FC-1-01T: Fundamentals of Computer

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Course: Fundamentals of Computer	
Course Code: FC-1-01T	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Learn the basic knowledge of computer hardware and software
CO2	Get basic knowledge of number system
CO3	Gain knowledge of computer languages such as machine language, assembly language, high level language, 4GL.
CO4	Learn hands on experience with operating systems
CO5	Learn the computer networks, Information Technology and Society

Detailed Contents:

Module No.	Module Name	Module Contents
Unit 1	Introduction of Computer	Characteristics of the Computer, Block diagram of a Computer, Classification and Generations of Computer, *Input Devices:* Keyboard, Mouse, Trackball, Space ball, Joystick, Light pen, Touch screen, Digitizer, Data Glove, Scanner, Speech Recognition Devices, Optical Recognition Devices: OMR, OBR, OCR, MICR, Video Cameras, *Output Devices:* Monitors, Printers and its types, Plotters and its types, Speakers, Multimedia Projector.
Module II	Number System	Concept of Bit and Byte, Number System: Binary, Octal, Decimal and Hexadecimal System, Conversion from one system to the other. Binary Arithmetic: Addition, subtraction and multiplication. 1's compliment, 2's compliment, Subtraction using 1's compliment and 2's compliment.
Module III	Computer Languages	Machine language, assembly language, high level language, 4GL. *Language Translators:* Compiler, Interpreter, and Assembler. *Software:* Types of Software: System Software. Application Software, and Firmware. *Memories:* Memory Hierarchy, Memory Types: Magnetic core, RAM, ROM, Secondary, Cache, Overview

		of storage devices: floppy disk, hard disk, compact disk, tape.
Module IV	**Operating System**	Functions of Operating System, Types of Operating System, Turning on a computer, desktop, taskbar, start menu, booting up, Desktop, Shortcut, Icons, Recycle Bin, Start Menu, My Computer, Computer's Devices and Drives, Storage, Removable Storage, CD/DVD Drive, floppy drive, and USB flash drive, Hard drive, Control Panel, The Window, Parts of Window, File Explorer, Files, Folders, Directories, Command, Menus, Keyboard, Function Keys, Normal Keys, Special keys, Direction keys, Numeric Keypad, Numeric Keys, Mouse: Left button, Right Button, Windows Accessories, Sharing Information between Programs. Virus, Antivirus, Peripherals can use with your computer.
Module V	**Computer Networks**	Components of data communication, modes of communication, standards and organizations, Network Classification, Network Topologies; Network Types, Transmission media, network protocol; layered network architecture. Basic of Computer networks: LAN, MAN, WAN.
Module VI	**Information Technology and Society**	Applications of Information Technology in Business and Industry, Railway, Airline, Entertainment, Banking, Insurance, Inventory Control, Hotel Management, Education and Training, Mobile Phones, Information Kiosks, Weather Forecasting, Scientific Application.

Books

1. Pradeep K., Sinha, "Computer Fundamentals: Concepts, Systems & Applications", BPB
2. Rajaraman V, "Fundamentals of Computers", PHI
3. RS Salaria, "Computer Fundamentals", Kanna Publication, 1st Ed., 2017
4. E Balagurusamy, "Fundamentals of Computers", Mc Graw Hill, 2012
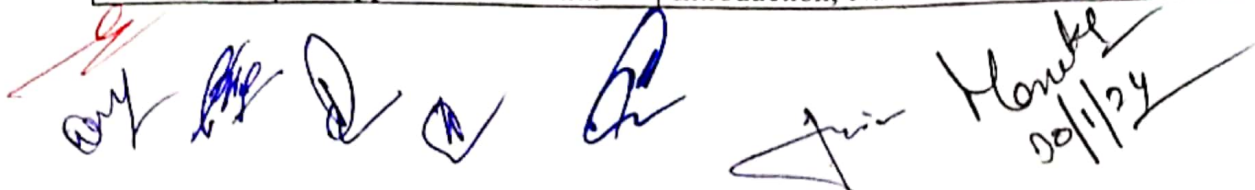5. Glenn Brookshear, "Computer Science: An Overview", Pearson, 2012

EG-2-02T: E-Governance

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Course: E-Governance	
Course Code: EG-2-02T	
Course Outcomes (COs) After the completion of this course, the students will be able to:	
CO1	Develop deep understanding about E-Governance and E-Government
CO2	Understand different E-Governance models and infrastructure development
CO3	Critically analyze E-Governance in Administration.
CO4	Participate in E- Governance activities.
CO5	Utilization of information technology to avail public services

