

POST GRADUATE DIPLOMA IN COMPUTER
APPLICATIONS(PGDCA)

Duration:1 Year (Two Semesters)

First Semester

Contact Hours: 30Hrs.

Subject Code	Subject Title	Load Allocation			Marks Distribution		Total	Credits
		L	T	P	Internal	External		
PGDC-101	Fundamentals Of Information Technology	4	1	-	40	60	100	5
PGDC-102	Programming in C	3	1	-	40	60	100	4
PGDC-103	Programming in C++	3	1	-	40	60	100	4
PGDC-104	Web Technology	3	1	-	40	60	100	4
PGDC-105	Operating System	3	1	-	40	60	100	4
PGDC-106	Communication Skills	3	-	-	40	60	100	3
PGDC-107	Lab1-Fundamentals Of Information Technology	-	-	4	30	20	50	2
PGDC-108	Lab2 – Programming in C	-	-	4	30	20	50	2
PGDC-109	Lab3 – Programming in C++	-	-	4	30	20	50	2
PGDC-110	Lab4 – Web Technology	-	-	4	30	20	50	2
TOTAL		19	5	16	360	440	800	32

Second Semester

Contact Hours: 30 Hrs.

Subject Code	Subject Title	Load Allocation			Marks Distribution		Total	Credits
		L	T	P	Internal	External		
PGDC-201	Computer Networks	4	1	-	40	60	100	5
PGDC-202	C# with .NET/PHP	3	1	-	40	60	100	4
PGDC-203	Software Engineering	3	1	-	40	60	100	4
PGDC-204	RDBMS	4	1	-	40	60	100	5
PGDC-205	Major Project	-	-	4	40	60	100	4
PGDC-206	Lab1–C# with .NET/PHP	-	-	4	30	20	50	4
PGDC-207	Lab2-Relational Database and Management System	-	-	4	30	20	50	4
TOTAL		14	4	12	260	340	600	30

Semester-I

PGDC-101:- FUNDAMENTALS OF INFORMATION TECHNOLOGY

UNIT-I

Introduction to Computers: Definition of Computer; Components of Computer; Characteristics of Computers; History evolution of Computers; Generation of computers;

Classification of Computers: According to Purpose, According to Technology, According to Size and Storage Capacity; Human being VS Computer; Difference between Computer and Calculator.

Number System: Binary, Octal and Hexadecimal, Conversion from one system to the other, Binary Arithmetic, Addition Subtraction and Multiplication, Number Systems: Decimal, Binary, Octal and Hexadecimal number system and conversion, Binary weighted codes and conversion, Binary arithmetic, 1's Complement and 2's Complement, Overflow and Underflow.

UNIT-II

Input Devices: Mouse, Keyboard, Light pen, Track Ball, Joystick, MICR, Optical Mark reader and Optical Character reader. Scanners, Voice system, Web, Camera.

Output Devices: Hard Copy Output Devices; Line Printers, Character Printers, Chain Printers, Dot-matrix Printers, Daisy Wheel Printer, Laser Printers, Ink jet Printers, Plotters, Soft Copy device-Monitor, Sound card and speakers.

Memory and Mass Storage Devices: Characteristics of Memory Systems; Memory Hierarchy; Types of Primary Memory; RAM and ROM; Secondary and Back-up; Magnetic Disks, Characteristics and classification of Magnetic Disk, Optical Disk, Magnetic Tape.

UNIT-III

C.P.U Organization: Instruction Set, Processor Speed, Process concept, types of Process scheduling, Basic concept of CPU Scheduling, Scheduling criteria, and Scheduling algorithms: FCFS, SJF, Round Robin & Queue Algorithms, Deadlock definition and its characterization.

Introduction To Operating System: Definition, its need and Operating system services, Early systems, Introduction to various types of operating systems: Batch processing operating system, Multiprogramming operating system, Time Sharing operating system, Multi tasking operating system, Distributed operating system, Network operating system, Real time operating system, Multi processor system and parallel processing. Installation of windows, Introduction to DOS, DOS Commands.

UNIT IV

Office Automation: Introduction, Today's office, need for office automation, its advantages, disadvantages and office automation tools.

