COMPUTER PROGRAMMING
BEG175CO

Year: I **Semester: I**

Teaching Schedule Hours/Week			Examination Scheme				
Theory	**Tutorial**	**Practical**	**Internal Assessment**		**Final**		**Total**
			Theory	**Practical***	**Theory ****	**Practical**	
3	**-**	**3**	20	50	80	-	150

*** Continuous**
**** Duration:** 3 hours

Course objectives: To provide fundamental knowledge of programming.

1. Problem Solving Using Computers **(2 hrs)**
- 1.1 Problem Analysis
- 1.2 Algorithm Development & Flowcharting
- 1.3 Coding
- 1.4 Compilation & Execution
- 1.5 Debugging & Testing
- 1.6 Program Documentation

2. Introduction to C **(2 hrs)**
- 2.1 Historical Development of C
- 2.2 Importance of C
- 2.3 Basic Structure of C Program
- 2.4 Executing a C Program

3. C Fundamentals **(3 hrs)**
- 3.1 Character Set
- 3.2 Identifiers & Keywords
- 3.3 Data Types
- 3.4 Constants, Variables
- 3.5 Declarations
- 3.6 Escape Sequences
- 3.7 Preprocessors Directives
- 3.8 Typedef statement
- 3.9 Symbolic Constants

4. Operators & Expression **(1 hrs)**
- 4.1 Operators:
- 4.2 Arithmetic, Relational , Logical, Assignment, Unary, Conditional, Bit wise operators
- 4.3 Precedence & Associativity

5. Input and Output **(2 hrs)**
- 5.1 Types of I/O
- 5.2 Reading & Writing data
- **5.3** Formatted I/O

6. Control Statements **(6 hrs)**
- 6.1 Loops: For, While, Do-While
- 6.2 Decisions: if , if else, Nested if…else
- 6.3 Statements: switch, break, continue, goto
- 6.4 exit( ) function
- 6.5

7. Functions **(6 hrs)**
- 7.1 Advantages of using Function

7.2 User Defined & Library Functions
7.3 Function Prototypes, definition & return statement
7.4 Call by Value & Call by reference
7.5 Concept of Local, Global & Static variables
7.6 Recursive Function

8. Arrays and Strings (6 hrs)

8.1 Introduction
8.2 Single and Multi-dimension arrays
8.3 Processing an array
8.4 Passing arrays to Functions
8.5 Arrays of Strings
8.6 String Handling Functions

9. Pointers (5 hrs)

9.1 Fundamentals
9.2 Pointer Declarations
9.3 Passing Pointers to Functions
9.4 Relationship between Arrays & Pointers
9.5 Dynamic Memory Allocation

10. Structures and Unions (6 hrs)

10.1 Defining a Structure, Arrays of Structures, Structures within Structures
10.2 Processing a Structure
10.3 Structures & Pointers
10.4 Passing Structures to Functions
10.5 Union & its importance

11. Data Files (3 hrs)

11.1 Opening & Closing a Data File
11.2 Creating a Data File
11.3 Processing a Data File

12. Graphics (3 hrs)

12.1 Initialization
12.2 Graphical mode
12.3 Simple program using built in graphical function

Laboratories:

There shall be 12 lab exercises covering features of C programming.

References Books:

1. Kelly & Pohl, " A Book on C ", Benjamin/Cummings
2. Brian W. Keringhan & Dennis M. Ritchie, " The 'C' Programming Language",PHI
3. Brtons G. Gotterfried, "Programming with 'C'", Tata McGraw-Hill
4. Stephen G. Gotterfried, "Programming in C", CBS pubishers & distributors
5. E. Balguruswamy, "Programming in C", Tata McGraw-Hill
6. Yashvant Kanetkar, "Let us C", BPB Publications