# 17CS1201 - C-PROGRAMMING

(Common to CSE, IT, ECE & EEE)

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| **Course Category:** | Program Core | **Credits:** | 3 |
| **Course Type:** | Theory | **Lecture - Tutorial - Practical:** | 3-2-0 |
| **Prerequisite:** | Basic mathematical knowledge to solve problems in analytical manner and idea on programming Methodologies. | **Sessional Evaluation:**  **Univ. Exam Evaluation:**  **Total Marks:** | 40  60  100 |
| **Objectives** | Students undergoing this course are expected to understand:   * Gaining insights of building blocks of C language. * Getting fundamental ideas about core concepts of C Programming. * Understanding the procedural approach to solve simple problems. | | |

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| **Course Outcomes** | Upon the successful completion of the course, the students will be able to: | |
| CO1 | Learn the fundamental structure of C program and basic data types |
| CO2 | Find the usage of operators in expression evaluation and I/O Statements. |
| CO3 | Acquire information on various control structures |
| CO4 | Study the concept of arrays and strings |
| CO5 | Understand the features of Pointers and Functions |
| CO6 | Explore the basics of Data Storage on Files and Derived data types |
| **Course Content** | UNIT-I  **Introduction:** Algorithms, Flow charts, Program development steps.  **Fundamentals of C:** History, Structure of a C program, Programming rules and execution. Character set, Delimiters, C keywords, Identifiers, Constants, Variables, Rules for defining Variables, Data types, Declaration and Initialization of Variables.  UNIT-II  **Operators and Expressions:** Introduction, Operator Precedence and Associativity, Operator Types  **Input and Output in C:** Formatted and Unformatted functions, Commonly used library functions.  UNIT-III  **Decision Statements:** Introduction, Types of IF statements, switch statement, break, continue, goto.  **Iterative Statements:** while, do-while and for loops.  UNIT-IV  **Arrays:** Definitions, Initialization, Characteristics of an array, Array Categories.  **Strings:** Declaration and Initialization of strings, String handling functions.  **Storage Classes:** Automatic, External, Static and Register Variables.  UNIT-V  **Pointers:** Fundamentals, Declaration and initialization of Pointers, Arithmetic Operations, Pointers and Arrays.  **Functions:** Definition, Function Prototypes, Types of functions, Call by Value and Call by Reference, Recursion.  UNIT-VI  **Structures:** Definition, Declaration and Initialization of Structures.  **Unions:** Definition, Declaration and Initialization of Union.  **Files:** Introduction, File Types, Basic operations on Files, File I/O, Command Line Arguments. | |
| **Text Books and References** | Text Books:   1. Programming with ANSI & TURBO C by Ashok N.Kamthane, Pearson Education 2007 | |
| Reference Books:   1. A Book on C by Al Kelley/Ira Pohl, Fourth Edition, Addison-Wesley.1999 2. Let Us C by Yashavant Kanetkar, BPB Publications. 3. Programming in ANSI C by Balaguruswamy 6th Edition, Tata McGraw Hill Education, 2012. | |
| **E-Resources** | 1. <https://nptel.ac.in/courses> 2. <https://freevideolectures.com/university/iitm> | |