

# SINGHANIA UNIVERSITY

## Detailed Syllabus PGDCA

### SINGHANIA UNIVERSITY Post Graduate Diploma in Computer Application (PGDCA) SYLLABUS & SCHEME

Subject Code	Subject Name	Year	Scheme			IA	ESE	Total Marks
			L	T	P			
PGDC-101	Fundamental of I.T. & Digital Electronics	Year 1	4			30	70	100
PGDC-102	PC Package	Year 1	3	1		30	70	100
PGDC-103	Accounting with Tally	Year 1	4			30	70	100
PGDC-104	Operating System	Year 1	4			30	70	100
PGDC-105	Internet & Web Page Designing	Year 1	3	1		30	70	100
PGDC-106	Programming in C Language	Year 1	4			30	70	100
PGDC-107	OOP with C++	Year 1	3	1		30	70	100
PGDC-108	System Analysis & Design	Year 1	4			30	70	100
PGDC-109	VB.NET	Year 1	3	1		30	70	100
PGDC-110	LAB: Coreldraw& Photoshop	Year 1			4	0	100	100
PGDC-111	LAB: 102, 103, 104	Year 1			4	0	100	100
PGDC-112	LAB: 106, 107, 108	Year 1			4	0	100	100
PGDC-113	MINOR PROJECT	Year 1	1		3	0	100	100
	<b>TOTAL :</b>		<b>33</b>	<b>4</b>	<b>15</b>			<b>1300</b>

**PGDC-101: Fundamental of I.T. & Digital Electronics**

**UNIT – 1**

**Computer Ovderview :**

Computer Definition, Functionality of Computer, Advantage of Computer, Disadvantage of Computer.

**Computer Applications :**

Business, Banking, Insurance, Marketing, Healthcare, Engineering Design, Military, Communication, Government.

**UNIT – 2**

**Computer Generations :**

Generation & Description, Computer Types: PC, Workstation, Mini Computer, Mainframe & Super Copmputer.

**Computer Components :**

Input Unit, Output Unit, Memory & Storage Unit, Control Unit, Arithmetic logic Unit, Input Device- Keyboard, Mouse, Joystick, Light Pen, Track Ball, Scanner, Digitizer, Microphone, MICR, OCR, BCR, OMR & Output Devices- Monitors, Printers.

**UNIT – 3**

**Computer Memory :**

Cache Memory, Primary Memory, Second Memory, RAM & ROM, Computer Motherboard, Computer Memory Units, Computer Ports- Serial, Parallel, PS/2, USB, VGA, Ethernet Port etc. Computer Hardware.

**Computer Software :**

System Software, Application Software, Relationship between hardware & Software.

**UNIT – 4**

**Number System :**

Decimal Number System, Binary Number System, Octal Number System, Hexadecimal Number System, Decimal to Other Base System, Other Base System to Decimal System, Other Base to Non Decimal System, Shortcut Methods.

**Data Communication, Information & Network:**

What is Information, Data processing Cycle. Data Communication & Network.

**UNIT – 5**

**Computer Networking :**

Characteristics of Computer Network.

**Operating System :**

Objectives of OS, Characteristics of OS.

**Computer Internet & Intranet**

Internet, Similarities of Internet & Intranet, Differences of Internet & Intranet, How to Buy A Computer.

**REFERENCE BOOK**

- 1 *COMPUTER FUNDAMENTAL (PYAGYA PUBLICATION, MATHURA).*
- 2 *COMPUTER FUNDAMENTAL AND ORGANIZATION(B.RAM),NEW AGE INTERNATONAL PUBLISHER LTD.*
- 3 *RAJARAMAN V, "FUNDAMENTALS OF COMPUTERS", PHI*

### PGDC-102: PC PACKAGE

❑ **UNIT-I:**

Introduction to MS-Word, Parts of MS-Word Windows (Title Bar, Menu Bar, Tool Bar, Ruler, Status Area) Creating New Documents, Opening an existing Documents, Find and Replacing, Moving and Copying Text, Page Set-up, Margins and Gutters, Creating a document using Templates and Wizards.

Text Formatting-Changing Fonts and Font size, Make Text Bold, Italic and Under line, Spacing, Centre, Right and Left alignment, Page Breaks, Headers and Footers, Saving Documents.

