LESSON PLAN

SUB: ALGORITHMS
BRANCH:- COMPUTER SCIENCE& ENGG.
SEMESTER:3rd
NAME OF FACULTY: SOUDAGAR JENA (GF in CSE)

GOVERNMENT POLYTECHNIC, BHADRAK

SESSION: 2025-26

Hod ,CSE

Academic Co-ordinator

Academic Co-ordinator

Principal
Govt. Polytechnic, Bhadrak

DEPARTMENT OF Computer Science & Engg.,

Discipline: Computer Sc. & Engg.	Semester:3rd Winter-2025	Name of the Faculty: SOUDAGAR JENA
Subject:ALGORITHM	No. Of Days/Week Class Allotted- 3	SemesterFromDate:14/07/2025 ToDate:15/11/2025 No. of Weeks:15
Week	Class Day	Theory Topics
1st	1st	Introduction & characteristics of algorithms
	2nd	Overview of algorithm design techniques Introduction & characteristics of algorithms
	3rd	Overview of algorithm design techniques Steps in problem solving, flowchart, pseudo-code
2nd	1st	Steps in problem solving, flowchart, pseudo-code Overview of algorithm design techniques
	2nd	Overview of algorithm design techniques Time & Space Complexity Overview of algorithm design techniques
	3rd	Time & Space Complexity Overview of algorithm design techniques
3rd	1st	Time & Space Complexity Steps in problem solving, flowchart, pseudo-code
	2nd	Time & Space Complexity Steps in problem solving, flowchart, pseudo-code
	3rd	Time & Space Complexity Steps in problem solving, flowchart, pseudo-code
4th	1st	Steps in problem solving, flowchart, pseudo-code Time & Space Complexity
	2nd	Big-O, Big-Ω, Big-Θ notation Concept of algorithim complexity Time complexity,worst case average case
	3rd	Big-O, Big-Ω, Big-Θ notation Concept of algorithim complexity Time complexity,worst case average case finding the complexity Of an algrothim
5th	1st	Big-O, Big-Ω, Big-Θ notation Concept of algorithim complexity Time complexity,worst case average case finding the complexity Of an algrothim
	2nd	Big-O, Big-Ω, Big-Θ notation Concept of algorithim complexity Time complexity,worst case average case finding the complexity Of an algrothim
	3rd	Steps in problem solving, flowchart, pseudo-code
6th	1st	Concept of iteration and recursion, examples of recursive algorithms – Fibonacci series, factorial, Tower-of-Hanoi problem, Merge Sort algorithm
	2nd	Complexities of recursive algorithms, conversion of recursive algorithm to iterative algorithm. Merge Sort algorithm
	3rd	Complexities of recursive algorithms, conversion of recursive algorithm to iterative algorithm. Merge Sort algorithm

7th	1st	Complexities of recursive algorithms, conversion of recursive algorithm to iterative algorithm.
	2nd	Definition of a directed and undirected graph. Paths, Cycles, spanning trees, Directed Acyclic Graphs. Topological Sorting. Minimum Spanning Tree algorithms, Shortest Path algorithms: 7
	3rd	Binary Search algorithm
8th	1st	Recursive algorithms – basics
	2nd	Analysis of Divide & Conquer methods
	3rd	Greedy, Divide and Conquer, Branch and Bound, Dynamic Programming and Backtracking. V
	4th	Kruskal's Algorithm
9th	1st	Prim's Algorithm
	2nd	Dijkstra's Shortest Path Algorithm
	3rd	Greedy method – applications
	4th	Limitations of Greedy approach
10th	1st	Directed Acyclic Graphs. Topological Sorting. Minimum Spanning Tree algorithms, Shortest Path algorithms: Dijkstra's algorithm. Flow-based algorithms. 7 Dynamic Programming – concept, principle of optimality
	2nd	Difference between Greedy & Dynamic
	3rd	Example – Matrix Chain Multiplication
	4th	0/1 Knapsack Problem
11th	1st	Floyd–Warshall Algorithm
	2nd	Practice problems on DP
	3rd	Greedy method – applications
	4th	Limitations of Greedy approach
12th	1st	Dynamic Programming – concept, principle of optimality

	2nd	Difference between Greedy & Dynamic
	3rd	Example – Matrix Chain Multiplication
	4th	0/1 Knapsack Problem
13th	1st	Floyd–Warshall Algorithm
	2nd	Practice problems on DP
	3rd	Preventive measures, General Safety Rules ,Personal Protection Equipment(PPE)
	4th	Legislation: Intellectual Property Rights(IPR),Patents, Trademarks and copyrights
14th	1st	FeaturesofFactoriesAct1948withAmendment(only salient points)
	2nd	FeaturesofPaymentofWagesAct1936(only salient points)
	3rd	Smart Technology :Concept of IOT ,How IOT works
	4th	Components of IOT, Characteristics of IOT, Categories of IOT
15th	1st	Applications of IOT: Smart Cities, Smart Transportation, Smart Home, Smart Healthcare
	2nd	Smart Energy Management etc.
	3rd	**Quiz test**
	4th	**Possible questions discussion**

Signature of Faculty