**CS2501 Introduction to Computing L-T-P- 3-0-0, Cr: 03**

**Pre-requisites:** None

**Objectives:**

• To learn basics of computer architecture and networking.

• To learn problem solving algorithmically.

• To learn common and advanced features of C programming language.

• To learn coding of solutions and logic of simple and intermediate level problems using C.

**Course Outcomes:**

At the end of the course, a student should have:

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| Sl. No. | Outcome |
| 1. | Ability to design algorithms and flowcharts. |
| 2. | Understanding of fundamentals of C proqramming. |
| 3. | Ability to choose appropriate loops/decision constructs while writing C programs. |
| 4. | Ability to implement different operations on arrays |
| 5. | Knowledge of different string manipulation APIs |
| 6. | Ability to modularize C programs through functions |
| 7. | Understanding of pointers, structures and unions \_ |
| 8. | Ability to use common file handling APIs in C programming |
| 9. | Knowledge of basic APIS for graphics programming and ability to draw simple shapes. |

**Unit 1: Introduction to Architecture of:** Basics of computer hardware and software components ' including operating system and compiler. Basics of various networks (LAN, WAN, Intranet) and common network topologies. **2 Lectures**

**Unit 2- Introduction to Programming, Algorithms and Flow Chart:** Generation of programming ' languages, steps involved in Problem Solving, Algorithm, Flow chart, Pseudo code. **2 Lectures**

**Unit 3: Basics of C:** A Simple C program, Header files, data types and sizes, Constants, ' variables, token, identifiers, Operators: arithmetic, relational and logical operators, increment and decrement operators, conditional operator, bit-wise operators, assignment operators; expressions, L-value, r-value, type conversions, conditional expressions, precedence and order of evaluation, data type conversion, mixed-mode operation, Managing Input and Output operation (formatted and unformatted) **4 Lectures**

**Unit 3: Control Statements:** Conditional control statement—if, if-else, nested-if, switch; Go-to-statement; Looping– while, do- while, for, nested for; jumps in loops—break and continue statement.