Gujarat University
K. S. School of Business Management and Information Technology
[Five Years' (Full – Time) M.Sc. (CA&IT) Integrated Degree Course]
First Year M.Sc. (CA&IT) (Semester - I)

Course Name: Fundamental of Programming Practicals

Course Code: DSC-C- IMSCIT-112P

Course Credit: - 4

Objective:

The objective of this course is to provide practical implementation of programming skills in the C language. It aims to enhance basic skills in programming, understanding the principles and concepts of structured programming, and the ability to write, compile, debug, and run programs in C.

Course Outcomes:

Upon completion of this course, students will be able to:

➢ Seamlessly translate theoretical concepts into optimized C programs, showcasing hands-on expertise in coding, debugging, and problem-solving.
➢ Exhibit practical skills in manipulating complex data structures and conducting efficient file operations in C, reflecting a deep understanding of applied data operations.

Unit No.	Course Content	Hours	Credits
1	**Basics of C and Decision-Making Controls** • Basic Programs in C: Implementations of Data types, Operators, and Mathematical built-in functions. • Decision-Making Structures: Implementations of Simple if statements, if-else statements, nested if-else statements, else-if ladder, Conditional Operators, switch-case, and go to statements.	30	1
2	**Looping, Arrays, and Strings** • Loop Control Structures: Implementation of for loop statements, while loop statements, Do while loop statements, Nested Loops, Jumps in Loops. • Arrays: Concept of an array, declaration & initialization of an Array, Implementations of One-Dimensional Array, Two-Dimensional Array. • Strings: Implementations of different operations on strings.	30	1

3	**Functions, Structures, and Unions.** • Functions: Implementations of user-defined functions (with and without recursion), Functions with and without parameters and return values. • Implementations of call by reference and call by value. • Implementations of Recursion. • Structures: Implementations of structures, structures within structures, Array of structure, Array within structure, Structures using functions.	**30**	**1**
4	**Pointers and File Management:** • **Pointers:** Implementations of a simple program using pointers, Implementation of pointers using arrays. • **File Handling:** File operations (opening, reading, writing, and closing files), Implementations of text file processing line by line, Reading and writing text data, Handling binary files, Reading and writing binary data.	**30**	**1**

Reference Books:
1. Programming ANSI C" by E. Balagurusamy,
   Tata McGraw-Hill Publication and GCC manuals available on UNIX/LINUX.
2. C Complete Reference
   By Herbert Scheildt, Tata McGraw-Hill Publication.
3. Programming With C
   By Gottfried, Tata McGraw-Hill Publishing.
4. C How to Program
   By Deitel and Deitel, Pearson.
5. Programming For Problem Solving
   By Dr. S. M. Shah and Dr. P. P. Kotak.

Accomplishments of the student after completing the Course:

• Demonstrate proficiency in writing, debugging, and optimizing C programs, transforming theoretical knowledge into tangible coding solutions.
• Translate real-world challenges into algorithms and then craft efficient programs in C to address those challenges, showcasing applied problem-solving abilities.