Documentation Using MS-Word: Introduction to Office Automation, Creating & Editing Document, Formatting Document, Auto-text, Autocorrect, Spelling and Grammar Tool, Document Dictionary, Page Formatting, Bookmark, Tables, Mail Merge,

Electronic Spread Sheet using MS-Excel: Excel worksheet, data entry, editing, cell addressing ranges, commands, and menus, copying & moving cell content, inserting and deleting rows and column, column formats, cell protection, printing, creating, displaying and printing graphs, statistical functions.

Presentation using MS-PowerPoint: Presentations, Creating, Manipulating & Enhancing Slides, Organizational Charts, Excel Charts, Word Art, Layering art Objects, Animations and Sounds, Inserting Animated Pictures

PGDC102:-PROGRAMMING IN C

UNIT- I

Overview of C: History of C, Importance of C, Structure of a C Program.

Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant.

Input/output: Unformatted & formatted I/O function in C, Input functions viz. scanf(), getch(), getche(), getchar(), gets(), output functions viz. printf(), putchar(), puts().

UNIT-II

Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, conditional operators and special operators. Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity.

Decision making & branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement.

Decision making & looping: For, while, and do-while loop, jumps in loops, break, continue statement.

UNIT-III

Functions in C: uses of functions, user defined functions, function declarations, calling a function, actual and formal arguments, Rules to call a function, function prototype, recursion, Local or internal variables, Global or external variables, void function.

String Manipulation in C: String handling functions in C, strlen() function, strcpy() function, strcat() function, strcmp() function, reading/writing strings, atoi() function, additional string handling functions, operations with characters

Storage classes in C: auto or automatic storage class, static storage class, extern storage class, register storage class.

UNIT-IV

Arrays and subscripted values: one dimensional array, two dimensional array, Array declaration, accessing values in an array, initializing values in an array.

Structures and unions: structures, structure variables and arrays, initialization of structure variables and arrays, dot(.) operator, assigning values of a structure to another structure, structure as a function argument, structure within structure, sizeof() of a structure, unions, sizeof() of a union, difference between a structure and a union, enum data type, Bit field, typedef declaration.

UNIT-V

Pointers: pointer declaration, address operator &, indirection operation *, expressions using pointers, pointers as function arguments, call by value, call by reference, comparison between call by value and call by reference, pointer arithmetic, pointers with arrays, reading/writing values in a n array using pointer,.

Files And Streams: Classes for file stream operations, opening and closing of files, stream state member functions, binary file operations, structures and file operations, classes and file operations, I/O with multiple objects, error handling, sequential and random access file processing.

PGDCA103:-PROGRAMMING IN C++

UNIT-I

Principles of Object-Oriented Programming: A Look at Procedure-Oriented Programming; Object Oriented Programming Paradigm; Basic Concepts of Object-Oriented Programming; Benefits of OOP; Object Oriented Languages; Applications of OOP.

Beginning with C++ : What is C++?, Applications of C++, A Simple C++ Program, More C++ Statements, An Example with 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 Initialization of Variables; Reference Variables; Operators in C++; Scope Resolution Operator; Member Dereferencing Operators; Memory Management Operators; Manipulators; Type Case Operator; Expressions and Implicit Conversions; Operator Overloading; Operator Precedence; Control Structures.

Functions in C++ : Introduction; The Main Function; Function Prototyping; Call by Reference; Inline Functions; Default Arguments; const Arguments; Function Overloading; Friend and Virtual Functions.

UNIT-III

Classes and Objects: Introduction; C Structures Revisited; Specifying a Class; Defining Member Functions; A C++ Program with Class; Making an Outside Function Inline; Nesting of Member Functions; Private Member Functions; Arrays Within a Class; Memory Allocation for Objects; Static Data Members; Static Member Functions; Arrays of Objects; Objects as Function Arguments; Friendly Functions; Returning Objects; const Member Functions; Pointers to Members.

Constructors and Destructors: Introduction; Constructors; Parameterized Constructors; Multiple Constructors in a Class; Constructors with Default Arguments; Dynamic Initialization of Objects; Copy Constructor; Dynamic Constructors; Constructing Two-Dimensional Arrays; Destructors.