❑ **UNIT-II:**

Spell Checking, Printing, Creating a table using table Menu-Entering and Editing text, Selecting, Adding and Deleting Rows and Columns, Changing and Shading Template and Wizard, Working with Graphics, Drawing objects, Using frames to position objects, Mail Merge.

❑ **UNIT-III:**

Introduction to MS-Excel, Creating a simple worksheet, Entering data into worksheet, Computations in Worksheets, Printing the Worksheet, Creating Graphs and Charts, What if analysis (Data Sort, Fill, Query, Filter), Copying, Renaming, Moving, Adding and Deleting, Worksheet.

Using Formulas and Functions-Formula, Characteristics of formula, Entering formula, Copying formulas, Types of functions (date, Mathematical, Logical, Statistical ), Function Wizard, Formatting of using Auto format.

❑ **UNIT-IV:**

Introduction to MS-PowerPoint, PowerPoint elements, Templates, Wizards, Views and Color Schemes, Exploring PowerPoint menu, Adding text, Adding title, Adding text area, Resizing text boxes, Adding art, Starting a New Slide, Slide Transition Effects and other Animation Effects, Starting a Slide Show, Saving Presentation, Printing Slide, Display of Slide Show.

❑ **UNIT-V:**

Introduction to Databases, Starting Access 2007 Getting Started Page and Opening a Database, Understanding the Access Program Screen, Understanding the Ribbon, Using the Office Button and Quick Access Toolbar, Creating a New Database, Creating a Table, Modifying a Table, Creating a Query, Sorting a Query,

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#### REFERENCE BOOK

- 1 RAVINDRA SHARMA ( ASIAN PUBLICATION)
- 2 PRYAGYA PUBLICATION ( MATHURA)
- 3 MICROSOFT OFFICE (VISHNU PRIYA SINGH)

### **PGDC-103: ACCOUNTING WITH TALLY**

#### **UNIT-I TALLY FUNDAMENTALS**

Basic Concepts of Accounting, Financial Statements, Financial Statement Analysis, Cost Centre, Basic concepts of Inventory. 2. 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, and Configuration.

#### **UNIT-II BASIC ACCOUNTING:**

Create, Alter & Display Groups and Ledgers, All accounting voucher types, Accounting Voucher transactions, Account Invoice transactions, Excise Invoice, Export Invoice, Transactions using Bill-wise details, 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, Create, Alter & Delete Budgets for groups, ledgers & cost centre, Defining credit limit & credit period, Display Budgets & variances, Create, Alter & Delete a scenario. Journal Transactions, payment voucher, Godown summary.

#### **UNIT - III ACCOUNTING REPORTS AND BOOKS OF ACCOUNTS**

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 INVENTORY ACCOUNTING AND INVENTORY REPORTS**

Create, Alter & Display Stock Groups and Stock Items, All inventory voucher types and transactions Inventory details in accounting vouchers, 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 PRINTING, HOUSEKEEPING AND ADMINISTRATION**

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.

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#### **REFERENCE BOOK**

- 1 *PRYAGYA PUBLICATION (MATHURA)*
- 2 *Computerised Accounting Using Tally. ERP 9*  
*By : Tally Education Private Limited*
- 3 *Computerised Accounting tally ( BY : Vikas Gupta)*

**PGDC-104: OPERATING SYSTEM**

**UNIT – 1**

**Operating System Concepts:**

Feature of OS, Objectives & Characteristics of OS, History , Type of OS, Booting , Cold Reboot, Input/ Output System, Dos & Disks, Important Terms- Dos Prompt, Command, Compiler, FAT, Interface, Logged Disk, Error Massage, Bios, Sectors, Chache, Conventional Memory, Cluster.

**UNIT – 2**

**Internal Commands in MS-DOS:**

Internal Commands- Date, Time, Ver, Vol, Cls, Prompt, Dir, CD, MD, RD, Path, Copy, Copy Con, Del, REN.

**UNIT – 3**

**External Commands in MS-DOS:**

FORMAT, LABEL, CHKDSK, DISKCOPY, UNFORMAT, UNDELETE, SYS, TREE, DELTREE, MOVE, MORE, BACKUP, RESTORE, ATTRIB, XCOPY, MODE, DEFRAG, Batch File.

