SKILL ENHANCEMENT COURSE
ELT318S: PROGRAMMING & PROBLEM SOLVING THROUGH C

(Credits: Theory -02, Lab-02)

THEORY (CREDITS: 2)

Unit I: Introduction to C programming

The Basic Model of Computation, Algorithms, Flow-charts, Programming Languages, Compilation, Linking and Loading, Testing and Debugging, Documentation, Algorithms for Problem. Character Set, Variables and Identifiers, Built-in Data Types, Variable Definition, Arithmetic operators and Expressions, Constants and Literals, assignment and Basic Input/ Output Statement, Conditional Statements and Loops - Decision making within a program, Conditions, Relational Operators, Logical Connectives, if, if else and goto statements.

Unit II: Basic Constructs of C Programming

Loops: while loop, do while, for loop, Do-while loop, Nested loops, Infinite loops, Switch, continue and break statement, structured Programming. One dimensional array: Array manipulations, two dimensional arrays, Addition/Multiplication of two matrices, Transpose of a square matrix. Introduction to functions, function prototypes, function call and function definition, recursive functions, inbuilt functions. Introduction to Pointers and Structures and Files

PRACTICAL (CREDITS: 2)

Unit III: Laboratory I

Exchanging values of two variables, summation of a set of numbers, Decimal Base to Binary Base conversion, Reversing digits of an integer, GCD (Greatest Common Division) of two numbers, Test whether a number is prime, Organize numbers in ascending order, Find square root of a number, factorial computation, Fibonacci sequence, Evaluate *sinx* as sum of a series, Quadratic equation, reverse digits of number, Fibonacci series, other programs involving conditional statements.

Unit IV: Laboratory II

Programs based on different types of loops, finding reverse order of elements of an array, Find largest number in an array, Print elements of upper triangular matrix, multiplication of two matrices, finding largest, smallest number in an array, Bubble sort, selection sort and insertion sort, factorial of a number, sum of digits of a number, prime series using functions, transpose of a matrix, programs involving functions.

Books Recommended:

1. **"Let us C",** Y*eshwant Kanetk,m* BPB Publications.
2. **"Programming with ANSI-C", B.** *Balagumsamy,* Tata McGraw Hill.
3. **"Problem Solving & Programming Design in C",** *Hanly & Kojjman,* Pearson Education.
4. **"C How to Program",** *Dietel & Dietel,* Prentice Hall India.