

Post Graduate Diploma in Computer Applications (PGDCA) Regular

Syllabus & Scheme of Examination – 1 Year (2 Semesters)

w.e.f. 2015-16

Semester – 1 (w.e.f 2015-16)					
Paper Code	Title of Paper	Max Marks		Pass Marks	Exam Duration
		External	Internal		
	Information Technology Trends	80	20		3 Hrs
	Programming Principles & Algorithm through C	80	20		3 Hrs
	GNU Linux Operating System	80	20		3 Hrs
	Lab - Office Automation Tool (On GNU Linux)	80	20		3 Hrs
	Lab - Accounting through Tally	80	20		3 Hrs
	Lab - C	80	20		3 Hrs
	Lab – Communication Skill -1	80	20		3 Hrs
Semester –2					
	PHP Programming	80	20		3 Hrs
	OOPS using Java	80	20		3 Hrs
	Lab - InkScape and Gimp	80	20		3 Hrs
	Lab –Php & MySQL	80	20		3 Hrs
	Lab – Communication Skill-2	80	20		3 Hrs
	Project Work	160	40		3 Hrs

INFORMATION TECHNOLOGY TRENDS	
UNIT I	Introduction to computer- brief history of development / generation of computers, digital computer system concept, computer system characteristics, capabilities and limitations. Types of computers – analog, digital, hybrid, general, special purpose, micro, mini, mainframe, super. Personal computer (PCs) – configuration of a standard PC, types of PCs – desktop, laptop, notebook, palmtop, workstations etc. – their characteristics.
UNIT II	Data, need of data processing, information and its need, levels of information, quality of information. Comparison of manual and electronic storage of data, organization of data as file, use of information in data processing systems, various data processing methods.
UNIT III	Need and types of software – system software, application software, packages and firmware. Open Source Concepts: Open source software, freeware, shareware, proprietary software. Types of computer languages - machine, assembly, high level, IVGL and object oriented language with merits/demerits and their features. Translators - assembler, compiler, interpreter and their comparison. History and introduction of operating system (Windows and Unix), booting process, file and directory structure.
UNIT IV	Introduction to ports – serial, parallel and USB, Memory Management – concepts of primary/main memory and secondary memory and various storage devices - floppy disk, hard disk, compact disk, DVD, pen drives/thumb drives. Number system - binary, octal, decimal, hexadecimal and their inter conversion.
UNIT V	Principals of data communication and networking - general features and tasks of a communication system, Concept of LAN, MAN and WAN with their advantages and disadvantages. Connecting devices – repeater, switch, router, bridge. Introduction to ecommerce, advantages and growth. Types of viruses and worms, virus detection and prevention, viruses on network, firewalls.

Suggested readings:

- Computer Fundamentals, P K Sinha, BPB Publications.
- IT Tools and Business Systems (DOEACC 'O' Level), Satish Jain, BPB Publications
- Computer fundamentals and information technology, Ramesh Bangia, Firewall Media

PROGRAMMING PRINCIPLES & ALGORITHM THROUGH C	
UNIT I	Concept of programming, algorithms and flowcharts, data types, structure of C program, constants and variables, arithmetic operators, library functions, expressions, input/output statements, compound statements and blocks.
UNIT II	Operators - relational, logical, bit wise, unary, hierarchy of operators. Control statements - if-else, nested if, switch case, goto and labels, looping statements - while, do-while and for, nested loops, break and continue.
UNIT III	Introduction of arrays - one-dimensional and multidimensional arrays, structures – simple and compound, unions, processing a structure. Pointers – declaration, increment and decrement operation, pointer to array, array of pointers, pointers to structures.
UNIT IV	Functions - defining and accessing a function, function arguments, call by value, call by reference, calling functions with arrays, external, state and register variables, scope of variables, local and global variables, type conversion, block structure, recursion.
UNIT V	Introduction of strings, library functions of strings - strlen, strcpy, strcat, strcmp. File handling – file input/output statements, creating, reading, writing and modifying files.

Suggested readings:

- The Complete Reference C, Herbert Schildt, TMH
- Let Us C, Yashavant P. Kanetkar , BPB Publications
- Programming in ANSI C, Balaguruswamy, Mc Graw Hill
- The C Programming language, Ritchie & Kernighan, PHI

GNU LINUX OPERATING SYSTEM	
UNIT I	Introduction to the Concept of Open Source Software, GNU Linux Overview, History of GNU Linux, GNU Linux distributions, architecture, GNU Linux file system (inode, Super block, Mounting and Unmounting) , Kernel , Introduction to GNU Linux Processes and System calls .
UNIT II	Introduction to Shell, Various shells, shell customization, vi editor, GNU Linux files and the file structure, listing, displaying and printing files, managing directories, File and Directory operations, Essential GNU Linux commands, Internal and External commands, Archiving and compressing files.
UNIT III	I/O redirection and Piping, Simple filter commands – grep, head, tail, cut, paste, sort, uniq. Processes : background process, premature termination of process, process priorities, process scheduling, nohup command. Compiling C Programs in GNU Linux Environment
UNIT IV	Shell programming: Interactive scripts. shell variables, assigning values to variables, positional parameters, command line arguments, arithmetic in shell script, exit status of a command. sleep and wait, script termination, Taking decisions, Loop Control Structure, Shell Metacharacters, Shell Miscellany
UNIT V	File Ownerships and access permissions, changing permissions and ownerships, User and its Home directory, Booting and Shutting down, Boot Loaders, LILO, GRUB, Bootstrapping, init Process, System services, init and run levels