Detailed Contents:

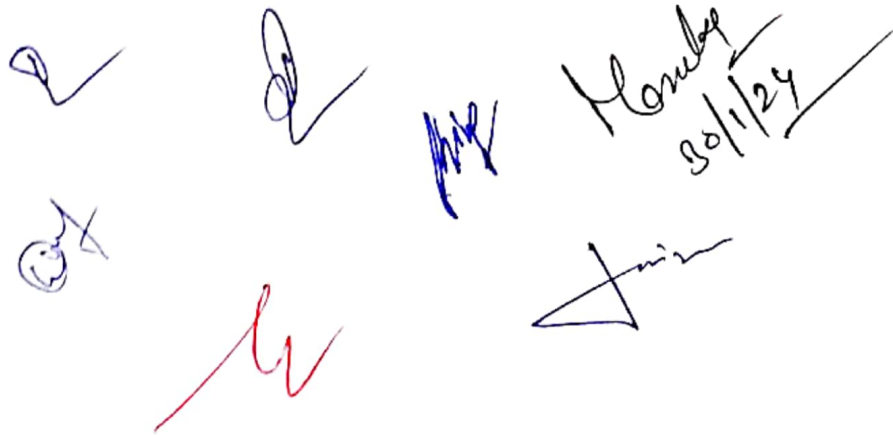| Module	Module Name	Module Contents
Module 1	Introduction to E-Government and E-Governance	Difference between E-Government and E-Governance; E-Government as Information System; Benefits of E-Government; E-Government Life Cycle; Online Service Delivery and Electronic Service Delivery; Evolution, Scope and Content of E-Governance; Present Global Trends of Growth in E-Governance
Module II	Models of E-Governance	Introduction; Model of Digital Governance: Broadcasting / Wider Dissemination Model, Critical Flow Model, Comparative Analysis Model, Mobilization and Lobbying Model, Interactive – Service Model / Government-to-Citizen-to-Government Model (G2C2G); Evolution in E-Governance and Maturity Models: Five Maturity Levels; Characteristics of Maturity Levels; Towards Good Governance through E-Governance Models
Module III	E-Government Infrastructure Development	Network Infrastructure; Computing Infrastructure; Data centers; E-Government Architecture; Interoperability Framework; Cloud Governance; E-readiness; Data System Infrastructure; Legal Infrastructural Preparedness; Institutional Infrastructural Preparedness; Human Infrastructural Preparedness; Technological Infrastructural Preparedness
Module IV	Security for e-Government	Challenges and Approach of E-government Security; Security Management Model; E-Government Security Architecture; Security Standards
Module V	Applications of Data	Introduction; National Data Warehouses: Census

	Warehousing and Data Mining in Government	Data, Prices of Essential Commodities; Other Areas for Data Warehousing and Data Mining: Agriculture, Rural Development, Health, Planning, Education, Commerce and Trade, Other Sectors
Module VI	Case Studies	E-Government Initiatives in India and Punjab state, Cyber Laws, Punjab Land Records, E-Sewa Portal of Punjab Govt.

Books

1. R.P. Sinha, "E- Governance in India: initiatives and issues", Concept Publishing Company, 2006
2. Christopher G.Reddick, Jones & Bartlett, "Public Administration and information Technology", Learning, 2012
3. Shirin Madon , "E-governance for Development: A Focus on India", Palgrave Macmillan , 2002.
4. Ashok Agarwal, "E-Governance: case studies", University Press India, 2007.
5. Kamalesh N. Agarwala, Murli D. Tiwari, "IT and E-Governance in India", Macmillan, 2002.
6. Subhash C, "E-Government: from vision to implementation: a practical guide with case studies".
7. C.S.R. Prabhu, "E-Governance: Concepts And Case Studies", PHI ,2011

OAT-1-03T: Office Automation Tools

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 4
Pass Percentage: 40%

Course: Office Automation Tools	
Course Code: OAT-1-03T	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Demonstrate proficiency in using office suite applications such as Microsoft Office for Word Processing.
CO2	Demonstrate proficiency in using office suite applications such as Microsoft Office for Power Presentations.
CO3	Demonstrate proficiency in using office suite applications such as Microsoft Office for Spread Sheets.
CO4	Understand and utilize electronic signature tools such as DocuSign or Adobe Sign for digitally signing documents.
CO5	Familiarity with Video conferencing software for online meetings and webinars.

