SAMPURNANAND SANSKRIT UNIVERSITY, VARANASI
SYLLABUS FOR
POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS PROGRMME (PGDCA)

SEMESTER –I

CODE	SUBJECT NAME	Marks	Credit
1PGDCA1	Fundamentals of Computers and Information Technology	100	3
1PGDCA2	Programming in BASIC and DBMS with FoxPro	100	3
1PGDCA3	MS OFFICE (Word, Excel, Power Point) and INTERNET	100	3
1PGDCA4	LAB PRACTICAL-1	100	4
1PGDCA5	LAB PRACTICAL-2	100	4

SEMESTER –II

CODE	SUBJECT NAME	Marks	Credit
2PGDCA1	OOPS & Programming in C++	100	3
2PGDCA2	Web Designing and .NET	100	3
2PGDCA3	Software Packages* (Tally, iLEAP, PageMaker)	100	3
2PGDCA4	LAB PRACTICAL-1	100	4
2PGDCA5	LAB PRACTICAL-2	100	4
2PGDCA6	Project Work	100	2
2PGDCA7	Seminar	100	1

Elective Course #
EPGDCA1	An Introduction to computer and I.T.	100	2

* Packages may change as per need of IT Sector.

Students of other programme may offer this course but the maximum number of Seat will be Forty (40) and minimum will be Thirty (30).

1PGDCA1 -
   FUNDAMENTAL OF COMPUTERS AND INFORMATION TECHNOLOGY
UNIT -I
• Data and Information
• Brief history of development of computers & Generations of computers
• Computer system concept
• Computer system characteristics
• Capabilities and limitations
• Types of computers-Analog, Digital, Hybrid, General purpose, Special Purpose, Micro, Mini, Mainframe, Super.
• Personal Computer (PCs) – Personal Computer family, Pentium and Newer PCs specifications and their main characteristics.
• Types of PC's- Desktop, Laptop, Notebook, Palmtop etc. their characteristics.
• Computer Organisations and Working
• Basic components & block diagram of computer system-Control unit, ALU, Input/Output and memory their functions and characteristics.
• RAM & ROM -- EPROM, PROM etc.
Input devices
• Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light pen, Touch Screen.
Output devices
• Monitors - Digital, Analog, characteristics - Size, Resolution, Refresh Rate, Interlaced /Non Interlaced, Dot Pitch, Video Standard - VGA, SVGA, XGA etc.
• Printers - Daisy wheel, Dot Matrix, Inkjet, Laser, Line Printer
• Sound Card and Speakers.
Storage devices
• Storage fundamentals - Primary Vs Secondary,
• Data Storage and Retrieval methods - Sequential, Direct and Index Sequential.
• Various Storage Devices - Magnetic Tape, Magnetic Disks, Cartridge Tape, Data Drives, Hard Disk Drives, Floppy Disks, Optical Disks— CD, VCD, CDR, CDRW, DVD, Zip Drive, Pen drive.
• Data representation in computers,
• Number System of computers- Decimal, Binary, Octal, Hexa - Representation & their conversion. Coding System -ASCII, BCD, EBCDIC etc , Boolean Algebra, Logic Gates, Half Adder Full Adder.
UNIT - II
Computer software's
• Need, Types of Software - System software, Application software
• System Software - Operating System, Utility program, Assemblers, Compilers and Interpreter
• Operating Systems -Functions, Types- Batch, Single User, Multi User, Multiprogramming, Multiprocessing.

• Programming languages- Machine, Assembly, High Level, 4GL, their merits and demerits
• Application Software - Word-processing, Spreadsheet, Presentation Graphics, Data Base Management Software – their characteristics, uses, examples and area of applications of each of them.
• Computer virus
• Virus working principals,
• Types of viruses,
• Virus detection and prevention
• Viruses on network.

UNIT-III

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 & External
• Executable V/s Non executable files in DOS.
Windows 95/98/ XP
• Hardware requirements of Windows. Windows concepts, features, Windows Structure, Desktop, Taskbar, Start Menu, My Computer, Recycle Bin
• Windows Accessories -Calculator, Notepad, Paint, WordPad, Character map, etc
• Windows Explorer - Creating folders and other Explorer facilities.
• Entertainment- CD player, DVD Player, Media Player, Sound Recorder, Volume Control.
Advanced Features of Windows
• Managing Hardware & Software -Installation of Hardware & Software, Using Scanner
• System Tools -Backup, Character map, Clipboard Viewer, Disk Defragmenter, Drive Space, Scandisk, System Information, System Monitor,
• Phone Dialer
• Multiple Users Features of Windows.
• Accessibility Features of Windows.
• Embed/Link Using Cut and Paste, Embed/Link Using Insert Object, Manage Embedded/Linked Object
Networks
• Modem -Working and characteristics
• Types of Connections - Dialup, Leased Lines, ISDN, Broadband .

1PGDCA2

Programming in BASIC and DBMS with FoxPro

UNIT-I

• Introduction of Basic.
• Problem Solving Technique with Algorithm and Flowcharts.
• Variable and Constant, Types of Variable and Constant.
• Commands and Statement.
• Functions, Types of Functions.
• Logical Statements/Conditional Statements, Operators, expressions.
• Jumping, Branching and Looping.
• Functions and subroutine.
• Array- Elements and value.
• File Management (Sequential and Random Files)
• Data Input/Output
• Graphics in Basic.

