam**

**UNIT-I**

**Office Packages**-Office activities and their software requirement, word Processing, spreadsheet, presentation graphics, database, introduction and comparison of various office suites like MS office, Lotus Office, Star Office, Open Office etc.

**MS Word Basics:** Introduction to MS Office; Introduction to MS-Word; Features & area of use. Working with MS Word.; Menus & Commands; Toolbars & Buttons; Shortcut Menus, Wizards & Templates; Creating a New Document; Different Page Views and layouts; Applying various Text Enhancements; Working with – Styles, Text Attributes; Paragraph and Page Formatting; Text Editing using various features ; Bullets, Numbering, Autoformatting, Printing & various print options

**UNIT-II**

**Advanced Features of MS-Word:** Spell Check, Thesaurus, Find & Replace; Headers & Footers ; Inserting – Page Numbers, Pictures, Files, Autotexts, Symbols etc.; Working with Columns, Tabs & Indents; Creation & Working with Tables including conversion to and from text; Margins & Space management in Document; Adding References and Graphics; Mail Merge, Envelops & Mailing Labels.

**UNIT - III**

**MS Excel:** Introduction and area of use; Working with MS Excel.; concepts of Workbook & Worksheets; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting, Removing & Resizing of Columns & Rows; Working with Data &

Ranges; Different Views of Worksheets; Column Freezing, Labels, Hiding, Splitting etc.; Using different features with Data and Text; Use of Formulas, Calculations & Functions; Cell Formatting including Borders & Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

**UNIT - IV**

**MS PowerPoint:** Introduction & area of use; Working with MS PowerPoint; Creating a New Presentation; Working with Presentation; Using Wizards; Slides & its different views; Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists; Adding Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects; Designing & Presentation of a Slide Show; Printing Presentations, Notes, Handouts with print options.

**UNIT-V**

**Outlook express:** Setup email account with outlook, sending and receiving mail through outlook, concepts of CC and BCC, forwarding mail, Draft messages, formatting e-mail message, Concept of MIME Protocol, attaching files and items into messages, inserting hyperlink using outlook editor creating and using send and receive group-emails, opening received messages, opening messages with attachment, replying to mail forwarding messages flagging for further action, setting email options, managing contacts with outlook, Setting up multiple email accounts on single machine.

**Text & Reference Books:**

- ❑ *Windows XP Complete Reference. BPB Publications*
- ❑ *MS Office XP complete BPB publication*
- ❑ *MS Windows XP Home edition complete, BPB Publications*
- ❑ *I.T. Tools and Applications, A. Mansoor, Pragya Publications*

**1PGDCA4[A] - FOXPRO****UNIT-I***FOXPRO - THE RDBMS FOR PC*

FoxPro - Versions, features, requirement of Hardware and Software

FoxPro - Menu System, Working with FoxPro

Creating Database File Some common operations on data- CREATE, LIST,

APPEND, CLOSE, QUIT

FoxPro - Data Types

*VIEWING AND EDITING DATA*

Data Displaying and Monitoring Commands - DISPLAY, LIST, LOCATE, EDIT, CHANGE, BROWSE, REPLACE, DELETE, RECALL, PACK (All Commands with various Options)

*MODIFY STRUCTURE, MEMO FIELD AND FILE UTILITIES -*

File utilities in FoxPro - DISPLAY DIRECTORY, COPY, DELETE, RENAME.

**UNIT-II***SORTING AND INDEXING OF DATABASE FILES*

Sorting & Indexing Concept

Sort Commands - Single & Multiple Key

Advantage & Disadvantages of Sort

Indexing Vs Sorting, Single & Multiple Key

Indexing, FIND, SEEK, Rushmore Technology

*PRINTING REPORTS AND LABELS*

FoxPro Report - its creation, features & Utilities, Preview, Printing Custom Report,

grouping & Subgrouping.

FoxPro Label - Designing & Printing

**UNIT-III***MEMORY VARIABLES, DATE & TIME FUNCTIONS AND KEYBOARD MACROS*

Memory Variables - Creation and Uses, Simple Vs Array

Saving and Restoring Memory Variables,

?/??/??? Commands

Time & Date Functions and Commands, Date Arithmetic

Converting Defining Function Keys

Keyboard Macros - Creating and Using

*MATHEMATICAL COMMANDS AND FUNCTIONS*

Arithmetic Operations, Mathematical Functions, Mathematical Commands, Statistical Functions.