Detailed Contents:

Module	Module Name	Module Contents
Module 1	**Microsoft Office for Word Processing**	Introduction to Word Processing, Development of the Word Processor, Creating, opening and closing documents, Working with multiple documents, Saving documents, Save an existing file under another name, Locating the components of the Writer window, Writer toolbars and ruler, Adjusting the application settings, Adding content to Writer Documents, Working with text, Editing Content, Formatting Documents, Text Formatting, Paragraph Formatting, Text alignment, Tabs and its types, Placing text at the tab position, Paragraph spacing, Working with lists, Paragraph borders and shading, Creating and Applying Styles, Adding tables, Adding data to a table, Deleting a table, Add and delete columns and rows, Modifying columns and rows, Inserting images, Modifying images, Resize an image and charts, Mail Merge, Preparing the documents, Creating the main document, Creating the data source, Document formatting.

Module II	Microsoft Office for Spread Sheets.	Introduction to Spreadsheets, Development of the spreadsheet, Design considerations for spreadsheet documents, Creating, opening, and closing spreadsheets, Working with multiple spreadsheets, Saving spreadsheets, Locating the components of the Calc window, Calc toolbars, Adjusting the application settings, Adding content to Calc spreadsheets, Working with cells, Selecting cells and cell ranges, Entering data in cells, Numerical data, Date format of data, Sorting data, Formatting appearance, Copying and Moving cells, Working with rows and columns, Formulas and Functions, Arithmetic formulas, Arithmetic operators, Functions, Cell ranges, Charts and graphs, Types of Charts, Creating charts from cell data, Modifying a chart, Preparing spreadsheets for output, Setting up a worksheet for printing, Printing worksheet
Module III	Microsoft Office for Power Presentations.	Introduction to Presentations, Design principles, Purpose of the Presentation, The Design Process, Graphics and illustrations, Working with Presentations, Window Layout, Opening an Existing Presentation Using the File Menu, Saving a Presentation, Saving a Presentation in Different Formats, Creating a New Presentation, Using Pre-defined Presentation Templates in Presentation, Creating a Presentation from Scratch, Slide Layouts, Adding, Copying and Deleting Slides, Creating and Applying Presentation Views, Creating a Master for Presentation, Adding a Graphic or Object, Adding Text to Slides, Enter Text into Placeholders, Title Placeholder, Text Placeholder, Adding Text in Outline View, Adding a Textbox to a Slide, Copy, Move and Delete Text and Text Boxes, Formatting Text, Work with Tables in Presentations , Inserting Charts, Different Chart Types, Identifying the Parts of a Chart, Inserting a Simple Chart, Importing Charts and Tables from a Spreadsheet, Working with Graphics, Graphical Object, Inserting Clip Art, Inserting an Image from File, Using the Art Gallery to Draw Objects, Move/Delete/Copy a Selection of Objects, Preparing your Presentation, Animation Effects

		on Text and Objects, Add Presenter Notes to Slide
Module IV	**Collaboration & Communication and Electronic Signature**	**Microsoft Teams:** Combines chat, video conferencing, file storage, and application integration for team collaboration. **Zoom:** Video conferencing software for online meetings and webinars. **Electronic Signature:** **DocuSign:** Allows users to electronically sign documents, contracts, and agreements. **Adobe Sign:** Part of the Adobe Document Cloud, offering electronic signature capabilities.
Module V	**Future Trends in Office Automation**	Emerging technologies and their impact on office automation
Module VI	**Security and Privacy**	• Importance of security in office automation • Best practices for securing office documents and communications

Books

1. Ramesh Bangia, "Learning Microsoft Office 2010", Khanna Publishers
2. Satish Jain, Shashi Singh, M. Geetha Iyer, "Bpb'S Computer Course Windows 10 With Ms Office 2016", BPB Publications
3. https://baou.edu.in/assets/pdf/BSCIT_103_slm.pdf
4. https://www.ebookbou.edu.bd/Books/Text/SST/DCSA/dcsa_1302/Unit-02.pdf
5. https://www.msuniv.ac.in/images/e-content/6.Computer%20%20Fundamentals%20and%20Office%20Automation.pdf

OAT-1-03T: Office Automation Tools Lab

Total Marks: 50
External Marks: 35
Internal Marks: 15
Credits: 2
Pass Percentage: 40%

Course: Office Automation Tools Lab
Course Code: OAT-1-03P
Course Outcomes (COs)
After the completion of this course, the students will be able to:

CO1	Create and format various types of documents using word processing software.
CO2	Apply styles, formatting, and templates to enhance document appearance.
CO3	Create, edit, and format spreadsheets for data management and analysis using tools like Microsoft Excel.
CO4	Develop effective presentation skills using presentation software (e.g., Microsoft PowerPoint).
CO5	Enhance communication skills through effective use of email, instant messaging, and other communication tools.