Suggested readings

- Richard Mathews, GNU Linux the Complete Reference, (TMH).
- Yashwant Kanetkar, Unix shell programming,(BPB).
- Sumintabha Das ,Unix Systems V 4 Concepts & Applications .
- Maurice J.Bach, Design of the Unix Operating System ,(Pearson Education).

	LAB – OFFICE AUTOMATION TOOL (ON GNU LINUX)
	<p>Getting Started – What is Libre Office, Writer (Word Processor), Calc (Spreadsheet), Impress (Presentation), Draw (Vector Graphics), Base (Data Base), Math (Formula Editor)</p> <p>What is Writer, Changing Docs View, Saving a doc, Password Protection, Closing Doc, Choosing option for loading and saving documents, working with text, selecting text, cutting copying, pasting text, formatting text & Paragraph, Auto text Checking Spell Grammar, formatting Pages, Printing, Exporting, Faxing and Emailing, Styles, Working with Graphics, Working with Tables, Templates, Using Mail Merge, TOC’s, Indexes, Creating Master Doc</p>
	<p>What is Calc, Spreadsheets, Sheets, Cells, Working with Sheets, Entering, Editing and formatting data, Creating charts and Graphs, Using Styles and templates in calc, Using Graphics in Calc, Printing, Exporting and Emailing, Using Formulas and Functions, Using Pivot Table, using Goal Seek, Linking Calc Data, Sharing and Reviewing Docs etc</p>
	<p>What is Impress, Creating new Presentation, running slide Show, Using Slide Master, Styles and templates, Adding and Formatting Text, Adding & Formatting Pictures, Managing Graphic objects, Formatting Graphic Objects, including Spreadsheet, Charts and other objects, Adding and Formatting Slides, Slide Shows, Printing, Emailing, Exporting,</p>
	<p>Introducing Draw, Drawing Basic Shapes, Working with Objects and object Points, Changing object Attributes, Combining multiple objects, Editing Pictures, Working with 3D Objects Connections, Flowcharts and organizational charts, Adding and formatting text, Printing, Exporting and Emailing</p>
	<p>Introduction to Base, Creating a Database, Tables, Forms, Queries, Reports, Linking to Database, Database Task, Database Maintenance</p>

	LAB – ACCOUNTING THROUGH TALLY
	Basics of Accounting- Types of Accounts, Golden Rules of Accounting, Accounting Principles, Concepts and Conventions, Double Entry System of Book Keeping , Mode of Accounting, Financial Statements, Transactions, Recording Transactions
	Fundamental of Tally ERP- Getting Functional with Tally ERP , Creation / Setting up of company in Tally ERP, Features, Configuration, Setting up Accounts Head
	Inventory in Tally ERP – Stock Group, Stock Categories, Units of Measure, Stock Items, Creating Inventory Masters,
	Accounting Vouchers, Inventory Vouchers, Invoicing, Bill Wise Details.
	Cost Centers, Cost Categories, Voucher Class and Cost Center Bank Reconciliation etc

- Lab C --- Practical of C Language As per Theory Paper

	LAB - COMMUNICATION SKILL -1
UNIT I	Understanding – Comprehensive Passage, Summary Writing, Notes Making
UNIT II	Grammar – Editing – Omitting Type Questions, Tense, Modals, Conditional Sentences, Preposition determines - Interchanging of Sentences, Positive, Negative, Interrogative, Active-Passive, Voice, Direct-Indirect Speech, simple complex and Compound Statement - Pronunciation – Phoneme, Morpheme, Syllabus, Stress, Intonation
UNIT III	Reading – Any 10 Prose lesson, Any 10 verse lessons
UNIT IV	Writing (Composition)- Diary Entry, Letter Writing, Application Writing, Report and Article Writing, Invitation, Notice, Advertisement, Emails drafting etc
UNIT V	Unison, Group Discussion, Presentation, Body Language