**UNIT - IV***PROGRAMMING WITH FOXPRO*

Concepts of FoxPro commands file, Modify Commands

Conditioning , Branching and Looping within Program files with Do-While Enddo, If - Endif, Scan-Endscan, For - Endfor, Docase-Endcase, Text - Endtext, Executing Commands from other command files, Macro Substitution

*ERROR CONDITIONS AND PROGRAM DEBUGGING AIDS*

Common Error Messages

Debugging techniques and commands

**UNIT-V***MULTIPLE DATA FILES*

Concept of Multiple Database Files - Using multiple database files

Relationing the database - SET RELATION, UPDATE, APPEND FROM, COPY TO, JOIN, Relation Query by Example and SQL

*CUSTOM SCREENS & USER DEFINE FUNCTIONS & OTHER TOOLS*

Create Custom Screen with @, @\_GET, @\_EDIT, \_SAY\_GET\_READ,

Creating Box & Lines, User Define Functions, Custom Screen

Designing and their Use, FoxDoc for documentation

**TEXT & REFERENCE BOOKS :**

Foxpro Made Simple by R.K.Taxali, BPB Publications

Mastering Foxpro 2.5 BPB Publications

Foxpro 2.6 for Dummies - Pustak Mahal

**1PGDCA4[B] -MS ACCESS****UNIT I**

Introduction to database -What is a Database ,Why use a Relational Database, Overview of database design -Data Normalization(Determining tables, Determining Fields, Determining Relationships)Integrity Rules (Primary/Foreign Key, One-to-Many, Many-to-Many, One-to-One) Introduction to MS Access (Objects, Navigation).

**UNIT II**

Create a Table in MS Access -Data Types, Field Properties , Fields: names, types, properties--default values, format, caption, validation rules Data Entry Add record delete record and edit text Sort, find/replace, filter/select, re-arrange columns, freeze columns . Edit a Tables- copy, delete, import, modify table structure find replace.

**UNIT III**

Setting up Relationships- Define relationships, add a relationship, set a rule for Referential Integrity, change the join type, delete a relationship, save relationship  
Queries & Filter –difference between queries and filter ,filter using multiple fields AND,OR ,advance filter Queries create Query with one table ,find record with select query, find duplicate record with query ,find unmatched record with query, run query ,save and change query.

**UNIT IV**

Introduction to Forms Types of Basic Forms: Columnar, Tabular, Datasheet, Main/Subforms, add headers and footers, add fields to form, add text to form use label option button, check box ,combo box, list box Forms Wizard, Create Template.

**UNIT V**

Introduction to Reports ,Types of Basic Reports: Single Column, Tabular Report Groups/Total, single table report multi table report preview report print report, Creating Reports and Labels, Wizard

- *Ms Office XP complete BPB publication ISBN 81-7656-564-4*
- *Ms Access 2002 fast&easy by Faith Wempen PHI .ISBN 81-203-1893-5*

**2PGDCA1–PROGRAMMING WITH VISUAL BASIC.NET****UNIT-I**

Introduction to .NET, .NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies and class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser.

The environment: Editor tab, format tab, general tab, docking tab. visual development & event drive Programming -Methods and events.

**UNIT-II**

The VB.NET Language- Variables -Declaring variables, Data Type of variables, Forcing variables declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control array, Collections, Subroutines, Functions, Passing variable Number of Argument Optional Argument, Returning value from function.

Control flow statements: conditional statement, loop statement. MsgBox & Inputbox.

**UNIT – III**

Working with Forms : Loading, showing and hiding forms, controlling One form within another.

GUI Programming with Windows Form: Textbox, Label, Button, Listbox, Combobox, Checkbox, PictureBox, RadioButton, Panel, scroll bar, Timer, ListView, TreeView, toolbar, StatusBar. There Properties, Methods and events. OpenFileDialog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog. Link Label.

Designing menus : ContextMenu, access & shortcut keys.

**UNIT-IV**

Object oriented Programming: Classes & objects, fields Properties, Methods & Events, constructor, inheritance. Access Specifiers: Public Private, Protected. Overloading, My Base & My class keywords.



Overview of OLE, Accessing the WIN32 API from VB.NET. COM technology, advantages of COM+, COM & .NET, Create User control, register User Control, access com components in .net application.