UNIT-II

• 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
• 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.
• Sorting & Indexing Concept
• Sort Commands -Single & Multiple Key
• Advantage & Disadvantages of Sort
• Indexing Vs Sorting, Single & Multiple Key
• Indexing, FIND, SEEK,
• Printing reports and labels
• FoxPro Report - its creation, features & Utilities, Preview, Printing Custom Report, grouping & Sub grouping.
• FoxPro Label - Designing & Printing
• Memory Variables - Creation and Uses, Simple Vs Array
• Saving and Restoring Memory Variables,
• ?/??/??? Commands
• Time & Date Functions and Commands, Date Arithmetic
• Mathematical commands and functions
• Arithmetic Operations, Mathematical Functions, Mathematical Commands, Statistical Functions.

UNIT -III

• Concepts of FoxPro commands file, Modify Commands
• Conditioning , Branching and Looping within Program 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.

1PGDCA3 -
MS OFFICE (Word, Excel, Power Point) and INTERNET
UNIT-I
Word processing : MS Word

• Introduction to Word Processing
• Introduction to MS Word : features, Creating, Saving and Opening documents in Word, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut
• Editing a Document - Moving, Scrolling in a document, Opening Multi document windows, Editing Text-Selecting, Inserting, deleting, moving text,
• Previewing documents, Printing documents - Print a document from the standard toolbar, Print a document from the menu, Shrinking a document to fit a page, Reduce the number of pages by one,
• Formatting Documents : Paragraph formats, Aligning Text and Paragraph, Borders and shading, headers and footers, multiple columns

UNIT-II
Advanced Features of MS Word :

• Find and Replace, Checking the grammar and spelling, Formatting via find and replace
• Using the Thesaurus, Using Auto Correct, Auto Complete and Auto Text, word count
• Hyphenating, Mail merge, mailing labels Wizards and Templates, Handling Graphics, tables and charts, Converting a word document into various formats like - Text, Rich Text Format, WordPerfect, HTML etc.

UNIT-III
Worksheet : MS Excel

• Worksheet basics
•   Creating worksheet, entering data into worksheet, heading information, data, text, dates, alphanumeric, values, saving & quitting worksheet.
• Opening and moving around in an existing worksheet.
•Toolbars and Menus, keyboard shortcuts
• Working with single and multiple workbook - coping, renaming, moving, adding and deleting, coping entries and moving between workbooks.

UNIT -IV
Working with formulas & cell referencing

• Autosum
• Coping formulas
• Absolute & Relative addressing
• Working with ranges - creating, editing and selecting ranges
• Formatting of worksheet- Auto format, changing - alignment, character styles, column width, date format, borders & colours, currency sign.
• Previewing & Printing worksheet - Page setting, Print titles, Adjusting margins, Page break, headers and footers.
• Graphs and charts- using wizards, various charts type, formatting grid lines & legends, previewing & printing charts
• Database - creation, sorting, query & filtering a database
• Functions -Database, Date and Time, Maths & Trigonometry, Statistical, Text and Logical functions, Multiple worksheets- concepts, Creating and Using.

UNIT-V
Presentation Graphics : MS Power Point

• Features and various versions
• Creating presentation using Slide master and templates in various colour scheme
• Working with different views and menus of power point
• Working with slides - Make new slide, move, copy, delete, duplicate, lay outing of slide, zoom in or out of a slide.
• Editing and formatting text: Alignment, editing, inserting, deleting, selecting, formatting of text, find and replace text, bullets, footer, paragraph formatting, spell checking.
• Printing presentation -Print slides, notes, handouts and outlines
• Inserting Objects -Drawing and inserting objects using ClipArt's, pictures and charts.
• Slide sorter, slide transition effects and other animation effects
• Presenting the show- making stand alone presentation, Pack and go wizards.

UNIT-VI
Internet

• 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. Massage Board, Internet chatting - Voice chat, text chat.
• INTERNET protocols-Data Transmission Protocols, Client/Server Architecture & its Characteristics, FTP & its usages. Telnet Concept, Remote Logging, Protocols, Terminal Emulation,
• Word wide web (www)-History, Working, Web Browsers, Its functions, Concept of Search Engines, Searching the Web.

2PGDCA1 -
OOPS AND PROGRAMMING IN C++

UNIT - I
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
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
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, Constructing Two- Dimensional Arrays, 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 class -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.

2PGDCA2
Web Designing Using .Net Framework
Unit-I

Word 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-II

• 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

Unit –III

Object Oriented Concepts
 Object, Class, Features of OOPS, Data types, Identifiers , Constants, Variables, Writing, Compiling and Executing small C++ program.

Unit –IV

The .NET Framework:
 Introduction, Common Language Run Time (CLR), Common Type System (CTS), Base Class Library (BCL) , Intermediate Language, Just in Time compilation

Unit –V

Web Application Using C#
 C# Introduction , Data types, variables , constants, identifiers, Writing, Compiling and Executing C# program, Creating Windows Forms and Applications using C#.

