KIIT UNIVERSITY
Bhubaneswar

LESSON- PLAN

School of Computer Engineering

Semester: 5th

Subject Name: Design & Analysis of algorithm

Subject code: CS-3001

L-T-P – (3-1-0)

Module no. & Name.	Topics/Coverage	No. of lectures	Lectures serial nos.
1. Introduction	**1**.Concepts in algorithm analysis. **2**.Time Complexity. 3 Asymptotic Notation 4 Growth of functions 5 Recurrences 6 Set 7 Insertion Sort	**5**	**1-5**
2. Divide and conquer Method	**1**. Basic Steps to Solve a Problem **2**. Binary Search. 3 Finding max and min in an array 4 Merge Sort 5 Quick Sort	**4**	**6-9**
3. Heap	1. Heap Sort 2. Priority Queue	**3**	**10-13**
4. Greedy Method	**1**.Basic Steps **2**.Fractional Knapsack Problem 3. Job Scheduling with dead line. 4. Activity Selection Problem. 5. Spanning Tree • Kruskal's Alg • Prim's Alg 6 Dijkastra's Alg 7 Huffman's Code 8. Optical Storage on tapes.	**10**	**14-23**

5. Dynamic Programming	**1.**0-1 Knapsack Problem 2. All pair Shortest path (Floyed Warshall's Alg) 3. Matrix Chain multiplication 4. Longest common subsequence 5. TSP	**7**	**24-30**
6. Back Tracking	1. N-queen problem **2**. Sum of Subset problem	**3**	**31-34**
7. Branch & Bound	1. TSP 2. DFS 3. BFS	**2**	**35-36**
8. NP- Completeness	1. Problem of P,NP,NP-completeness, NP - hard	**3**	**36-40**
9. Approximation Alg.	1.TSP	**2**	**41-42**

Text Book(s):

1. **Introduction to algorithm, T.H.Coreman C.E.Leiserson,R.L.Rivest, PHI**
2. **Fundamentals of comp Alg E.Harwitz,S. sahani,S.Rajsekharan,Galgotia**

Reference Book:

1. **Data structures and alg,A.V.Aho**
2. **Algorithm Design: Foundations, analysis & Internet e.g Michael Goodrich,Roberto Tamassia,john wiley and so**