#### UNIT-V

Database programming with ADO.NET – Overview of ADO, from ADO to ADO.NET, Accessing Data using Server Explorer. Creating Connection, Command, Data Adapter and Data Set with OLEDB and SQLDB. Display Data on data bound controls, display data on data grid.

#### TEXT & REFERENCE BOOKS :

- **VB.NET PROGRAMMING BLACK BOOK BY STEVEN HOLZNER –DREAMTECH PUBLICATIONS**
- **MASTERING VB.NET BY EVANGELOS PETROUTSOS- BPB PUBLICATIONS**
- **INTRODUCTION TO .NET FRAMEWORK-WORX PUBLICATION**
- **MSDN.MICROSOFT.COM/NET/**
- **WWW.GOTDOTNET.COM**

## 2PGDCA2 - INTERNET & E-COMMERCE

### UNIT-I

Internet - Evolution, Protocols, Interface Concepts, Internet Vs Intranet, Growth of Internet, ISP, Connectivity - Dial-up, Leased line, VSAT etc., URLs, Domain names, Portals, Application.

E-MAIL - Concepts, POP and WEB Based E-mail ,merits, address, Basics of Sending & Receiving, E-mail Protocols, Mailing List, Free E-mail services.

INTERNET protocols - Data Transmission Protocols, Client/Server Architecture & its Characteristics, FTP & its usages. Telnet Concept, Remote Logging, Protocols, Terminal Emulation, Message Board, Internet chatting - Voice chat, text chat.

### UNIT-II

World wide web (www) - History, Working, Web Browsers, Its functions, Concept of Search Engines, Searching the Web, HTTP, URLs, Web Servers, Web Protocols.

Web publishing - Concepts, Domain name Registration, Space on Host Server for Web site, HTML, Design tools, HTML editors , Image editors, Issues in Web site creations & Maintenance, FTP software for upload web site.

### UNIT-III

Html - Concepts of Hypertext, Versions of HTML, Elements of HTML syntax, Head & Body Sections, Building HTML documents, Inserting texts, Images, Hyperlinks, Backgrounds and Color controls, Different HTML tags, Table layout and presentation, Use of font size & Attributes, List types and its tags, Use of Frames and Forms in web pages.

Introduction to WYSIWYG Design tools for HTML, Overview of MS FrontPage, Macromedia Dream weaver, and other popular HTML

editors, designing web sites using MS FrontPage (using at least FrontPage 2000)

#### UNIT-IV

Javascript Overview, syntax & conventions.  
Variables, Expressions, Branching & Looping statements, Functions, Arrays  
Objects, Events & Document Object Model – onClick, onMouseOver, onSubmit, onFocus, onChange, onBlur, onLoad, onUnload.  
Alerts, Prompts & Confirms.

#### UNIT - V

E - Commerce An introductions, Concepts, Advantages and disadvantages, Technology in E- Commerce, Internet & E-business, Applications, Feasibility & various constraints. E-transition challenges for Indian corporate.

Electronic Payment Systems: Introduction, Types of Electronic Payment Systems, Digital Token-Based Electronic Payment Systems, Smart Cards and Electronic Payment Systems, Credit Card-Based Electronic Payment Systems, Risk and Electronic Payment Systems.

#### TEXT & REFERENCE BOOKS :

- **Internet and Web Design Made Easier** By A. Mansoor, Pragya Publications, Matura
- **O level Module - M 1.2** - Internet & web page designing by V.K.Jain – BPB Publications.
- **E-Commerce An Indian Perspective (Second Edition)** – by P.T. Joseph, S.J. Presentice-Hall of India
- **Internet for Everyone** - Alexis Leon and Mathews Leon, Vikas Publishing House Pvt. Ltd., New Delhi
- **Internet for Dummies** - Pustak Mahal, new Delhi
- A Beginner's Guide to HTML available at: <http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimerAll.html>
- Introduction to Javascript available at – [www.mcu.ac.in/Javascriptguide.pdf](http://www.mcu.ac.in/Javascriptguide.pdf)

## 2PGDCA3 - SYSTEM ANALYSIS AND DESIGN

### UNIT -I

The System Concept, Characteristics, Elements and Types of a system.

The System Development Life Cycle, Considerations for candidate systems, Prototyping.

