# DR. A P J Abdul Kalam University, Indore

## Diploma in Computer Application

## DCA Syllabus

## Duration: 01 Year (Minimum)

## Credit: 32 Credit

## I Semester

| Paper Code | Paper Title | Internal Marks | External marks | Total marks | Credit |
|---|---|---|---|---|---|
| DCA-01 | Fundamentals of Computer | 25 | 75 | 100 | 04 |
| DCA-02 | Operating System and Application Program | 25 | 75 | 100 | 04 |
| DCA-03 | PC Package | 25 | 75 | 100 | 04 |
| DCA-04 | C Programming | 25 | 75 | 100 | 02 |
| DCA-05 | Practical on Application Program | 25 | 75 | 100 | 02 |
| **Total** | | 125 | 375 | 500 | 16 |

## II Semester

| Paper Code | Paper Title | Internal Marks | External marks | Total marks | Credit |
|---|---|---|---|---|---|
| DCA-201 | DBMS | 25 | 75 | 100 | 04 |
| DCA-202 | Visual Basics (VB) | 25 | 75 | 100 | 04 |
| DCA-203 | Internet and Web Page Designing | 25 | 75 | 100 | 04 |
| DCA-204 | Project Work | 50 | 150 | 200 | 04 |
| **Total** | | 125 | 375 | 500 | 16 |

# First Semester

## DCA-101 Fundamentals of Computer

**UNIT–I**

Brief History of Development of Computers, Computer System Concept, Computer System Characteristics, Capabilities and Limitations, Types of Computers-., Personal Computer (PCs) - IBM PCs, Types of PCs- Desktop, Laptop, Notebook, Palmtop, etc. Basic Components of a Computer System - Control Unit, ALU, Input/ Output semiconductor Memory. Storage Fundamentals - Primary Vs Secondary memory.

**UNIT–II**

**Input Devices: Keyboard**, Mouse, Joystick, Scanners, Digital Camera, MICR,OCR, OMR, , Light pen, Touch Screen. **Output Devices** Monitors - Characteristics and types of monitor, Size, Resolution, Refresh Rate,\ Dot Pitch, Video Standard - VGA, SVGA, XGA etc. Printers - Daisy wheel, Dot Matrix, Inkjet, Laser. Plotter, Sound Card and Speakers.

**UNIT–III**

**Various Storage Devices** - Magnetic Disks, Hard Disk Drives, Floppy, Disks, Optical Disks, Computer Software ,Need, Types of Software's - System software, Application software System Software - Operating System, compiler, Assemblers, Interpreter.

**UNIT–IV**

**Operating Systems** –Functions, Types- Batch, Single, Multiprogramming, Multiprocessing Programming languages- Machine, Assembly, High Level, 4GL, Application Software - Word processing, Spreadsheet, Presentation Graphics, Data Base Management Software, **Number System**, Number System of computers- Binary, Octal, Hexadecimal, their conversion.
Coding System – ASCII, EBCDIC.

**UNIT–V**

Direction of Transmissions Flow-Simplex, Half Duplex Full Duplex, Types of Network - LAN, WAN, MAN etc. Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies.

**Computer Virus:** Virus working principals, Types of viruses, Virus detection and Prevention Viruses on network.

***TEXT & REFERENCE BOOKS :***

1. *COMPUTERS TODAY BY S.K. BASANDRA, GALGOTIA PUBLICATIONS.*
2. *FUNDAMENTALS OF INFORMATION TECHNOLOGY BY ALEXIS LEON & MATHEWS LEON, VIKAS PUBLISHING HOUSE, NEW DELHI.*
3. *DOS QUICK REFERENCE BY RAJEEV MATHUR, GALGOTIA PUBLICATIONS.*

