GUJRAT TECHNOLOGICAL UNIVERSITY

NAME OF COURSE : PROGRAMMING IN 'C'.

1. RATIONALE:

This course gives fundamentals of programming language which is useful in developing applications in various fields & gives knowledge of latest concept of 'C' language. The fundamental concepts of learning a computer programming language have been covered in this course which will enhance their ability to suitably use it in their respective field of applications.

2. SCHEME OF TEACHING & ASSESSMENT :

```
--------------------------------------------------------
Sr.   Name of Topic              No. of Hours
No.                              L    P    T
--------------------------------------------------------
1.    Prog. Language Concepts     2    4    6
2.    Constants, Variable &       4    4    8
      Data types
3.    Operators & Expression      4    8   12
4.    Branching & Looping         4    8   12
5.    Arrays                      4    6   10
6.    User-Defined functions      2    6    8
7.    Pointers                    4    8   12
8.    Structure, Unions           2    4    6
9.    File Management             2    8   10
                                 ---  ---  ---
                                 28   56   84
```

3. OBJECTIVES :

 The students should be able to
a) Write high level & low level programs.
b) Understands concepts of structure.
c) Apply basic programming concepts in relevant field

4. TOPIC & SUBTOPIC :

1. PROGRAMMING LANGUAGE CONCEPTS :

1.1 Concepts of programming methodology.
1.2 Flowchart
1.3 Algorithm

2. CONSTANTS, VARIABLES & DATA TYPES :

2.1 Character set
2.2 'C' token
2.3 Keywords & Identifiers
2.4 Constant, Variables
2.5 Data types
2.6 Storage Classes

GUJRAT TECHNOLOGICAL UNIVERSITY

3. OPERATORS & EXPRESSIONS :

3.1 Arithmetic, logical, Assignment operators
3.2 Increment & Decrement, Conditional operator
3.3 Bit-wise special operators
3.4 Formatted & Unformatted input & output
3.5 Arithmetic, Evaluation of the types of expressions

4. BRANCHING & LOOPING

4.1 Decision making with IF statement
4.2 Switch Statement
4.3 The ? : Operator
4.4 Goto Statement
4.5 While, For Statement
4.6 Macro substitutions

5. ARRAYS :

5.1 Introductions
5.2 One dimensional arrays
5.3 Initiating two dimensional arrays

6. USER DEFINED FUNCTIONS :

6.1 Introduction
6.2 Call by value & Call by reference
6.3 Nesting of functions
6.4 Recursions
6.5 Functions with arrays

7. POINTERS :
7.1 Introduction
7.2 Understanding Pointers
7.3 Pointers expressions
7.4 Pointers & Arrays
7.5 Pointers & Strings
7.6 Pointers & Structures
7.7 Pointer to Pointer

8. STRUCTURES, UNIONS :
8.1 Introduction
8.2 Structure definition & initialization
8.3 Arrays of Structures
8.4 Structures with Structures
8.5 Structures & functions
8.6 Unions

9. FILE MANAGEMENT :
9.1 Introduction
9.2 Defining, Opening and Closing file.
9.3 Input/Output operations on file
9.4 Command line arguments

5. LABORATORY EXPERIENCE :

Students should write programmes on the basis of prescribed curriculum of this course. (minimum 20 programmes are required)

6. REFERENCES :

1.	Programming in ANSI 'C'	Lagurusamy	TMH
2.	Let us 'C'	Etkar	Tech Media
3.	Programming in 'C'	U Gopal	TMH
4.	Programming in 'C'	Nigham & Richi	TMH
5.	Program with 'C'	Gottfried	MHT