The Role of System Analyst

### UNIT-II

System planning and Initial Investigation Information Gathering, information gathering tools.

Structured Analysis, The Tools of Structured Analysis (DFD, Data Dictionary, Decision tree and Pseudo Codes, Decision Tables), pros and cons of each tool.

System performance definition, description of outputs, Feasibility Study Cost/Benefit Analysis : Data Analysis, Cost/Benefit Analysis, The system proposal.

### UNIT-III

The Process and Stages of System Design : Design methodologies, development activities.

Input design, output design, forms design, types of forms, basics of form design, layout considerations and forms control.

### UNIT - IV

File structure, file organization, objectives of database, data structure.

System Testing and Quality Assurance, Why system testing, what do we test for, the test plan quality assurance, trends in testing, role of data processing auditor. Training and Documentation.

### UNIT-V

Implementing and software maintenance, Conversion, combating resistance to change, post implementation review, software maintenance.

Hardware/Software Selection and the Computer Contract, suppliers, procedure for hardware/software selection, financial considerations in selection, the computer contract.

System Security, Disaster Recovery Planning

NOTE :- Various real life case studies and examples in every stages of system analysis and design may be taken.

#### TEXT & REFERENCE BOOKS :

- **System Analysis and Design**, Elias M. Awad, Galgotia Publications (P) Ltd.
- **System Analysis and Design**, International Ed., Perry Edwards, McGraw Hill Publications.
- **Information Technology & Computer Applications**, by V.K.Kapoor, Sultan Chand & Sons, New Delhi.

## 2PGDCA4[A] - OOPS & PROGRAMMING WITH C++

### UNIT -I

#### *PRINCIPLES OF OBJECT-ORIENTED PROGRAMMING*

Object-Oriented Programming Paradigm, Basic Concepts of Object-Oriented Programming, Benefits of OOPs, Object-Oriented Languages, Applications of OOP, C++ Statements, Class, Structure of C++ Program, Creating the Source File, Compiling and Linking.

### UNIT-II

#### *TOKENS, EXPRESSIONS AND CONTROL STRUCTURES*

Introduction, Tokens, Keywords, Identifiers, Basic Data types, User Defined Data Types, Derived Data Types, Symbolic Constants, Type Compatibility, Declaration of Variables, Dynamic Initialisation of Variables, Reference Variables, Operators in C++, Scope Resolution Operator, Member Dereferencing Operators, Manipulators, Type Cast Operator, Expressions and Implicit Conversions, Operator Precedence, Control Structures.

### UNIT-III

#### *CLASSES AND OBJECTS*

Specifying a Class, Defining Member Functions, Making an Outside Function Inline, Nesting of Member Functions, Private Member Function, Arrays within a Class, Memory Allocation for Objects, Static Data Member, Static Member Functions, Arrays of Objects, Object as Function Arguments.

#### *CONSTRUCTORS AND DESTRUCTORS*

Introduction, Constructors, Parameterized Constructors, Multiple Constructors with Default Arguments, Dynamic Initialisation of Objects, Copy Constructors, Dynamic Constructors, Destructor.

#### *FUNCTIONS IN C++*

The Main Function, Function Prototyping, Call by Reference, Return by Reference, Inline Functions, Default Argument, Const. Arguments, Function Overloading, Friend and Virtual Function.

**UNIT - IV***OPERATOR OVERLOADING AND TYPE CONVERSIONS*

Introduction, Defining Operator Overloading, Overloading Unary Operators, Overloading Binary Operators Using Friends, Manipulation of strings using Operators, Rules for Overloading Operators, Type conversions.

**UNIT-V***INHERITANCE : EXTENDING CLASSES*

Introduction, Defining Derived Classes, Single Inheritance, Making a Private Member  
Inheritable, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance.

*POINTERS, VIRTUAL FUNCTIONS AND POLYMORPHISM*

Compile time Polymorphism, run time polymorphism, Pointers to Objects, This Pointer, Pointers to Derived Classes, Virtual Functions, Pure Virtual Functions.