## DCA-102 Operating System and Application Program

**UNIT–I**

**DISK OPERATING SYSTEM (DOS):** Introduction, History & Versions of DOS, DOS Basics -Physical Structure of Disk, Drive Name, FAT, File and Directory Structure and Naming Rules, Booting Process, DOS System Files. DOS Commands: Internal - DIR, MD, CD, RD, COPY, COPY CON, DEL,REN VOL, DATE, TIME, CLS, PATH, TYPE, VER etc. External - CHKDSK, XCOPY, PRINT, DISKCOPY, DOSKEY, TREE, MOVE, LABEL, FORMAT, SORT, FDISK,BACKUP, EDIT, MODE, ATTIRIB, 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, My Documents, 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, Copying and Moving Files and Folder from One Drive to Another, Formatting Floppy Drive, Windows Explorer and its Facilities, Using Floppy, CD, DVD, Pen Drive, Burning CD. Windows Accessories - Calculator, Notepad, Paint, WordPad, Command Prompt. Entertainment- Media Players, 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. System Tools - Backup, Character Map, Clipboard Viewer, Disk Defragmenter, Drive Space, Scandisk, System Information, System Monitor, Disk Cleanup, Using Windows Update. Browsing the Web with Internet Explorer, Multiple User Features of Windows, Creating and Deleting User, Changing User Password, etc. Accessibility Features of Windows - Sharing Folders and Drives, Browsing the Entire Network, Using Shared Printers. OLE - Embed/Link Using Cut and Paste an Embed/ Link, Using Insert Object Manage Embedded/Linked Object.

**UNIT–IV**

**LINUX:** History & Features of Linux, Linux Architecture, File System of Linux, Hardware Requirements of Linux, Various flavors of Linux, Linux Standard Directories, Functions of Profile and Login Files in Linux, Linux Kernel,

**UNIT–V**

**WORKING WITH LINUX:** KDE & Gnome Graphical Interfaces, Various Types of Shell Available in Linux, Multi-User Features of Linux, Login and Logout from Linux System, Linux commands - bc, cal, cat, cd, clear, cmp, cp, mv, date, find, ls, pwd, mkdir, more, rm, rmdir,

chgrp, chmod, chown, tty, wc, who, whois, grep, telnet, vi editor, Using Floppy, CD-ROMand Pen Drive in Linux, Permissions and Ownerships,

***TEXT & REFERENCE BOOKS:***

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

## DCA-103 PC Package

**UNIT–I**

**MS Windows:** Introduction to MS Windows; Features of Windows; Various versions of Windows
& its use; Working with Windows; My Computer & Recycle bin ; Desktop, Icons and Windows Explorer; Screen description & working styles of Windows; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy, delete, moving of files and folders from one drive to another, Shortcuts & Auto starts; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hardware & Software program on your computer.

**UNIT–II**

**Office Packages:** Office activates and their software requirements, 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, Auto formatting, Printing & various print options

**UNIT–III**

**Advanced Features of MS-Word:** Spell Check, Thesaurus, Find & Replace; Headers & Footers,
Inserting - Page Numbers, Pictures, Files, Auto texts, 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.
Importing and exporting to and from various formats.

**UNIT–IV**

**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–V**

**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.

**Outlook Express:** Features and uses, Configuration and using Outlook Express for accessing emails in office.

***TEXT & REFERENCE BOOKS:***

1. *WINDOWS XP COMPLETE REFERENCE. BPB PUBLICATIONS*
2. *MS OFFICE XP COMPLETE BPB PUBLICATION*
3. *MS WINDOWS XP HOME EDITION COMPLETE, BPB PUBLICATION.*
4. *JOE HABRAKEN, MICROSOFT OFFICE 2000, 8 IN 1, BY, PRENTICE HALL OF INDIA*
5. *I.T .TOOLS AND APPLICATIONS, BY A. MANSOOR, PRAGYA PUBLICATIONS, MATURA*

# DCA-104

## C Programming

**UNIT –I**

Algorithm for problem solving: An Introduction, Properties of an algorithm, classification, algorithm logic, flowchart. Program design and implementation issues: programming system design technique, programming technique, basic constructs of structured programming, modular designing of programs Programming Environment: High level programming language, Low level programming language, Middle level programming language, assembler, compiler, interpreter.

**UNIT- II**

What is C : Historical development of C where C stands, Getting Started with C : The C Character set, Types of C Constants , Types of C Variables, C keywords, identifiers literals. C Instructions : Type Declaration Instruction, arithmetic Integer Long Short, Signed unsigned, storage classes, Integer and Float Conversions, type conversion in assignment, hierarchy of operations.

