

G.L. Bajaj Institute of Technology and Management, Greater Noida

Career Development Centre

Modules - Technical Training

Module 2 – Advanced Data Structures & Algorithms

Course Outcomes:

1. Design and implement advanced data structures like trees, tries, heaps, and graphs.
2. Apply dynamic programming and greedy strategies to optimize solutions.
3. Solve complex problems using backtracking and recursive techniques.
4. Explore graph algorithms such as traversal, shortest path, and connectivity.
5. Use priority queues and heap structures for resource management and scheduling.

List of topics:

Sr. No.	Name of Topic	Industry Application	No. of Lectures
1	Tree	Hierarchical data storage, search systems, compiler design, routing algorithms	7
2	Dynamic Programming (DP)	Optimization problems, finance, robotics, AI planning, scheduling	8
3	Greedy	Resource allocation, load balancing, network optimization, routing	5
4	Graph	Social networks, network routing, recommendation systems, optimization problems	8
5	Backtracking	Puzzle solving, constraint satisfaction, AI algorithms, game development	5
6	Trie	Auto-complete systems, IP routing, spell checking, search engines	4
7	Heap & Priority Queue	Scheduling, bandwidth management, load distribution, event-driven simulations	4