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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 |