2PGDCA3
Software Packages (Tally, PageMaker, iLEAP)
Unit-I (Tally)

Introduction of Accounting
• Definition, Concept, Merits and demerits.
Type of Accounting
• Rules of Journal, Creation of Ledger and Trial balance.
The main Menu.
• Creation of Company, Opening, Backup and Restores.
Account Information.
• Ledger, Groups, Cost centres and budgets.
Display of Accounting Information.
• Editing and Modification of entries, Preparation of balance-Sheet and Reconciliation of Accounts   from Balance Sheet.

Unit-II (PageMaker)

Introduction to PageMaker
• Introduction to Pagemaker : features, Creating, Saving and Opening documents, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut
• Editing a Document - Moving, Scrolling in a document, Opening Multi document windows, Editing Text-Selecting, Inserting, deleting, moving text,
• Previewing documents, Printing documents - Print a document from the standard toolbar, Print a document from the menu, Shrinking a document to fit a page, Reduce the number of pages by one,
• Formatting Documents : Paragraph formats, Aligning Text and Paragraph, Borders and shading, headers and footers, multiple columns spell-checking, on-screen keyboard, sending emails, viewing and printing of documents, importing of ISCII data files, creation of multilingual HTML pages, menus.

Page Makers menu and its components

• File • Edit • Utilities • Layout • Type • Element • Window • Help

Unit-III (iLEAP)

Introduction to iLeap
• Introduction to iLeap : features, Creating, Saving and Opening multilingual documents, in iLeap, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut
• Editing a Document - Moving, Scrolling in a document, Opening Multi document windows, Editing Text-Selecting, Inserting, deleting, moving text,
• Previewing documents, Printing documents - Print a document from the standard toolbar, Print a document from the menu, Shrinking a document to fit a page, Reduce the number of pages by one,
• Formatting Documents : Paragraph formats, Aligning Text and Paragraph, Borders and shading, headers and footers, multiple columns spell-checking, on-screen keyboard, sending emails, viewing and printing of documents, importing of ISCII data files, creation of multilingual HTML pages, menus.

(Elective Course)
An Introduction to computer and I.T.
Unit- I

Basics of computer
• History of development of computers, Types of PC's- Desktop, Laptop, Notebook, Palmtop etc. their characteristics.
• Computer Organizations and Working.
• Basic components & block diagram of computer system- Control unit, ALU, Input/Output and memory their functions and characteristics.
System Software - Operating System, Utility program, Assemblers, Compilers and Interpreter
• Operating Systems -Functions, Types- Batch, Single User, Multi User, Multiprogramming, Multiprocessing.
• Computer virus
• Virus detection and prevention
• RAM & ROM -- EPROM, PROM etc.
Input devices
• Keyboard, Mouse,
• Output devices
• Monitors - types - Digital, Analog, characteristics
• Printers - Dot Matrix, Inkjet, Laser, Line Printer
Storage devices
• Storage fundamentals - Primary Vs Secondary,
• Various Storage Devices - Magnetic Tape, Magnetic Disks, Cartridge Tape, Data Drives, Hard Disk Drives, Floppy Disks, Optical Disks— CD, VCD, CDR, CDRW, DVD, Zip Drive, Pen drive.
• 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 & External.

UNIT-II
Word processing : MS Word

• Introduction to Word Processing
• Introduction to MS Word : features, Creating, Saving and Opening documents in Word, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut
• Editing a Document - Moving, Scrolling in a document, Opening Multi document windows, Editing Text-Selecting, Inserting, deleting, moving text,
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• Formatting Documents : Paragraph formats, Aligning Text and Paragraph, Borders and shading, headers and footers, multiple columns
• Find and Replace, Checking the grammar and spelling, Formatting via find and replace
• Using the Thesaurus, Using Auto Correct, Auto Complete and Auto Text, word count
• Hyphenating, Mail merge, mailing labels Wizards and Templates, Handling Graphics, tables and charts, Converting a word document into various formats like - Text, Rich Text Format, WordPerfect, HTML etc.

UNIT-III
Internet

• 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. Massage Board, Internet chatting - Voice chat, text chat.
• INTERNET protocols-Data Transmission Protocols, Client/Server Architecture & its Characteristics, FTP & its usages. Telnet Concept, Remote Logging, Protocols, Terminal Emulation,
• Word wide web (www)-History, Working, Web Browsers, Its functions, Concept of Search Engines, Searching the Web.

Evaluation Rules of Programme:

1. For passing the examination minimum 40% marks must be scored in each passing head individually.
2. For passing the overall aggregate marks must be at least 50% in theory & practical separately.
3. For the purpose of award of merit or division only the marks obtained in all semester together shall be considered.
4. Grading System
5. Division
6. Attendance
7. Discipline
8. Eligibility Criteria for Admission
9. Admission Procedure
10. No. Of Seats
11. Programme Timing
12. Programme Incharge
13. Academic Convener
14. Administrative Convener
15. Expert Committee
16. List of Faculty
17. Lab