

GUJARAT TECHNOLOGICAL UNIVERSITY

MASTERS IN COMPUTER APPLICATION (Integrated MCA)

Year – I (Semester – I) (W.E.F. JULY 2013)

Subject Name: Fundamentals of Programming – 1 (4410603)

1. Objectives:

- To be able to understand the meaning of algorithm and draw flowcharts for solving programming problems.
- To learn about the data types, operators and functions in C programming language.
- To be able to write code in C programming language for simple problems

2. Prerequisites: Basic Mathematics and knowledge about number systems

3. Course Contents:

Sr. No.	Course Content	No. of Sessions
1	Introduction to Algorithms and Programming Languages Algorithm, Key features of algorithms Some more algorithms, Flowcharts, Pseudocode, Programming Languages, Generations of Programming Languages, Structured Programming Languages.	03
2	Introduction to C Structure of a C Program, First C Program, Files used in a C Program, Compiling and executing C Program, Compiling and executing C Programs, Using comments, keywords, identifiers, Basic data types in C, Variables, Constants, Input/Output Statement in C, Operators in C, Programming examples, Type conversion and Typecasting.	07
3	Decision Control and Looping Statements Introduction to Decision Control Statements, Conditional branching statements, Iterative Statements, Nested Loops, break and continue statements, goto statement	09
4	Functions Introduction, Using Functions, Function Declaration/Function Prototype, Function Definition, Function call, return statement, Passing Parameters to the function, scope of variables, Storage classes, Recursive Functions, Types of recursions, Tower of Hanoi, Recursion versus Iteration	10
5	Arrays Introduction, Declaration of arrays, Accessing elements of the Array, Storing values in Arrays, Calculating the length of the array, Operations that can be performed on Arrays, One-dimensional arrays for inter-function communication, two-dimensional arrays, Operations on two-dimensional arrays, two-dimensional arrays for inter-function communication, multidimensional arrays, Sparse matrices.	10
6	Strings Introduction, Suppressing input, String taxonomy, String Operations, Miscellaneous String and Character functions, Array of Strings	09

4. Main Reference Book(s):

- 1) Reema Thareja, “Computer Fundamentals and programming in C”, Oxford University Press.

5. Suggested Additional Reading:

- 1) Reema Thareja. “Programming in C”, Oxford University Press.
- 2) R G Dromey. “How to solve it by Computer”, Pearson Education.
- 3) Donald Knuth. “The art of computer programming Vol-1”, Pearson Education

6. Chapter wise Coverage from Main Reference Book(s):

Book #1 ->	Chapter 7
Book #1 ->	Chapter 8
Book #1 ->	Chapter 9
Book #1 ->	Chapter 10
Book #1 ->	Chapter 11
Book #1 ->	Chapter 12