Operator Overloading and Type Conversions : Introduction; Defining Operator Overloading; Overloading Unary Operators; Overloading Binary Operators; Overloading Binary Operators Using Friends; Manipulation of Strings Using Operators; Rules for Overloading Operators; Type Conversions.

UNIT-IV

Inheritance Extending Classes : Introduction; Defining Derived Classes; Single Inheritance; Making a Private Member Inheritable; Multilevel Inheritance; Multiple Inheritance; Hierarchical Inheritance; Hybrid Inheritance; Virtual Base Classes; Abstract Classes; Constructors in Derived Classes.

Member Classes : Nesting of Classes, Pointers.

Virtual Functions and Polymorphism: Introduction; Pointers to Objects; this Pointer; Pointers to Derived Classes; Virtual Functions; Pure Virtual Functions.

UNIT-V

Managing Console I/O Operations: Introduction; C++ Streams; C++ Stream Classes; Unformatted I/O Operations; Formatted Console I/O Operations; Managing Output with Manipulators.

Working with Files: Introduction; Classes for File Stream Operations; Opening and Closing a File; Detecting End-of-File; More About Open() : File Modes; File Pointers and Their Manipulations; Sequential Input and Output Operations; Updating a File : Random Access; Error Handling During File Operations; Command-Line Arguments.

PGDC104:-WEB TECHNOLOGY

UNIT-I

HTML: Introduction to HTML, SGML, Internet and Web structure of HTML document.

Starting an HTML document: Head element, body element, style element, Text formatting, Using lists to organize information.

Internet and World Wide Web: Introduction, Internet Addressing, types of Internet Connections, Introduction to WWW, WEB Browsers, WEB Servers, WEB Applications, Tools for web site creation.

UNIT-II

Organizing Data With Table: Basic Table Structures, Individual cells and headings, Rowspan, Colspan.

Using Hyper Links And Anchors: Uses to Hyper Links, Structure of Hyper Links, Links to specialized contents.

Images: Adding Images to web page, using images as links, creating menus with image maps, image formats-GIF, JPEG etc.

UNIT-III

E-Mail: architecture, various aspects, the user agent, message format, message transfer, e-mail privacy.

Uniform Resource Locators (Urls): Absolute URLs, Relative URLs, fragment URLs, Types of URL Schemes- HTTP, mailto, news, FTP, Telnet, File etc.

UNIT-IV

HTML Forms: Understanding forms, creating simple GO button, fill-in-form page, form security, INPUT element, BUTTON element, SELECT element, TEXT AREA element, LABEL element.

Style Sheets: Need for CSS, introduction to CSS, basic syntax and structure, using CSS, background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS.

Java Script: JavaScript Introduction, JavaScript Variables, JavaScript Popup Boxes, JavaScript events, JavaScript Redirect, JavaScript String, JavaScript math, JavaScript Date. JavaScript Array, JavaScript form validation, JavaScript Email validation, JavaScript Phone validation

PGDC105:-OPERATING SYSTEMS

UNIT-I

Introduction to Operating System: Definition, its need and Operating system services, Early systems, Introduction to various types of operating systems: Batch processing operating system, Multiprogramming operating system, Time Sharing operating system, Multi tasking operating system, Distributed operating system, Network operating system, Real time operating system, Multi processor system and parallel processing.

UNIT-II

Process Management: Process concept, types of Process scheduling, Basic concept of CPU Scheduling, Scheduling criteria, and Scheduling algorithms: FCFS, SJF, Round Robin & Queue Algorithms, Deadlock definition and its characterization.

Memory Management: Overlays, Memory management policies, Fragmentation and its types, Partitioned memory managements, Paging, Segmentation, Need of Virtual memories, Page replacement Algorithms, Concept of Thrashing

UNIT-III

Windows: GUI, Icon, Toolbar Working with files, closing and saving a file.

Mouse Mechanics: Click, double click, Drag and drop method, Installation of a new software, Control panel, Explorer, Accessories, Network Neighborhood, system tools, Recycle bin, Files and directory management under windows, Running programs.

