

MCA102 COMPUTER PROGRAMMING

L	T	P	Cr
3	0	4	5.0

Course objective: This course is designed to explore computing and to show students the art of computer programming. Students will learn some of the design principles for writing good programs.

Introduction to 'C' programming: Fundamentals, Structure of a 'C' program, Compilation and linking processes.

Expressions and Console I/O : Basic Data types, Identifier Names, Variables, Scope, Type qualifiers, Storage class specifiers, Constants, Operators, Reading and writing characters, Reading and writing strings, Formatted and console I/O, printf(), scanf(), Suppressing input.

Statements: True and False in C, Selection statements, Iteration statements, Jump statements, Expression statements, Block statements.

Arrays and Strings: Single dimension array, Two dimension array, Strings, Array of strings, Multi-dimension array, Array initialisation, Variable length arrays.

Pointers: Pointer variables, Pointer operators, Pointer expressions, Pointers and arrays, Multiple indirection, Pointer initialization, Pointers to arrays, Dynamically allocated arrays, Problems with pointers.

Functions: General form of a function, Understanding scope of a function, Function arguments, Command line arguments, Return statement, Recursion, Function prototype, Pointers to functions.

Structures, Unions, Enumerations, and Typedef: Structures, Array of structures, Passing structures to functions, Structure pointers, Arrays and structures within structures, Unions, Bit-fields, Enumerations, typedef.

File I/O: Streams and files, File system basics, fread() and fwrite(), fseek() and random access I/O, fprintf() and fscanf(), Standard streams.

Pre-processor and Comments: Pre-processor, #define, #error, #include, Conditional compilation directives, #undef, Single line and multiple line comments.

Laboratory work: To implement Programs for various kinds of programming constructs in C Language.

Recommended Books:

1. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language, Prentice Hall(1988), 2nd ed.
2. Schildt H., C: The Complete Reference, Tata Mcgraw Hill, (2000), 4thed.
3. Stroustrup B., The C++ Programming Language, Addison Wesley (2000), 3rd ed.
4. Kanetkar Y., Let Us C, BPB Publications(2012),13th ed.