

Center for Information and Language Engineering (CILE)

Post Graduate Diploma in Computer Application (PGDCA)

Semester I

PGDCA 01 Fundamentals of Computers - 4 credits

PGDCA 02 Introduction to Operating Systems -4 credits

PGDCA 3 PC Packages- 4 credits

PGDCA 04 C Programming- 4 Credits

Semester II

PGDCA 05 System Analysis and Design-4 credit

PGDCA 06 Object Oriented programming-4 credit

PGDCA 07 Database Programming-4 credit

PGDCA 08 Internet and Web Page Designing -4 credit

PGDCA 09 Project -4 credit

PGDCA 10 Viva -4 credit

**PGDCA 01 Fundamentals of Computers
credits**

4

UNIT-I

Brief History of Development of Computers, Computer System Concepts, Computer System Characteristics, Capabilities And Limitations, Types of Computers, 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, Barcode 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

UNIT III

Printers And Its Types -Dot Matrix, Inkjet, Laser, Plotter, Sound Card And Speakers, Storage Fundamentals - Primary Vs Secondary Data Storage And Retrieval Methods - Sequential, Direct And Index Sequential, Various Storage Devices - Magnetic Tape, Magnetic Disks, Hard Disk Drives, Floppy Disks ,Optical Disks, Flash Drives Video Disk, MMC Memory Cards, Physical Structure of Floppy & Hard Disk, Drive Naming Conventions In PC.

UNIT IV

Use of Communication and IT, Communication Process, Communication Types- Simplex, Half Duplex, Full Duplex, Serial And Parallel Communication, Types Of Network - LAN, WAN, MAN ,Internet, Topologies of LAN - Ring, Bus, Star, Mesh And Tree Topologies, Components of LAN -Media, , World Wide Web and Applications and Internet Services.

Text and Reference Books

Sinha, P.K.(2007). Computer Fundamentals. New Delhi: BPB Publications.

Mukhi, Vijay (2008).Working with UNIX. New Delhi: BPB Publications.

Rajaraman, V. (2014). Fundamental of Computer. New Delhi: Prentice Hall India Pvt. Limited.

PGDCA 02 Introduction to Operating Systems credits

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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, 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, 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.

Text and Reference Books

DOS Quick Reference By Rajeev Mathur, Galgotia Publications

Linux Complete by BPB Publications

Peter Norton: Complete Guide to Linux Tech Media Publication

Windows XP Complete Reference, BPB Publication

PGDCA 3 PC Packages credits

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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 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. Importing and exporting to and from various formats.

UNIT III

MS Excel: Introduction and area of use, Working with MS Excel, Toolbars, Menus and Keyboard Shortcuts, 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, Cell Formatting including Borders & Shading,

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.

Text and Reference books

Windows XP complete Reference, BPB Publication

MS OFFICE XP Complete BPB Publication

MS WINDOWS XP Home Edition Compete, BPB Publication.

PGDCA 04 C Programming

4 credits

UNIT I

History of C, where C stands C character set, tokens, constants, variables, keywords, identifiers, C operators- arithmetic, logical, assignment, relational, increment and,decrement, conditional, bit wise, special, operator precedence, C expressions data types. Problem solving techniques : flowchart and algorithm, Formatted input, formatted output instructions.

UNIT II

Decision making and branching if-statement – if, if-else, else-if ladder, nested if else, switch case statement, break statement, Decision making and looping - while, do, do- while statement, for loop, continue statement.

UNIT III

Arrays Declaration and initialization of one dimensional, two Dimensional and character arrays, accessing array elements. Declaration and initialization of string variables, string handling functions from standard library – strlen(), strcpy(), strcat(), strcmp().

UNIT IV

Functions: Need of functions, scope and lifetime of variables, defining functions, function call, call by value, call by reference, return values, storage classes. Category of function: No argument No return value, No argument with return value, argument with return value, recursion, command line arguments, Structures: Defining structure, declaring and accessing structure members, initialization of structure, arrays of structure.

Text and Reference books

Programming in C Paperback – 2011 by J.B. Dixit

Programming in ANSI C by Balagurusamy

PGDCA 05 System Analysis and Design credits

4

UNIT I

System Concept: Definition, Characteristics, Elements of system, Physical and abstract system, open and closed system, ,System Development Life Cycle: Various phases of system development, Considerations for system planning and control for system success. System Planning.

UNIT II

Initial Investigation: Determining Users Requirements and Analysis, Fact Finding Process and Techniques. Feasibility Study: Determination of Feasibility Study, Technical, Operational & Economic Feasibilities, Data Analysis, Cost and Benefit Analysis.

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UNIT IV

User Manual, Programming Manual, Programming Specifications, Operator Manual. System Testing & Quality: System Testing and Quality Assurance, Software Maintenance. System Security: Data Security, Disaster/ Recovery Threat and Risk Analysis. 8 8 UNIT-V Organization of EDP: Introduction. Job Responsibilities & duties of EDP Personnel's- EDP manager, System Analyst, Programmers, Operators etc. Essential features in EDP.

PGDCA 06 Object Oriented programming

4 credits

UNIT-I

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

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.

UNIT-IV

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. Operator Overloading - introduction, methods, binary versus unary operators Inheritance: Extending Classes Introduction, Defining Derived Classes, Single Inheritance, Making a Private Member Inheritable, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance.

PGDCA 07 Database Programming

4 credits

Unit-I

SQL Basic A Brief History of SQL, RDBMS, Creating Database, Table, adding record, T-SQL, Constants, • Expression, T-SQL variable, T-SQL Function, String, Math function, aggregate function, Date Time function, conversion function, T-SQL – flow control – if ...else, case, while, Go To and return.

Unit –II

SQL Command DDL Command, DCL command, MDL command, TCL command, Select, having, group by join.

Unit–III

RDBMS/DBMS Package Introduction to My SQL, Installation, PhP My Admin, Introduction to MS – SQL server, SQL server management, Studio.

Unit – IV

Data Integrity Database and Table integrity, Entity integrity, Referential integrity, Transaction integrity, Default, Value, Check, constraints, foreign key, Primary key, Triggers, Altering Triggers, Dropping Trigger.

Text Book

Bayross, Ivan. Mastering Database Technologies. New Delhi : BPB Publications.

Silberschatz, A. , Korth, H. F. & Sudarshan, S.(2006). Database System Concepts., New Delhi : McGraw Hill.

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, Basic of Sending & Receiving, E-mail Protocols, Mailing List, and Free E-mail services, FTP.

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.

Unit – III

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

Unit – IV

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 & Attributes, List types and its tags.

Text Books

Pawel, Thomas A(2010). HTML Complete Reference. New Delhi: Tata McGraw Hill.

Web & Graphics .New Delhi: B.P.B Publisher.

Singh, Minakshi & Singh, VishnuPriya. Web Designing Course. Delhi : Asian Publisher.