UNIT-IV

UNIX: Structure of UNIX, Kernel and shell, Commands of Unix, Unix file system, own file system, Electronic mail.

VI Editor: Editing text, screen controls Printing and spooling.

UNIX Administration: Superuser, Booting, Backup, Creating and managing new accounts.

PGDC106:-COMMUNICATION SKILLS

Objective: This course is designed to give students a comprehensive view of communication, its scope and importance in business, the role of communication in establishing a favourable image of the organization. The aim is to develop students' ability to communicate correctly and effectively on matters having relevance to day-to-day business operations. This course will make student conversant with fundamentals of communication, help them honing oral, written and non-verbal communication skills and to transform their communication abilities.

UNIT-I

BUSINESS COMMUNICATION: It shall focus on different aspects of communication in general and business communication in particular, communication within organizations, types of communication, and significance of positive attitude in improving communication.

UNIT-II

WRITING SKILLS: This section shall focus on business précis-writing, letters of all kinds; curriculum vitae, short, formal reports (not exceeding 200 words); tender notices, auction notices, public notices; memos relating to sales/marketing, and advertising relating to product promotion etc.

UNIT-III

DEVELOPING LISTENING SKILLS: Importance, purpose of listening, art of listening, factors affecting listening, components of effective listening, process of listening, principles and barriers to listening, activities to improve listening.

UNIT-IV

DEVELOPING EFFECTIVE PUBLIC RELATIONS: Here special emphasis shall be given to teaching the format of e-mails, fax messages, telegrams, audio-visual aids and power-point presentations. Apart from this, the students shall also be given basic lessons in effective listening, non-verbal communication, how to prepare for an interview and group discussion etc.

PRACTICAL WORK: Teacher should assign some project or practical work to the students. This should be in the nature of guided activity, which the students shall have to complete under the direct supervision of the teacher. The students may be given projects on a variety of subjects relating to their discipline i.e. business, commerce, accounts etc. Preferably, they should be given minor projects (to be completed within less than two weeks, and length not exceeding 20 pages) in consultation with teachers of commerce. However, the evaluation of the projects should be done only by the Language Teachers, who must keep all the basic criteria of good writing in mind while doing so.

Suggested Readings/ Books:

- 1. Effective Business Communication, M.V. RODRIGUEZ**
- 2. Business Communication, Meenakshi Raman, Parkash Singh, Paperback Edition, Oxford University Press.**

Semester-II

PGDC201:-COMPUTER NETWORKS

Objective: This course provides an in-depth discussion of computer networks. It includes a detailed discussion of the different Network Models. Concepts that have a direct effect on the efficiency of a network (e.g. collision and broadcast domains, topology) are also discussed.

Expected Outcome: Towards the end of the course, students are expected to / able to:

- Be familiar with the different Network Models.
- Understand different network technologies
- Understand the effects of using different networking topologies
- Be updated with different advanced network technologies that can be used to connect different networks
- Be familiar with various hardware and software that can help protect the network

UNIT-I

DATA COMMUNICATIONS: Multiplexing, Signaling, Encoding & Decoding, Error Detection & Recovery, Flow Control, Sliding Window, Congestion Management.

COMMUNICATION NETWORKS: Introduction to networking, OSI Model for Networking, Internet, ATM, Network Components (Cables, Hubs, Bridges, Switches, Routers), Network Topologies, Shared Medium, Peer to Peer, Hybrid Technology.

UNIT II

NETWORK TECHNOLOGIES : Local Area Network Technologies, Ethernet Technologies, Ethernet Versions, Token Ring Technologies, Wide Area Network Technologies (Frame Relay, SMDS, ISDN, SONET, PPP, HDLC, LLC), Wireless Networks (Radio Frequencies, Microwave Frequencies, Infrared Waves.