**UNIT – III**

Decision control structure : control instructions in C, if, if-else, use of logical operator, hierarchy of logical operators, arithmetic operators, relational operators, assignment operators, increment and decrement operators, conditional operators, bit wise operators, special operators, "&,*,.,>, "sizeof"
Loops control structure : while loop, for loop, do – while loop, odd loop, nested loop, break , continue, case control structure, go to, exit statement

**UNIT –IV**

Array what are arrays , array initialization, bound checking 1D array, 2D array initialization of 1D and 2D array, memory map of 1D and 2D array, Multidimensional array. Strings: what are strings, standard library string function strlen(), strcpy(), strcat(), strcmp(), 2D array of characters

**UNIT –V**

Structure : Why use structure, declaration of structure, accessing structure elements, how structure elements are stored, array of structure, uses of structure Preprocessor: features of C Preprocessor, macro expansion, micro with arguments,\ file inclusion, conditional, #if, #elif, miscellaneous directives, #include, #define, directives, #undef, #pragma directives.

**TEXT BOOK**

Y. Kanetkar, "Let us C", BPB Publications

**REFERENCE BOOKS**

1. Programming with problem solving thought 'C'. (ELSEVIER)( for UNIT I)
2. "Programming in C", E. Balaguruswamy Tata McGraw Hill
3. "C The Complete Reference", H. Schildt, Tata McGraw Hill
4. First course in programming with 'C', T.Jeyapoovan (VIKAS)
5. The C Programming language by Brian W. Kernighan Dennis M. Ritchie
Prentice Hall
6. Practical C Programming 3rd Edition A Nutshell Handbook O'Relly.
7. Computer Programming and IT (for RTU), by Ashok N Kamthane et. al, Pearson Education, 2011

# DCA-105 Practical on Application Program

List of practical

1. Write a C program to display "Hello Computer" on the screen.
2. Write a C program to display Your Name, Address and City in different lines.
3. Write a C program to find the area of a circle using the formula: Area = PI * r2
4. Write a C program to find the area and volume of sphere. Formulas are: Area = 4*PI*R*R Volume = 4/3*PI*R*R*R.
5. Write a C program to print the multiply value of two accepted numbers.
6. Write a C program to convert centigrade into Fahrenheit. Formula: C= (F-32)/1.8.
7. Write a C program to read in a three digit number produce following output (assuming that the input is 347)
3 hundreds
4 tens
7 units
8. Write a C program to read in two integers and display one as a percentage of the other. Typically your output should look like 20 is 50.00% of 40
assuming that the input numbers where 20 and 40. Display the percentage correct to 2 decimal places.
9. Write a C program to find out whether the character presses through the keyboard is a digit or not (using conditional operator).
10. Write a C program to swap variable values of i and j.
11. To sum n difference number using array.
12. To generates Fibonacci series.
13. Find the sum of series.

i) 1+2+……

ii) 2+4+……

iii) 1+3+……

iv) 1+2/2!+3/3!+……

v) $1+x/1!+x_2/2!+x3/_3!+$……

vi) $1-x/1!+x_2/2!-x3/_3!+$……

14. Find the factorial of given number using for loop
15. Find whether given year is leap or not.
16. Write a C program to find the maximum from given three nos.
17. Write a C program to find that the accepted no is Negative, Positive or Zero.
18. Write a program which reads two integer values. If the first is lesser print the message up. If the second is lesser, print the message down if they are equal, print the message equal if there is an error reading the data, print a message containing the word Error.
19. Write a C program that prints the given three integers in ascending order using if – else.
20. Given as input three integers representing a date as day, month, year, print the number day, month and year for the next day's date.
Typical input: “28 2 1992” Typical output: “Date following 28:02:1992 is 29:02:1992”.
21. Write a C program for calculator designing using switch /case loop?
22. Write a C program to convert decimal to binary.
23. Write a C program to convert decimal to octal.
24. Write a C program to convert decimal to hexadecimal.
25. Write a C program to find the sum of first 100 natural nos.
26. Write a C program to find the sum of first 100 odd nos. and even nos.
27. Write a C program to display first 25 Fibonacci nos.
28. Write a C program to display first 100 prime nos.
29. Write a C program to find factorial of accepted nos.
30. Write a C program to find the sum of digits of accepted no.

31. Write a C program to print the accepted no and its reverse no.
32. Write a C program to print all the Factors of accepted no.
33. Write a C program to find HCF of two given numbers.