**UNIT – 4**

**Introduction to Window 7:**

Windows Features- Desktop, Icon, Dialogue Box, Start Menu, Taskbar, Start Up & Shut Down, Manipulating Windows- Maximize, Minimize, Resize, Close, Saving, Deleting File, Create Folder, Help, Setting, Search, Windows Keyboard Shortcuts, Right Click Menu.

**UNIT – 5**

**Linux Operating System :**

What is Linux, Kernal, Shell, File System Hierarchy Standard, Linux Basic Commands- pwd, ls, cd, mkdir, rm, touch, man, cp, mv, locate, echo, cat, vi, sudo, df, du, tar, zip, uname, apt-get, chmod, ping Etc.

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**TEXT & REFERENCE BOOKS:**

- 1 *DOS QUICK REFERENCE BY RAJEEV MATHUR, GALGOTIA PUBLICATIONS LINUX*
- 2 *COMPLETE BY BPB PUBLICATIONS*
- 3 *PETER NORTON COMPLETE GUIDE TO LINUX BY PETER NORTON, TECHMEDIA PUBLICATIONS*
- 4 *LEVEL MODULE M 1.1 INFORMATION TECHNOLOGY BY KHANNA BOOK PUBLICATIONS, NEW DELHI*
- 5 *WINDOWS XP COMPLETE REFERENCE, BPB PUBLICATION*

## PGDC-105: INTERNET AND WEB PAGE DESIGN

### UNIT – 1

#### Overview of Internet :

What is Internet, Internet Evolution, Advantage & Disadvantage of Internet, Extra Net, Reference Models, Layers, TCP/ IP Model, Domain name system Architecture, DNS Working.

### UNIT – 2

#### Internet Services & Protocols :

Communication Services, Web Services, World Wide Web, Video Conferencing, Internet Protocols, TCP, IP, UDP, FTP, HTTP, Email, IMAP, POP, Email Working, E-mail Security.

### UNIT – 3

#### Web Designing Concepts & Hosting :

Wireframe, Web Designing Tools, Web Development Process, Websites Hosting, Types of Hosting, Web sites Security, World Wide Web Evolution & Architecture, Web Browsers, Web Server, Proxy Server, Search Engines, Usenet, Digital Signature, Firewall Security.

### UNIT – 4

#### HTML – Overview :

HTML Document Structure, Basic Tags- Heading Paragraph, Line Break, Center Etc, HTML Elements, HTML Attributes.

### UNIT – 5

#### HTML Formatting :

Type Style, Meta Tags, Comments, Images, Tables, Text Links, HTML Fonts etc.

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#### REFERENCE BOOK

1 PRYAGYA PUBLICATION : MATHURA

## PGDC-106: Programming in C Language

### UNIT - 1

#### Chapter – 1

##### Basic of C Language:

Overview of C, Features of C , My First C Program, Compile and Run C program, C syntax Rules, Keyword and identifier.

#### Chapter – 2

##### Operator and Data type in C:

Operator in C Language: arithmetic, R elational, Logical & Bitwise operator, Data type in C.

### UNIT - 2

#### Chapter – 3

##### Variables in C :

Variable in C,Data type of Variable, Declaring,Defining and Initializing a variable, Difference between Variable and identifier, C input & output, Decision making in C.

#### Chapter – 4

##### Switch Statement & Looping in C :

Switch Statement in C,How to use Loops in C, Types of Loops.

### UNIT - 3

#### Chapter – 5

##### Arrays & Storage Classes :

Arrays in C, Two dimensional Arrays, String & Character Arrays, String Handling Functions, Storage Classes in C, External & Global Variable, Static Variables, Register Vari able.

#### Chapter – 6

##### Functions in C :

Functions in C, Use of Functions,Passin g Arguments to a Functions, Type of user defined Functions, Nesting of Functions, Recursion, Call of Function, Pass Array to a Functio n.

### UNIT - 4

#### Chapter – 7

##### Structures & Unions in C :

Structure, Declaring Structure Variables, Arrays of Structure, Nested Structures, typedef in C, Union in C language.

#### Chapter – 8

##### Pointers in C :

Introductions to Pointers, Concept, Ben efit of Pointers, Declaring & Intializing and using a pointer of Variabl e.