Semester - 2

	PHP PROGRAMMING
UNIT I	Introduction to PHP – Evaluation of Php, Basic Syntax, Defining Variable and Constant, Php Data Types, Operators & Expression Handling HTML form with Php –Capturing form data, Dealing with Multiple Value field, Generating File uploaded form , Redirecting a form after submission
UNIT II	Decisions and loop - Making Decisions, Doing Repetitive task with looping , Mixing Decisions and looping with Html Functions -What is a function, Define a function, Call by value and Call by reference, Recursive function String - Creating and accessing String ,Searching & Replacing String, Formatting String, String Related Library function Array - Anatomy of an Array, Creating index based and Associative array, Accessing array Element, Looping with Index based array, Looping with associative array using each() and foreach(), Some useful Library function
UNIT III	Working with file and Directories -Understanding file& directory, Opening and closing a file, Coping ,renaming and deleting a file, Working with directories, Building a text editor, File Uploading & Downloading State Management - Using query string(URL rewriting), Using Hidden field, Using cookies, Using session String Matching with Regular Expression - What is regular expression, Pattern matching in Php, Replacing text, Splitting a string with a Regular Expression
UNIT IV	Generating Image with Php - Basics of computer Graphics, Creating Image, Manipulating Image, Using text in Image Data Base Connectivity with MySQL - Introduction to RDBMS, Connection with MySql Database, Performing basic database operation(DML) (Insert, Delete, Update, Select), Setting query parameter, Executing query, Join (Cross joins, Inner joins, Outer Joins, Self joins.)
UNIT V	Introduction to OOPS -Introduction –Objects, Declaring a class, The new keyword and constructor, Destructor, Access method and properties using \$this variable, Public ,private, protected properties and methods, Static properties and method, Class constant, Inheritance & code reusability, Polymorphism, Parent:: & self:: keyword, Instanceof operator, Abstract method and class, Interface, Final Exception Handling -Understanding Exception and error, Try, catch, throw

OOPS USING JAVA	
UNIT I	Object Oriented Concepts in Java, Comparison of Java and C++, Java features like security, portability, byte code, java virtual machine, object oriented, robust, multithreading, architectural neutral, distributed and dynamic. Java Source File Structure, Compilation, Execution, Difference between application and applet.
UNIT II	Class Fundamentals, Object & Object reference, Creating and Operating Objects, Use of Tokens, Identifiers, Keywords, Literals, Comments, Primitive Datatypes, Operators-precedence and associativity, Type conversion, Command line argument, accepting input from keyboard, decision making – if, if..Else, switch; loops – for, while, do...while; special statements–return, break, continue.
UNIT III	Object Life time & Garbage Collection, Constructors, Access Modifiers, Abstract Class, Interfaces, Implementing Interfaces, Defining Methods, Argument Passing Mechanism, Method Overloading, Recursion, Static Members, Finalize() Method, Use of this keyword, Array – single and two dimension array.
UNIT IV	Inheritance – Advantages of Inheritance in OOP, types of Inheritance, constructors in inheritance, use of super keyword, polymorphism; Interfaces - defining an interface, implementing and applying interfaces, using variables in interfaces, extending interfaces; Method overriding – use, need, advantage.
UNIT V	Package - Organizing Classes and Interfaces in Packages, Package as Access Protection, defining Package, CLASSPATH Setting for Packages and Naming Convention for packages. Applets, Applet security restrictions, the class hierarchy for applets, Life cycle of applet, HTML Tags for applet.

--Suggested readings

- Programming with JAVA by E Balaguruswamy (Tata McGraw-Hill Publication)
- Herbert Schildt: JAVA 2 - The Complete Reference, TMH, Delhi
- Herbert Schildt: JAVA 2 - The Complete Reference, TMH, Delhi

LAB – INKSCAPE & GIMP	
UNIT I	Getting Started – Inkscape Basics- Vector Graphics, Installing Inkscape, The basics of software, creating and managing files, creating shapes, Designing site Layouts- Architecting a website, Web Layout, Exporting Design mock-ups
UNIT II	Working with Images – Importing images, Rendering Bitmaps, Tracing and Converting raster logos to vector based logo, Styling Text – Creating and Editing Text Tools, effects, Using reflections, shadows, text and paths, Pulling it all together, Title bars and headings, Creating Wallpapers and Pattern Background, Building Icons, Buttons, Logos, Making Diagrams, Site Maps and more, Designing for Blogs and storefronts, Creating Simple Animations,
UNIT III	Getting Started – Gimp Basics – Undoing, Common Tasks, Draw Straight lines, Unstuck, GIMP Wizard, Getting image out of GIMP, Preparing images for the web, Painting with GIMP, Creating and Using Selections, Quick Mask, Paths, Brushes, The GIH Dialog Box, Varying Brush Size
UNIT IV	Gradients, Patterns, Palettes, Preset, Drawing simple objects, Combining images, Text Management, Enhancing Photographs, Working with Digital Camera Photos, Color Management with GIMP, Enrich my GIMP, Preferences Dialogs
UNIT V	Grids and Guides, Rendering a Grid, Time Cache, Title Cache, Selection Tools, Painting Tools, Transform Tools, Color Tools, others, Dialogs, Image Content Related Dialog, etc

Lab- PHP & MySQL as per Theory Paper.

LAB - COMMUNICATION SKILL -2	
UNIT I	Types of communications- oral communication, written communication – formal, informal
UNIT II	business letters – types of letter, writing letters, business correspondence
UNIT III	Applying for a job, resume writing, filling an employment application.
UNIT IV	Report writing – definition and determining reports purpose, report planning, collecting information, developing an outline,
UNIT V	Sections of report, types of report, making reports writing effective, drafting circulars, notices. Agenda and minutes of meetings.