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| **Lesson Plan**  **Discipline** : Computer Engineering **Semester** : V **Subject** : AA(ADVANCE ALGORITHM) **Lesson Plan Duration**: 15 weeks \*\* Work (Lecture) per week (In Hours):Lecture -03 | | | | | |
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| WEEK | | LECTURE | | TOPIC |
| 1 | | 1st | | **Unit-1** Algorithms & its complexity (Time) |
| 2nd | | Algorithms & its complexity(space) |
| 3rd | | Analysing Algorithms (worst, best & average case) |
| 2 | | 4th | | Asymptotic Notations |
| 5th | | Pseudocode Conventions, Binary Search Tree |
| 6th | | Binary Search Tree(finding an element) |
| 3 | | 7th | | Binary Search Tree(insert and delete an element) |
| 8th | | Methods for solving recurrence (Substitution) |
| 9th | | Methods for solving recurrence (Recursion Tree) |
| 4 | | 10th | | Methods for solving recurrence (Master Theorem) |
| 11th | | Revision of unit-1 |
| 12th | | **Unit-2** Dynamic programming: Elements |
| 5 | | 13th | | Matrix-chain multiplication |
| 14th | | longest common subsequence |
| 15th | | Greedy algorithm element: Activity Selection problem |
| 6 | | 16th | | Huffman codes |
| 17th | | Task scheduling problem |
| 18th | | Revision of minor test -1 Syllabus |
| 7 | |  | | Minor test I |
| 8 | | 19th | | Knapsack Problem |
| 20th | | Probabilistic analysis concepts |
| 21th | | Hiring Problem and its probabilistic analysis |
| 9 | | 22th | | **Unit 3** Review of graph Algorithm-Traversal Methods (Depth first ) |
| 23th | | Review of graph Algorithm-Traversal Methods ( Breadth first search) |
| 24th | | Topological sort, strongly connected components |
| 10 | | 25th | | Minimum spanning trees- Kruskal’s Algorithm |
| 26th | | Minimum spanning trees -Prim’s Algorithm |
| 27th | | Complexity of DFS,BFS,Krushkal & Prims algorithm. |
| 11 | | 28th | | Single source shortest paths, Relaxation |
| 29th | | Dijkstra’s Algorithm |
| 30th | | Bellman- Ford algorithm |
| 12 | | 31th | | Single source shortest paths for directed acyclic graphs |
| 32th | | Floyd-Warshall’s algorithm |
| 33th | | Revision of important concept of Graph |
| 13 | | 34th | | **Unit- 4** The Naïve string-matching algorithm |
| 35th | | Rabin-Karp Algorithm |
| 36th | | String matching with finite automata |
| 14 | |  | | Minor Test II |
| 15 | | 37th | | String matching with finite automata |
| 38th | | Knuth-Morris-Pratt Algorithm |
| 39th | | Revision of unit-4 |