**TEXT & REFERENCE BOOKS :**

- ❑ *Object Oriented Programming with C++ by E.Balaguruswami, TMH Publications ISBN 0-07-462038-x*
- ❑ *Object Oriented Programming in C++ by Nabajyoti Barakati SAMS PHI Pvt. Ltd*

**2PGDCA4[B] – FINANCIAL ACCOUNTING WITH TALLY****UNIT I -**

Basic Concepts of Accounting, Financial Statements, Financial Statement Analysis, Cost Centre, Basic concepts of Inventory

Tally Configuration & INI setup, Data Directory & Folders configuration, Single & Multiple User, Tally Screen Components, Mouse / Keyboard Conventions & Key, Combinations, Switching between screen areas, Quitting Tally.

Maintaining Company Data, Basic Company Details, Create/Alter/Select/Load/Close a Company, Chart of Accounts, Company Features, Configuration.

**UNIT – II**

Create, Alter & Display Groups and Ledgers, All accounting voucher types and transactions, Create and Alter new Voucher type, Item and Account Invoice transactions, Excise Invoice, Export Invoice, Transactions using Bill-wise details

Create, Alter & Display Cost Centre and Cost Categories, Cost centre & Cost Category allocation in voucher entry, Creating Cost centre Class, Invoice entry in a Class situation,

Create, Alter & Delete Foreign Currencies, Voucher entry using foreign currency,

Bank Reconciliation, Interest calculations using simple & advance parameters, Interest calculations on outstanding balances & on invoices, Use of voucher class, adjustment of interest, Creation of voucher class, Invoice entry in a class situation.

**UNIT – III**

Create, Alter & Delete Budgets for groups, ledgers & cost centres, Defining credit limit & credit period, Display Budgets & variances, Create, Alter & Delete a scenario.

Enabling Job Costing in Tally, Master creation & configuration for Job costing, Creation of Voucher type & Voucher class for Stock Transactions, Creation of Transfer journal for transfer of stock between godowns, Consumption journal Transactions, payment voucher, Godown summary Report, Job Work Analysis, Material consumption summary.

Reports like balance sheet, Profit & Loss account, Ratio analysis, Trial Balance.

Accounts books like cash/bank book, All ledgers, Group summary & vouchers, Sales, purchase & journal registers, Cost centre & category summary, Cost centre breakup, ledger & group breakup, outstanding receivables & payables, interest receivable & payable, Statistics, Cash & Fund flow, Day book, List of Accounts, Reversing journals, optional vouchers, post-dated vouchers.

#### **UNIT – IV**

Create, Alter & Display Stock Groups and Stock Items, Stock item behaviour using costing and market valuation method, other behaviour like treating all sales as new manufacture, treating all purchases as consumed, treating all rejections inward as scrap, ignoring negative balances, Treating difference due to physical counting, Create, Alter & Display Stock categories, Create, Alter, Display simple & compound units of measures, Stock items using alternate units, Defining standard cost & selling price, Defining Rate of duty, Defining MRP, Create, Alter & Display Godowns, Allocation of items to the Godowns, All inventory voucher types and transactions, Inventory details in accounting vouchers,

Defining re-order level, Transactions using tracking numbers, Use of batch-wise details in voucher, Additional cost details in vouchers, Creating Bill of material, Cost estimation, Creating Price list & defining Price levels, invoice using Price list, Zero valued entries, Transactions in case of Different actual & billed quantities.

Reports like Stock summary, Inventory books like Stock item, Group summary, Stock transfers, Physical stock register, Movement analysis, Stock group & item analysis, stock category analysis, Ageing analysis, Sales order & Purchase order book, Statement of inventory related to Godowns, categories, stock query, Reorder status, Purchase & Sales order summary, Purchase & Sales bill pending, Exception reports like negative stock & ledger, overdue receivables & payables, memorandum vouchers, optional vouchers, post-dated vouchers, reversing journals.

#### **UNIT – V**

Cheque Printing, Common printing options, Different printing formats, Multi-Account printing, Dynamic- Report specific options.

Creating Group company, Use of Tally vault, Using Security control & defining different security levels, Use of Tally Audit.

Back-up & Restore, Splitting company data, Export & import of Data, ODBC compliance, use of E-mail, Internet publishing, Upload, web browser & online help, Re-write data.

#### **TEXT & REFERENCE BOOKS :**

- Implementing Tally 6.3 by Nadhani; BPB Publications, ISBN: 817656494X
- BPB Tally 6.3 by BPB Editorial Board (Hindi) BPB Publications , ISBN 81-7656-594-6

#### **2PGDCA6-PROJECT WORK**