1st Semester	MCA01003	C and Data Structure	L-T-P 3-0-0	3 CREDITS

MODULE – I **(10 Hours)**

C Language Fundamentals, Arrays and Strings

Character set, Identifiers, Keywords, Data Types, Constant and Variables, Statements, Expressions, Operators, Precedence of operators, Input – output Assignments, Control structures, Decision making and Branching, Decision making & looping. Declarations.

MODULE – II **(10 Hours)**

Monolithic vs Modular programs, User defined vs standard functions, formal vs Actual arguments, Functions category, function prototypes, parameter passing, Recursion, Storage Classes: Auto, Extern, Global, Static.Character handling in C. String handling functions. Pointers, Structures, Union & File handling

MODULE – III **(10 Hours)**

Pointer variable and its importance, Pointer Arithmetic passing parameters, Declaration of structures, pointer to pointer, pointer to structure, pointer to function, unions dynamic memory allocations, unions, file handling in C.

MODULE – IV **(10 Hours)**

Development of Algorithms: Notations and Analysis, Storage structures for arrays-sparse matrices, Stacks and Queues: Applications of Stack: Prefix, Postfix and Infix expressions. Circular queue, Double ended queue.

Books:

1. E. Balagurusamy, Programming in ANSI 'C', 8th Edition, Tata McGraw Hill, 2019.
2. Reema Thareja, Data Structures Using C, 2nd Edition ,Oxford University Press, 2014.
3. M. Tanenbaum, "Data Structures using C & C++", Prentice-Hall of India Pvt. Ltd.
4. A.K.Rath and A. K. Jagadev, "Data Structures and Program Design using C", 2nd Edition, Scitech Publications, 2011.
5. Bruno R Preiss, "Data Structures and Algorithms with Object Oriented Design Pattern in C++", John Wiley & Sons, Inc., 1999.
6. Horowitz and Sahani, "Fundamentals of data Structures",Galgotia Publication Pvt. Ltd.