

**COURSE TITLE** : **PROGRAMMING IN C**  
**COURSE CODE** : **2131**  
**COURSE CATEGORY** : **Basic Engineering**  
**PERIODS/WEEK** : **4**  
**PERIODS/SEMESTER** : **60**  
**CREDITS** : **4**

**TIME SCHEDULE**

<b>MODULE</b>	<b>TOPICS</b>	<b>PERIODS</b>
<b>1</b>	Basic Programming Concepts in C	<b>15</b>
<b>2</b>	Functions and Pointers	<b>15</b>
<b>3</b>	One and Two-dimensional Arrays	<b>15</b>
<b>4</b>	Strings and Structures	<b>15</b>

**Course General Outcomes:**

<b>Sl.</b>	<b>G.O</b>	<b>On completion of this course the student will be able :</b>
<b>1</b>	1	To comprehend the basic programming concepts in C
<b>2</b>	1	To understand the use of functions and Pointers
<b>3</b>	1	To know and apply One and Two-dimensional Arrays
<b>4</b>	1	To understand Strings
	2	To understand Structures

## **Specific Outcomes:**

### **Module I - Basic Programming Concepts in C**

1. To comprehend the basic programming concepts in C
  - 1.1 To know the C Character Set
  - 1.2 To describe the concept of Constants, Variable and Keywords
  - 1.3 To discuss C Instructions
  - 1.4 To know Control Instructions in C
  - 1.5 To know decision control structures
  - 1.6 To know logical operators
  - 1.7 To know conditional operators
  - 1.8 To know loop Control Structures
  - 1.9 To know Case Control Structure

### **Module II - Functions and Pointers**

2. To understand the use of Functions and Pointers
  - 2.1 To know Functions
  - 2.2 To discuss passing values between Functions
  - 2.3 To know scope rule of Functions
  - 2.4 To know Function declaration and Prototypes
  - 2.5 To know Pointers
  - 2.6 To know Recursion
  - 2.7 To understand Data Types
  - 2.8 To list and use Storage Classes
  - 2.9 To know features of C Preprocessor
  - 2.10 To know Macros
  - 2.11 To know File Inclusion

### **Module III - One and Two dimensional Arrays**

3. To know and apply One and Two-dimensional Arrays
  - 3.1 To know Arrays
  - 3.2 To understand passing Array elements to a Function
  - 3.3 To know Pointers and Arrays
  - 3.4 To discuss Two-Dimensional Array
  - 3.5 To know Pointers and Two – Dimensional Arrays
  - 3.6 To know Array of Pointers

### **Module IV - Strings and Structures**

- 4.1 To understand Strings
  - 4.1.1 To know about strings
  - 4.1.2 To know about standard Library String Functions
  - 4.1.3 To know about Two- Dimensional Array of Characters
  - 4.1.4 To know array of Pointers to Strings
- 4.2 To understand Structures
  - 4.2.1 To know about Structures
  - 4.2.2 To discuss Array of Structures

## CONTENT DETAILS

### **Module I- Basic Programming concepts in C**

Basics of C – The C Character Set – Constants, Variables and Keywords – Types of C Constants – Types of C Variables – C Key Words – C Instructions -Type Declaration - Arithmetic Instruction- Integer and Float Conversion – Type Conversion in Assignment – Hierarchy of Operations - Associativity of operations – Control Instructions in C – The if Statement- Multiple statements within if- The if-else statement- Nested if-else- Use of logical operators- Hierarchy of logical operators- Conditional Operators – Loop Control structures – The while loop-The for loop- Nesting of Loops – Break Statement – The continue statement – The do-while loop – Case Control Structures – Decisions using Switch – The goto statement.

### **Module II- Functions and Pointers**

Function –Usage of Functions – Passing values between Functions – Scope rule of Functions – Function declaration and prototypes – Call by value and Call by reference- Introduction to Pointers – Pointer Notation – Function Calls-Recursion – Recursion and Stack – Adding Functions to Library.

Data types – Integers, Long and Short, Signed and Unsigned – Characters, Signed and Unsigned- Float and Double – Storage classes in C – Automatic, Register, Static, External – Features of C Preprocessor – Macros with Arguments – Macros versus Functions- File inclusion

### **Module III – One and Two dimensional Arrays**

Arrays – Array Initialization – Bounds Checking – Passing Array elements to a Function – Pointers and Arrays – Passing an entire Array to Function – Initializing a Two Dimensional Array – Memory map of Two Dimensional Array -Pointers and Two Dimensional Arrays –Pointer to an Array – Passing Two Dimensional Array to a Function - Array of Pointers

### **Module IV – Strings and Structures**

Strings- Standard Library String Functions – strlen(),strcpy(),strcat(),strcmp() - Two-Dimensional Array of Characters- Array of pointers to Strings

Structures – Use of Structures – Declaring a structures – Accessing Structure elements- Array of Structures

#### **Text Book(s):**

1. Let Us C – Yashavant Kanetkar, BPB Publications, 13th Edition.

#### **References:**

1. Programming in ANSI C, E.Balagurusamy, TataMc-Graw Hill, 3rd Edition.
2. A Text Book on C ,E.Karthikeyan ,PHI Private Limited, 2008.
3. Programming in C D.Ravichandran, New Age International Publishers, 2011.
4. The C Programming Language, **Brian Kernighan and Dennis Ritchie, Prentice Hall , 2 Edition.**

#### **Web Site :**

<http://freecomputerbooks.com/The-C-Programming-Language.html>