MULTIPLE ACCESS :Design Issues, Distributed & Centralized Design, Circuit Mode & Packet Mode Design, Implementation Issues, Performance Considerations, Base Technology (FDMA, TDMA, CDMA, Centralized Access, Circuit Mode Access, Poling or Packet Mode Access, Reservation Based Access), Distributed Access (decentralized polling, CSMA, CSMA/CA, CSMA/CD, Busy Tone Multiple Access & Multiple Access Collision Avoidance, Token Passing, ALOHA, Slotted ALOHA, Reservation ALOHA), Hardware Addressing

SWITCHING : Circuit Switching (Time Division switching, Space division switching, time space switching, time space time switching), Packet Switching (Port Mappers, Blocking, ATM Switching, Switching Fabric (Crossbar, Broadcast, Switching Fabric Elements), Bridges (Transparent bridges, Spanning Tree Algorithm, Virtual LANS), Switches.

UNIT-III

NAMING & ADDRESSING :Hierarchical Naming, Addressing, Telephone Networks, Internet, IPv4, Subnetting
Ipv4 Networks, Private Networks, Asynchronous Transfer Mode, Name Resolution, Address Resolution
Protocol (Arp), RARP

ROUTING :Routing Information, Routing Protocols, Hierarchical Routing, Multicast Routing.

SERVICES &APPLICATIONS :File transfer protocol, TFTP, Domain Name System, DHCP, SNMP, Electronic Mail,
WWW, HTML, HTTP, RPC & Middleware.

SECURITY :Threats, Encryption/Decryption, Firewalls, IP Security, Web Security, E-Mail Security.

Suggested Books:

1. Computer Networks, Tanenbaum, Andrew, Fifth Edition, PHI
2. Data Communication and Networking, Behrouz A. Forouzan, Fourth Edition
3. Computer Today, S.K. Basandra, First Edition, Galgotia
4. Data Communication System, Black, Ulysse, Third Edition, PHI
5. Data and Computer Communications, Stalling, Ninth Edition, PHI

PGDC204:-RELATIONAL DATABASE AND MANAGEMENT SYSTEM

UNIT-I

Introduction to Data base & RDBMS: definition of data, uses & need of data in organizations, Need for Information, Qualities of Information, Definition of DBMS, Entities & their attributes, advantages & disadvantages of DBMS, DBMS Architecture, Functions of DBMS , Uses of DBMS File System Approach Vs DBMS Approach.

Data Models: The hierarchical model, the network model, the relational model and OORDBMS.

Operators & Functions: Arithmetic Operators; Logical Operators; Comparison Operators; Mathematical Functions; String Functions; Date Functions; Data Conversion; Comparison Operators.

UNIT-II

Creating Database & Tables and Modifying data: Create Database statement, Create Table statement, Insert into statement, Select statement, Delete and Update statement.

Sorting & Retrieving Data: Sorting data using the ORDER BY Clause; Aggregate Functions; GROUP BY and HAVING ;COMPUTE and COMPUTE BY; ranges; Lists; Pattern Searching, Using Multiple Criteria to Retrieve Rows; Eliminating duplicate Information;

Interactive SQL : SQL commands ; Data Definition Language Commands; Data Manipulation Language Commands; The Data types a cell can hold; insertion of data into the tables; Viewing of data into the tables; Deletion operations; updating the contents of the table; modifying the structure of the table; renaming table; destroying tables; Data Constraints; Type of Data Constraint; Column Level Constraint; Table Level Constraint; Null value Concepts; The UNIQUE Constraint; The PRIMARY constraint; The FOREIGN key constraint; The CHECK Constraint; Viewing the User Constraints

UNIT-III

Normalization: Types of Normalization, Anomalies, Keys, Dependency.

Data Integrity: Types of Integrity; Domain Integrity; Referenced Integrity; Entity Integrity; User defined data types; Rules; Ensuring Data Accuracy with SQL Server Enterprise Manager; Differing Constraints; Disabling Constraints

UNIT-IV

Sub Queries And Joins : Joins; Equi Joins; Non Equi Joins; Self Joins; Outer Joins; Sub Queries; Correlated Queries; Using Set Operators:- Union , Intersect; Minus ;

Views And Indexes: Definition and Advantages Views; Creating and Altering Views; Using Views; Indexed Views; Partitioned views; Definition and Advantages of Indexes; Composite Index and Unique Indexes; Accessing Data With and without Indexes; Creating Indexes and Statistics.