### UNIT - 5

#### Chapter – 9

##### File Input/Output in C :

File Input/Output in C,Creating or Opening a file, Closing a file, Difference between Append & Write Mode.

#### Chapter – 10

##### Dynamic Memory Allocation i n C :

Memory allocation process, Allocating block of Memory, Command Line Argument in C.

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#### REFERENCE BOOK

- 1 *THE COMPLETE REFERENCE WITH C ( HERBERT SCHILDT )*
- 2 *LET US C by YashwantKanetkar*
- 3 *PROGRAMMING IN C ( E. BALAGURUSWAMY )*
- 4 *PRYAGYA PUBLICATION ( MATHURA )*

### PGDC-107: OOPS WITH C++

#### UNIT – 1

##### Introduction to C++ :

Overview of C++, Benefits of C++ Over C, OOPS Features, Basic of C++, Data Types in C++, Modifiers, Operators in C++, Looping, Storage Classes.

#### UNIT – 2

##### Introduction to Classes and Objects :

Classes in C++, Defining Class and Declaring Objects, Accessing Data Member of Class, Types of Member Functions, Default Arguments, Constructors.

#### UNIT – 3

##### Constructor Overloading :

Constructor Overloading, Destructors, Const Keyword, Variables, Pointers, Function Argument and Return Types, Class Data Members, Class Member Function, Objects.

#### UNIT – 4

##### Overview of Inheritance and Polymorphism :

Introduction of Inheritance, Types of Inheritance, Polymorphism, Virtual Function, Abstract Class.

#### UNIT – 5

##### Operator Overloading :

Operator Overloading Instruction, Implementing Operator Overloading, Examples Of Overloading, Exception Handling in C++, Standard Exceptions In C++.

#### TEXT & REFERENCE BOOKS:

- HERBERT SCHILDT, "C++ THE COMPLETE REFERENCE " - TMH PUBLICATION ISBN 0-07-463880-7
- E. BALGURUSWAMY, "C++ ", TMH PUBLICATION ISBN 0-07-462038-X
- M KUMAR "PROGRAMMING IN C++", TMH PUBLICATIONS



**PGDC-108: System Analysis & Design**

**UNIT-1**

**1. SYSTEMS ANALYSIS AND DESIGN – OVERVIEW**

Systems Analysis, Systems Design, What is a System?, Elements of a System, Types of Systems, Systems Models, Categories of Information.

**2. SYSTEM DEVELOPMENT LIFE CYCLE**

Phases of SDLC, Life Cycle of System Analysis and Design, Role of System Analyst, Attributes of a Systems Analyst

**UNIT-2**

**3. SYSTEM PLANNING**

What is Requirements Determination?, Major Activities in requirement Determination, Information Gathering Techniques, Feasibility Study, Steps Involved in Feasibility Analysis, Types of Feasibilities

**4. STRUCTURED ANALYSIS**

What is Structured Analysis?, Structured Analysis Tools, Data Flow Diagrams (DFD) or Bubble Chart, Data Dictionary, Decision Trees, Decision Tables, Structured English, Pseudocode, Guidelines for Selecting Appropriate Tools.

**UNIT-3**

**5. SYSTEM DESIGN**

Inputs to System Design, Outputs for System Design, Types of System Design, File Organization, File Access, Documentation Control, Types of Documentations, User Documentation, System Documentation

**6. DESIGN STRATEGIES**

Top-Down Strategy, Bottom-Up Strategy, Structured Design, Factors Affecting System Complexity

**UNIT-4**

**7. INPUT / OUTPUT & FORMS DESIGN**

Input Design, Output Design, Forms Design

**8. TESTING AND QUALITY ASSURANCE**

Testing, Types of Testing, Rules for System Testing, Quality Assurance

**UNIT-5**

**9. SYSTEM IMPLEMENTATION AND MAINTENANCE**

Training, Training Methods, Conversion, System Maintenance / Enhancement

**10. SYSTEM SECURITY AND AUDIT**

System Audit, Audit of Computer System Usage, Audit Trial, Audit Methods, Audit Considerations, Security, Control Measures, Risk Analysis