Detailed about Experimental Tasks:

Experimental Task No.	Experimental Description
T1	• Experimental work to create and format various types of documents using word processing software. • Experimental work to apply styles, formatting, and templates to enhance document appearance.
T2	• Experimental work to create, edit, and format spreadsheets for data management and analysis using Microsoft Excel. • Experimental work to perform basic and advanced functions like sorting, filtering, and creating charts.
T3	• Experimental work to develop effective presentation skills using presentation software (e.g., Microsoft PowerPoint). • Experimental work to design and deliver presentations with a focus on visual appeal and communication effectiveness.

T4	• Demonstrate proficiency to utilize collaboration tools within office suites for real-time editing and sharing of documents.
T5	• Demonstrate proficiency to use of email, instant messaging, and other communication tools.
T6	• Demonstrate proficiency to sign electronically on documents, contracts, and agreements.

BCS-2-01T: Basic Communication Skills

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Course: Basic Communication Skills	
Course Code: BCS-2-01T	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Gain competence in verbal and non-verbal communication
CO2	Increase comprehension levels
CO3	Use language for effective communication
CO4	Understand the processes of communication
CO5	Overcome barriers in communication

Detailed Contents:

Module	Module Name	Module Contents
Module I	Understanding Human Communication:	Constitutive Processes of Communication, Language as a tool of communication, Barriers to Effective communication, Strategies to Overcome the Barriers, Non-Verbal Communication, Importance of Non-Verbal Communication, Non-Verbal Communication and Cultural influences
Module II	Listening Comprehension	Difference between Hearing and Listening, Effective Listening Strategies, Listening in Conversational Interaction
Module III	Speaking Skills	Expressions in different Communicative Functions: Asking Questions; Making Requests and suggestions; Expressing Greetings, Apologies and Gratitude Job Interviews, Group Discussions, Presentation Skills
Module IV	Reading Comprehension	Introduction, Reading Process, Reading different kinds of Texts, Reading Methods- Using KWL for reading comprehension
Module V	Effective Written Communication	Constituents of Effective Writing, Coherence and Cohesion for effective writing
Module VI	Business Correspondence	Letter writing, Resume/CV, E mails for Communication, Writing Reports, Describing Tables and Charts, Meetings: Agenda and Minutes

Books

1. Koneru, Aruna. Professional Communication. Delhi: McGraw. 8th Ed, 2017.

2. Mahanand, Anand. English for Academic and Professional Skills. Delhi: McGraw, 2013.

3. Rani, D Sudha, TVS Reddy, D Ravi, and AS Jyotsna. A Workbook on English Grammar and Composition. Delhi: McGraw, 2012.

4. Rizvi, M. Ashraf. Effective Technical Communication. Delhi: McGraw, 2nd Ed. 2017

Examination Pattern:

Evaluation should be in Subjective style.

As this paper pertains to communication skills, it should not be evaluated on MCQ pattern.

MCQ pattern for this course is an inappropriate way of testing communication skills of the learner.