# Second Semester

## DCA -201 Data Base Management System

**UNIT-I**
Introduction: purpose of DBMS, view of data, data models: physical model, logical model, conceptual model, hierarchical model, network model. Object oriented model. database language, Database administrator, database user, overall system structure.

**UNIT-II**
Entity relationship model: basic concepts, mapping constraints, keys, E-R diagram, weak, entity features, design of an E-R database schema, reduction of E-R schema to table.

**UNIT-III**
Structured Query Language(SQL):basic structure, set operations, aggregate functions, null values, nested sub queries, data definition language(DDL), data manipulation language(DML), data control language(DCL), transaction control language(TCL),QBE,QUEL.

**UNIT-IV**
Relational database design: pitfalls in relational database design, decomposition, normalization using functional dependencies, normalization using multivalue dependencies, normalization using joined dependencies. Integrity constraints: domain constraints, entity integrity constraints, referential integrity constraints, assertion, triggers, functions, procedures, cursors.

**UNIT-V**
Concept of RDBMS, characteristics of RDBMS, Codd's 12 rules, introduction to oracle tools, security.

**TEXT BOOK**
Database system concepts by A.silberschatz, H.F.Korth, and S.Sudershan 5th Edition
McGraw Hill

**REFERENCE BOOKS**
1. An introduction to database management system by Vipin Desai
2. Modern database system by McfaddenReference :

# DCA -202 Visual Basics (VB)

**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 driven Programming -Methods and events.

**UNIT–II**

The VB.NET Language- Variables -Declaring variables, Data Type of variables, Forcingvariables declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control\ array, Collections, Subroutines, Functions, Passing variable, Number of Argument, OptionalArgument, 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, List box, Combo box, Checkbox, Picture Box, Radio Button, Panel, Scroll bar, Timer, List View, Tree View, Toolbar, Status Bar. Their Properties, Methods and Events. Open File Dialog, Save File Dialog, Font Dialog, Color Dialog, Print Dialog. Link Label. Designing menus : Context Menu, 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.

**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:***

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

# DCA-203 Internet and Web Page Designing

**UNIT–I**
Applications of Internet, History of Internet, WWW, Various Services , World Wide Web (WWW**)** History, Working, Web Browsers, Its function Concept of Search Engines, client server Architecture

**UNIT–II**
**Internet :** Evolution, Protocols, Interface Concepts, Internet Vs Internet, Growth of Internet, ISP, Connectivity - Dial-up, Leased line, VSAT etc., URLs, Domain names, Portals, Applications. **E-Mail :**Concepts , Basics of Sending & Receiving, E-mail, Free E-mail services.

**UNIT–III**
Transfer Protocols, Telnet & Chatting **,** Client/Server Architecture Characteristic, FTP & its usages. Telnet Concept, Remote Logging, Protocols, Internet chatting - Voice chat, text chat.

**UNIT–IV**
Searching the Web, HTTP, URLs, Web Servers, Web Protocols. Web Publishing Concepts, Domain Name Registration, . HTML, Design Tools, HTML Editors , Image Editors .

**UNIT–V**
HTML Concepts of Hypertext, Versions of HTML, Elements of HTML Syntax, Head & Body Sections, Building HTML Documents, Inserting Texts, Images, Hyperlinks, Backgrounds And Colour Controls, Different HTML Tags, Table Layout and Presentation, Use of Font Size & vAttributes, List types and its Tags.

**Text & Reference Book :**
1. *LEVEL MODULE - M 1.2 - INTERNET & WEB PAGE DESIGNING BY V.K.JAIN BPB PUBLICATIONS.*
2. *INTERNET FOR EVERYONE - ALEXIS LEON AND MATHEWS LEON, VIKAS PUBLICATIONS.*
3. *INTERNET FOR DUMMIES - PUSTAK MAHAL, NEW DELHI*
4. *A BEGINNER'S GUIDE TO HTML*
*HTTP://WWW.NCSA.NINE.EDIT/GENERAL/INTERNET/WWW/HTML.PRMTER*

## DCA-204 Project Work

All the students must submit a project with the help of applications given below :

1. C Language

2. Visual Basics and DBMS

3. HTML