**TEXT & REFERENCE BOOKS:**

- *SYSTEM ANALYSIS & DESIGN BY V K JAM, DREAMTECH PRESS*
- *MODERN SYSTEM ANALYSIS & DESIGN BY A HOFFER, F GEORGE, S VALACIAH LOW PRICED EDN. PEARSON EDUCATION.*
- *INFORMATION TECHNOLOGY & COMPUTER APPLICATIONS BY VK.KAPOOR SULTAN CHAND & SONS, NEW DELHI.*

### **PGDC-109: VB.NET**

#### **UNIT-I**

Introduction to .NET, .NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies: types of assemblies, class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Project Explorer, Toolbox, Properties Window, form designer, form layout, immediate window. Event driven Programming - Methods and events related with mouse and keyboard.

#### **UNIT-II**

The VB.NET Language- Console Programming, Declaring variables, Data Types, Scope & lifetime of a variable, Arrays, types of array, control array

Subroutine, Functions, Passing argument to functions, Optional Argument, Returning value from function.

Control flow statements: Decisions and Conditional statement, Loop statement. Exceptions

Working with Forms: Creating Forms, Building User Interface Web Forms, Loading, showing and hiding forms, working with multiple forms, controlling One form within another.

#### **UNIT - III**

GUI Programing with windows form: VB.Net Controls, Text box control, label control, button control, Listbox, Combo box, checked box, Picture box, Radio button, Pannel, scroll bar, Timer control , there Properties, Methods and events, adding controls at runtime.

Dialog Boxes - Common dialog control: File, save, Print, Help.

Designing menus : Creating Menu and Menu Items, access & shortcut keys.

MDI forms : Properties of Parent & child form, working with parent and child menus.

#### **UNIT-IV**

Object oriented Programming: Classes & Namespaces, objects, data members, Properties, Methods, raising and handling Events, constructors. Inheritance, Access Specifiers: Public Private, Protected, overloading, overriding, Creating Interfaces, multiple interfaces, My Base & My Class keywords.

Concept of OLE, The COM technology, Advantages of COM+, COM & .NET, Create User control, register user control, access com component in .net application.

Deployment of .NET application.

#### **UNIT-V**

Accessing Database with ADO.NET (visually): Create connection with sever explorer, Creating data connection using data Connection, Command, Adapter, Dataset and DataReader controls.

Data binding with data grid and basic controls.The Data Form wizard.

Accessing Database using ADO.NET Object model (through code): create Connection object, Command object, DataAdapter object, DataSet object. Add, delete, move & update records to dataset. Executing SQL query, operation on data rows and columns.

#### **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*

### **PGDC-110 LAB : Corel & Photoshop**

#### UNIT - I

D.T.P For Publications: Introductions to Printing, Types of Printing, Offset Printing, Working of offset Printing, Transparent Printout, Negative & Positives for Plate were making, Use of Desk Top Publishing in Publications, Importance of D.T.P in Publication, Advantage of D.T.P in Publication, Mixing of graphics & Image in a single page production, Laser printers - Use, Types, Advantage of lager printer in publication.

#### UNIT - II

Introduction to Tools of CorelDraw, Managing Palettes ,Working with Images, Patterns and Textures, ,Working with Shapes, Colours and Fills ,Image Rasterisation and Editing, Transformation Menu.

#### UNIT - III

CorelDraw Page Setup and Designing, Using Styles and Templates, Working with Text, Formatting Text, Text Attributes. Designing Different Page Layouts, Column Layout, Working with Layers., Special Effect to Objects and Texts, Contour Tool, Layout for News Paper and Magazines. Preparation of Visiting Cards & Invitation Cards, & Logo Design,

#### UNIT - IV

Introduction to Adobe Photoshop & Documents , Various Graphic Files and Extensions Vector Image and Raster Images, Various Colour Modes and Models.

#### UNIT - V

Introduction to Screen and Work Area, Photoshop Tools & Palettes , Use of Layers & Filters Working with Images.

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#### REFERENCE BOOK

- 1 BPB DTP COURSE (SATIS JAIN)
- 2 PRYAGA PBUBLICATION (MATHURA)
- 3 SMART DTP COURSE (SAUMYA RAJAN BEHRA)
- 4 CORELDRAW X4 FOR SIMPLE STEPS