**Course Objectives:**
The objective(s) of this course is to,
- Enable the learner with the concepts of recursion and linear data structures viz., Linked Lists, Stacks and Queues.
- Enable the learner with the concepts of non-linear data structures viz., Graphs, Trees, Heaps, Trie and Hashing.
- Hone the learner such that they obtain the ability to compare different implementations of data structures and recognize the advantages and disadvantages of different implementations.
- Inculcate in the learner, the aspects of choosing the appropriate data structure and algorithm design method for a specified application and with the usage of standard libraries.

**Course Outcomes:**
At the end of the course, the student will be able to:
- Implement fundamental data structures viz., Lists, Stacks, Queues, Linked Lists, Binary Trees from first principles.
- Demonstrate the use of appropriate data structures for a given problem.
- Design and implement solutions to basic practical problems using customized data structures.
- Develop quick and foolproof solutions to practical problems using abstract data types.

**Course Content:**
4. **Binary Search Tree:** Definition, Implementation, Search, Insert, Delete Operations, Building and Evaluating Binary Expression Tree. **Heap Tree:** Implementation, Insert, Delete, FindMin Operations, Priority Queue using Arrays and Heap.
5. **Tries:** Definition, Implementation, Applications. **Hashing:** Hash Table, Hash Functions, Collision Handling by Open Addressing, Chaining.
**Pre-requisite Courses:** Problem Solving with C.

**Reference Book(s):**