CA102A1 (3L +1T Hrs.)

C PROGRAMMING

Questions to be set: 05 (All Compulsory)

Objectives: This course covers the fundamentals of computer programming and the basics of the C language. This course covers the fundamental concepts of C such as structure of a C program, variables, constants, data types, storage class, operators, expressions, predefined functions, formatted input/output, logic design and arrays as derived data types. The completion of this course will enable the learners to write programs in C language with basic commands to solve their problems of interest.

Pre-requisites: Knowledge of computers.

Module	Topics to be covered	Topics	Hrs
Method 1: Introduction to Programming Language with C, Constants, Variables, Data Types, Operators and Expressions	in class	History of C, Basic Structure of a C Program, Sample C Programs, Programming Style, Executing a C Program. Character Set, Tokens, Keywords and Identifiers, Constants, Variables, Data Types, Declaration of Variables, Declaration of Storage Class, Assigning of Storage Class, Defining Symbolic Constants, Overflow and Underflow of Data, Introduction, Different Categories of Operators in C Language, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversions in Expression, Operator Precedence and Associativity, Mathematical Functions.	[10]
	Assignment Topics	To be provided by the concern faculty members	
Module 2: Managing Input Output Operations, Decision Making and Branching	in class	Introduction to decision making statements - IF Statement, Simple IF Statement, the IF---ELSE Statement, Nesting of IF---ELSE Statement, the ELSE IF Ladder, the Switch Statement, the ?: Operator, the GOTO Statement, Introduction, the WHILE Statement, the DO Statement, the FOR Statement,	[6]
	Assignment Topics	To be provided by the concern faculty members	
Module 3: Arrays	in class	Introduction, One-Dimensional Array, Declaration and Initialization of 1-D Array, 2-D Array, Initialization of 2-D Array, Declaring and Initializing String Variables, Reading Strings from Terminals, Writing Strings to Screen, String Handling Functions	[6]
	Assignment Topics	To be provided by the concern faculty members	

Module 4: Pointers	in class	Introduction to Pointers, Accessing the Address of a Variable. Declaring and Initializing a Pointer Variable, accessing a Variable through Pointer, Pointers and Arrays, Pointers and Character Strings, Array of Pointers, Dynamic memory allocation Introduction to functions, need for user defined functions, elements of a user defined function, Category of Functions, Recursion, Passing Arrays to Function, Scope, Visibility and Lifetime of a Variable.	[10]
	Assignment Topics	To be provided by the concern faculty members	
Moule 5:	in class	Defining a Structure, Declaring Structure Variables, Accessing Structure Members, Structure Initialization, Variables, Operations on Individual Members, Array of Structures, Structures within Structures, Structures and Functions, Unions, Size of Structures Introduction to file handling, input/output operations on a file, error handing during I/O operations, command line arguments	[8]
	Assignment Topics	To be provided by the concern faculty members	

Text Books:

1. E. Balagurusamy, Programming in ANSI C, Tata McGraw Hill.
2. Kanetkar Y., Let Us C, BPB.

Reference Books:

1. Ashok N. Kamthane, Programming with ANSI and Turbo C, Pearson Education.
2. B.S. Gottfried, Programming with C, Tata McGraw Hill
3. Kernighan and Ritchie, The C Programming, Pearson Education.
4. K. Venugopal, Mastering C, Tata McGraw Hill.