FDM-1-02T: Fundamentals of Digital Marketing

Total Marks: 100
External Marks: 70
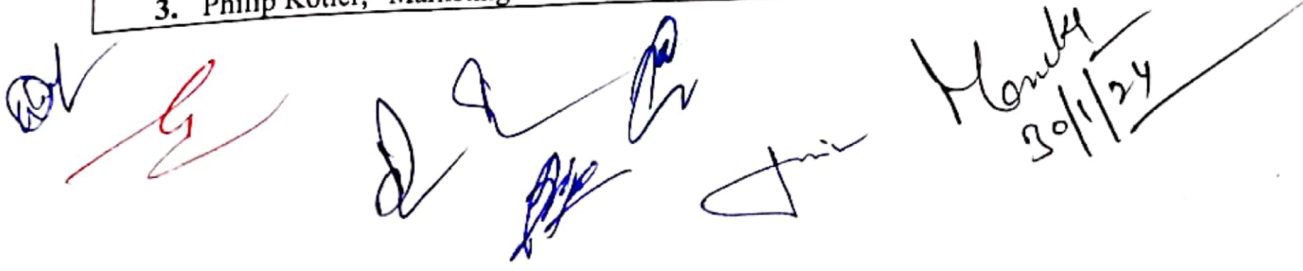Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Course: Fundamentals of Digital Marketing	
Course Code: FDM-1-02T	
Course Outcomes (COs) After the completion of this course, the students will be able to:	
CO1	Recall the fundamental concepts and principles of digital marketing
CO2	Demonstrate an understanding of the digital market evolution, social media strategy, content creation, and engagement
CO3	Apply knowledge of digital marketing concepts and manage digital advertising campaigns on platforms like Google Ads and social media.
CO4	Evaluate the impact of digital marketing on various industries and businesses, while developing digital marketing strategy aligned with business goals.
CO5	Explore strategies for marketing on mobile devices, including mobile advertising and app marketing.

Detailed Contents:

Module	Module Name	Module Contents
Module 1	Introduction to Digital Marketing	Concepts, Traditional Marketing vs. Digital Marketing, Digital Market Evolution, Career in Digital Marketing.
Module II	Digital Consumer	Consumer Characteristics and profiles, Information Search Behavior, Factors Influencing Consumption Behavior, Purchase Decision Process, Post Purchase Behavior and Management.
Module III	Digital vs Non- Digital Marketing Strategy	Digital vs Non- Digital Marketing Strategy, Digital Marketing Decisions- Product, Price, Distribution and Promotion.
Module IV	Digital Marketing Strategy Formulation and Execution Digital Marketing Mechanisms	Digital Marketing Strategy Formulation and Execution Digital Marketing Mechanisms: Websites- Company and Retail Service Providers, Search.
Module V	Search Engines	Search Engines- Google, Bing, Ask, Yahoo Video Hosting and Entertainment-Youtube, Wimeo, Amazon Prime, Netflix, Hotstar.
Module VI	Social Media	Mobile Phones, E- Mails, Blogs, Social Media: Facebook, Instagram, Twitter, Whatsapp.

Books

1. Seema Gupta, "Digital Marketing", McGraw Hill Education
2. PModule Singh Bhatia, "Fundamentals of Digital Marketing", Pearson
3. Philip Kotler, "Marketing 4.0: Moving from Traditional to Digital", Wiley

CP-1-02T: Computer Programming

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Course: Computer Programming
Course Code: CP-1-02T
Course Outcomes (COs)   After the completion of this course, the students will be able to:

CO1	Develop the ability to analyze problems, design algorithms, and implement solutions using C/C++ programming, showcasing proficiency in algorithmic problem-solving skills.
CO2	Implement and manipulate fundamental data structures such as arrays, linked lists, stacks, queues, trees, and hash tables in C/C++, demonstrating competence in choosing and utilizing appropriate data structures for different scenarios.
CO3	Gain expertise in handling exceptions, debugging C/C++ code, and implementing error-handling strategies to create robust and reliable programs.
CO4	Understand and apply principles of multithreading and concurrency in C/C++, including synchronization mechanisms, thread communication, and concurrent programming, showcasing the ability to develop efficient and responsive applications.
CO5	Familiarize oneself with common C++ frameworks gaining an understanding of how frameworks can streamline development and improve code organization and maintainability.

Detailed Contents:

Module No.	Module Name	Module Contents
Module I	Problem Solving with Computers	**Problem Solving with Computers:** Evolution of C Language, Character Set in C, Tokens, Keywords, Identifier, Constants, Variables, Rules for defining Variables, Data Types in C Language: Basic data type, Derived data type and Enum data type, Operators in C: Types of Operator: Arithmetic, Relational, Logical, Comma, Conditional, Assignment, Operator Precedence and Associativity in C, Input and Output Statements, Assignment statements.
Module II	Control Structure	**Control Structure:** Sequential Flow Statement, Conditional Flow Statement, Decision Control statements: if, if-else, nested-if, else-if ladder. Loop control statements: While, do-while, for loop, Nested of Loops. Case Control Statements:

		Switch Statement, goto Statement, Break Statement, Continue Statement
Module III	Arrays and Pointers in C	**Arrays and Pointers in C:** Arrays, Characteristic of Arrays, Representation, Declaration and Initialization of an Array, Types of Arrays: one dimensional, multi-dimensional arrays. Pointer, Pointers Declaration and Initialization, Types of Pointers, Pointer Expressions and Pointer Arithmetic.
Module IV	Functions	**Functions:** Function in C, Function Declaration and Definition, Types of Functions, Library Vs. User-defined Functions, Function Calling Methods, Function Parameters: Actual Parameter, Formal Parameter, Parameter Passing Techniques: Call by Value and Call by Reference, Recursive Function, Pointers and Functions.
Module V	Strings and User Defined Data Types	**Strings:** C Strings, Difference between char array and string literal, Traversing String, Accepting string as the input, Pointers with strings, String Functions **User Defined Data types:** Structure, Structure Variables Declaration, Accessing Structure Data Members, Array of Structures, Nested of Structure, Passing structure to function, Structures Limitations, Union, Difference between Structure and Union in C.
Module VI	Object Oriented Programming	**Object Oriented Programming:** Need of an Object-Oriented Programming, C++ and its Applications, OOPs Concepts in C++: Class, Objects, Encapsulation, Abstraction, Polymorphism, Inheritance, Dynamic Binding and Message Passing. Access Specifiers in C++: Private, Protected and Public.

Books

1. E. Balagurusamy, "Programming in C", Tata McGraw Hill.
2. Kamthane, "Programming with ANSI and Turbo C", Pearson Education
3. Rajaraman,V, "Fundamentals of Computers", PHI
4. Kanetkar, "Let Us C", BPB Publications.
5. Herbert Schildt, "The Complete Reference C++", Tata McGraw-Hill.
6. Deiteland Deitel, "C++ How to Program", Pearson Education.
7. Robert Lafore, "Object Oriented Programming in C++", Galgotia Publications.
8. Bjarne Strautrup, "The C++ Programming Language", Addition-Wesley Publication Co.
9. Stanley B. Lippman, Josee Lajoie, "C++ Primer", Pearson Education.
10. E. Balagurusamy, "Object Oriented Programming with C++", Tata McGraw-Hill

CP-1-02P: Computer Programming Lab

Total Marks: 50
External Marks: 35
Internal Marks: 15
Credits: 2
Pass Percentage: 40%

Course: Computer Programming Lab	
Course Code: CP-1-02P	
Course Outcomes (COs) After the completion of this course, the students will be able to:	
CO1	Demonstrate proficiency in C/C++ programming by successfully designing, coding, and debugging Java applications to solve a variety of programming problems.
CO2	Implement and manipulate fundamental data structures, such as arrays, linked lists, stacks, and queues, showcasing the ability to choose and apply appropriate data structures based on problem requirements.
CO3	Apply object-oriented programming principles effectively, demonstrating the ability to design and implement classes, encapsulate data, utilize inheritance and polymorphism, and create reusable and modular code.
CO4	Develop strong algorithmic problem-solving skills by designing and implementing efficient algorithms to solve programming challenges, demonstrating an understanding of algorithm complexity and optimization.
CO5	Gain competence in error handling and debugging C/C++ code, utilizing debugging tools and techniques to identify and resolve errors effectively, thereby producing robust and error-free programs.

Detailed List of Programs:

Programme No.	Name of Program
P1	Write a simple program that prints "Hello, World!" to the console.
P2	Take two numbers as input and display their sum.
P3	Generate and print the multiplication table for a given number.
P4	Compute the factorial of a given number.
P5	Check whether a given number is prime or not.
P6	Generate and display the Fibonacci series up to a specified number of terms.
P7	Determine if a given number or string is a palindrome.
P8	Reverse a given string without using library functions.

P9	Implement a sorting algorithm (e.g., bubble sort, selection sort) for an array of integers.
P10	Search for an element in an array using linear search.
P11	Implement binary search for a sorted array.
P12	Perform addition of two matrices.
P13	Find and display the transpose of a matrix.
P14	Implement a program to calculate the power of a number using recursion.
P15	Create a basic calculator program that performs addition, subtraction, multiplication, and division.
P16	Compute the factorial of a number using a recursive function.
P17	Check whether a given number is an Armstrong number.
P18	Calculate the GCD of two numbers using Euclidean Algorithm.
P19	Convert a decimal number to its binary equivalent.
P20	Reverse the words in a given sentence without using library functions.