CERTIFICATION IN
C PROGRAMMING

Course Code : OCIT0001

The C programming language is one of the most popular and widely used general-purpose programming languages.

This course starts with introduction to computer based problem solving techniques like algorithms and flowcharts. The course covers basic as well as advanced features of the C programming language. Varied C programming topics like, data types, functions, control structures, pointers, strings, arrays and dynamic allocation principles are covered in this course. You will be able to write efficient C programs for a variety of problems at the end of this course.

Curriculum

Module 1: Overview of Programming
Introduction to computer based problem solving, Program design and implementation issues - Flowcharts and algorithms, Top down design and stepwise refinement, Programming environment

Module 2: Fundamentals of C Programming
Overview of C, Data types, Constants and, Operators and expressions, Control constructs-if then, for, while, Arrays- single and multidimensional arrays, Functions-fundamentals.

Module 3: Advanced Programming Techniques
Control constructs- Do while, Switch statement, break and continue, exit() function, go to and label, Scope rules-Local and global , scope rules of functions, Functions-parameter passing, call by value and call by reference, calling functions with arrays, argc and argv, recursion- basic concepts, ex-towers of Hanoi.

Module 4: Dynamic Data Structures in C
Pointers- The and * operator, Pointer expression, Assignments, Arithmetic, Comparison, malloc vs calloc, Arrays of pointers, Pointers to pointers, Initializing pointers, Pointers to functions, Function retuning pointers, Structures- Basics, declaring, Referencing structure elements.

Module 5: Additional Features
File handling – The file pointer, File accessing functions, fopen, fclose, puc, getc, fprintf, C Preprocessor- #define, #include, #undef, Conditional compilation directives, C standard library and header files:

Learning Outcomes

- Write a C program using advanced control constructs
- Develop a C code containing Do-while, break and exit keywords
- Identify a problem definition
- Solve abstract and complex problems using modular design methodology
- Write a code using array of pointers