UNIT-V

Using Transact –SQL: Control-of Flow Language Elements; BEGIN...END block; print Statement; IF ... ELSE Block; Case Expressions; Using the while Command

Stored Procedures And Functions: Working with Stored Procedures ; Creating Stored Procedures ; Gathering Information on Stored Procedures; Using Parameters with Stored Procedures; Working with User defined Functions; Scalar functions; Inline table Valued Functions; Multi statement Table Valued Functions.

Triggers : Creating Triggers with CREATE TRIGGER Statement; Enforcing Data Integrity with Triggers; Using INSTEAD OF Triggers.

UNIT-VI

Creating Users And Logins: SQL Server Security Access Model ; Windows Authentication; SQL Server Login creation; Creating Database users

Permissions: Implementing Database Permissions; Types of Permissions; Permissions Precedence;

Statement Permissions: The CREATE DATABASE Permission; The CREATE TABLE;VIEW;FUNCTION; PROCEDURE;DEFAULT and RULE Permission;

Object Permissions: Assigning Object Permissions; Permissions on Views; Stored Procedures; and Functions;

PGDC202:- C# WITH .NET

UNIT-I

Introduction: What is C#, Why C#, Evolution of C#, Characteristics of C#, Applications of C#, How does C# differs from C++, How does C# differs from Java.

Overview of C# : Namespaces, Adding comments, Main returning a value, Using aliases for Namespace classes, Passing String objects to WriteLine method, Command line arguments, Main with a Class, Providing interactive input, Using mathematical functions, multiple main methods, compile time errors, program structure, program coding style.

Literals, Variables & Data Types : Literals, variables, data types, value types, reference types, declaration of variables, initialization of variables, default values, constant variables, boxing & unboxing.

UNIT-II

Operators and Expressions : Introduction; Arithmetic Operators; Relational Operators; Logical Operators; Assignment Operators; Increment and Decrement Operators; Conditional Operator; Bitwise Operators; Special Operators; Arithmetic Expressions; Evaluation of Expressions; Precedence of Arithmetic Operators; Type Conversions; Operator Precedence and Associativity; Mathematical Functions.

Decision Making and Branching: Introduction; Decision Making with if Statement; Simple if Statement; The if...else Statement; Nesting of ifelse Statements; The else if Ladder; The Switch Statement; The ? : Operator.

Decision Making and Looping: Introduction; The while Statement; The do Statement; The for Statement; The foreach Statement; Jumps in Loops.

UNIT-III

Methods in C # : Introduction; Declaring Methods; The Main Method; Invoking Methods; Nesting of Methods; Method Parameters; Pass by Value; Pass by Reference; The Output Parameters; Variable Argument Lists; Methods Overloading.

Handling Arrays: Introduction; One-Dimensional Arrays; Creating an Array; Two-Dimensional Arrays; Variable-Size Arrays; The System.Array Class; ArrayList Class.

Manipulating Strings : Introduction; Creating Strings; String Methods; Inserting Strings Using System; Comparing Strings; Finding Substrings; Mutable Strings; Arrays of Strings; Regular Expressions.

UNIT-IV

Structures and Enumerations : Introduction; Structures; Structs with Methods; Nested Structs; Difference between Classes and Structs; Enumerations; Enumerator Initialization; Enumerator Base Types; Enumerator Type Conversion.

Classes and Objects : Introduction; Basic Principles of OOP; Defining a Class; Adding Variables; Adding Methods; Member Access Modifiers; Creating Objects; Accessing Class Members; Constructors; Overloaded Constructors; Static Members; Static Constructors; Private Constructors; Copy Constructors; Destructors; Member Initialization; The this Reference; Nesting of Classes; Constant Members; Read-only Members; Properties; Indexers.

UNIT-V

Inheritance and Polymorphism : Introduction; Classical Inheritance; Containment Inheritance; Defining a Subclass; Visibility Control; Defining Subclass Constructors; Multilevel Inheritance; Hierarchical Inheritance; Overriding Methods; Hiding Methods; Abstract Classes; Abstract Methods; Sealed Classes: Preventing Inheritance; Sealed Methods; Polymorphism.

