

# GUJARAT TECHNOLOGICAL UNIVERSITY

## Master of Computer Application

**Subject Name** : Fundamentals of Programming (FOP)

**Subject Code** : 610001

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**Objectives:** The aim of this course is to introduce to the students the rudiments of structured programming using C language. Students will become familiar with problem solving techniques and algorithm development.

**Prerequisites:** None

### Contents:

- 1. Introduction to programming& Basics of C:** Concepts of Algorithm and Flowcharts, Process of compilation, Generation of languages, Basic features of C Language like Identifier, Keywords, Variable, data types, Operators and Expression. Basic screen and keyboard I/O
- 2. Control Statements:** Test Conditions, Conditional execution and selection, Iteration and Repetitive Executions, Nested loops.
- 3. Arrays:** Introduction to contiguous data types. One dimensional arrays, multidimensional arrays, Array as strings, multidimensional character arrays. Operations on strings.
- 4. Functions:** Concept of modular programming, Using functions, Scope of data, Recursive functions. Command line arguments.
- 5. Pointers:** Need of pointer, Types and uses of pointer, Array and Pointers, Pointers and strings, Pointer to Pointer, Pointers and functions, other aspect of pointers.
- 6. User Defined Data Types:** Introduction to structures, usage of structure, nested structures, Union and its usage, Enumeration types, bit fields.
- 7. Files:** Types of files, working with files, usage of file management functions.
- 8. Linked List:** Introduction to dynamic memory allocation, singly link list, operations on singly link list.
- 9. Other features of C:** Bitwise operators and its usage, C Preprocessor statements.

**Main Reference Book(s):**

1. **Programming in C**, by Pradip Dey & Manas Ghosh, Publisher – Oxford

**Suggested Additional Reading :**

1. **Programming in ANSI C**, by Balagurusamy, Publisher - Tata McGraw Hill.
2. **Computer Science: A Structured Programming Approach Using C**, by Behrouz A. Forouzan & Richard F. Gilberg, Publisher – Thomson Education.
3. **Programming with ANSI and Turbo C**, by Ashok N Kamthane, Publisher – Pearson Education.
4. **Mastering C**, by Venugopal & Prasad, Publisher – Tata McGraw Hill.
5. **C: The Complete Reference**, by Herbert Schildt, Publisher – Tata McGraw Hill.
6. **Let us C**, by Yashwant Kanitkar, Publisher – BPB Publication
7. **Schaum's Outline of Programming with C**, By: Byron Gottfried, Publisher Shaum Series.

**Chapter wise coverage from main reference Book(s) :**

Chapter 1 to 11 except 10.4-10.6, 11.5-11.7

**Accomplishments of the student after completing the course :**

After completion of the course students should become reasonably good at problem solving and algorithm development. They would become capable of solving problems using computers through C programming language.