Interfaces : Multiple Inheritance : ntroduction; Defining an Interface; Extending an Interface; Implementing Interfaces; Interfaces and Inheritance; Explicit Interface Implementation; Abstract Class and Interfaces.

Operator Overloading : Introduction; Overloadable Operators; Need for Operator Overloading; Defining Operator Overloading; Overloading Unary Operators; Overloading Binary Operators; Overloading Comparison Operators.

UNIT-VI

Managing Console I/O Operations : Introduction; The Console Class; Console Input; Console Output; Formatted Output; Numeric Formatting; Standard Numeric Format; Custom Numeric Format.

Managing Errors and Exceptions: Introduction; Types of Errors; Exceptions; Syntax of Exception Handling Code; Multiple Catch Statements; The Exception Hierarchy; General Catch Handler; Using finally Statement; Nested Try Blocks; Throwing Our Own Exceptions; Checked and Unchecked Operators; Using Exceptions For Debugging.

UNIT-VII

Window Forms: WinForm & Controls Building the “HELLO WINFORM” Application, Adding Events Handling, Form Designer, Solution Explore, Windows Form Controls- The Button Control, Adding the Event Handlers, The Label and LinkLabel Controls, The TextBox Control, Adding the Event Handlers, The RadioButton and CheckBox Controls, The ListBox and CheckedListBox Controls, ListBox Properties, The ComboBox Control.

PGDC203:-SOFTWARE ENGINEERING

Objective: The objective of this course is to make students familiar with all the software development principles, models and designing tools required to develop the software.

Expected Outcome: After completing this course, students will learn new techniques and models on which software development is based.

UNIT-I

The Software Engineering Discipline: Evolution and impact, Evolution of an Art to an Engineering Discipline; a Solution to the Software Crisis? Programs Vs Software Engineering; Emergence of Software Engineering

Software Life Cycles Models: Why use a Life Cycle Model; Classical Waterfall Model; Iterative waterfall Model; Prototyping Model; Evolutionary Model; Spiral Model;

Software Project Management: Responsibilities of a Software Project Manager; Project Planning; Metrics for Project Size Estimation; Project Estimation Techniques; Cocomo Model; Halstead's Software science; Staffing Level Estimation; Scheduling; Organization and Team Structures; Staffing; Risk Management;

UNIT-II

Software Configuration Management: Requirement Analysis and specification, Requirements gathering and analysis; software Requirement specification; formal system development techniques; Axiomatic specification; Algebraic Specification; Algebraic Specification

Software Design: Classification of Cohesiveness; Classification of Coupling; Software design approaches; Function- Oriented Design; Object Oriented Design

UNIT-III

Function Oriented Software Design: Structured Analysis; DFDs; primitive Symbols used for Constructing DFDS ; developing the DFD Model of a system; Short comings of the DFD Model; Extending DFD Technique to Real Time Systems; Structured Design; Detailed Design;.

Coding And Testing: Coding; Coding Review; Testing; Testing in the Large vs. Testing in the small; unit testing; black box Testing; white box testing; debugging; program analysis tools; integration testing; system testing.

UNIT-IV

Software Reliability And Quality Management :Software Reliability; Hardware Vs Software Reliability; Reliability Metrics; Reliability Growth Modelling ; Statistical Testing; Software Quality; Software Quality Management System; ISO 9000;.

Software Maintenance: Characteristics of Software Maintenance; Type of Software Maintenance; Characteristics of Software Evolution; Software Reverse Engineering; Software Maintenance Process Models; Estimation of Maintenance Cost.

Software Reuse: Basic issues in any reuse program; A Reuse Approach; Domain analysis; Component Classification; Searching; Repository Maintenance; Reuse without modifications.

Suggested Books:

1. Roger S. Pressman, "Software Engineering – A Practitioner's Approach ", Sixth Edition, McGraw Hill
2. R.E. Fairley, "Software Engineering Concepts", Paperback Edition, McGraw Hill.
3. Jalota, "An Integrated Approach to Software Engineering", Third Edition, Narosa Publishing House