SYNERGY SCHOOL OF ENGINEERING, DHENKANAL

Lesson Plan

Discipline: Computer Science and Engineering	Semester:3rd Winter/2025 Sessions: 2025-26	Name of the Faculty: Asmita Pranayani
Subject: Algorithms Code No: CSEPC 209	No. Of Days/Week:03	Start Date: 14/07/25 End Date: 15/11/25

Week	Class	Theory Topics
1st	1st	Definition of algorithm
	2nd	Criteria o f algorithms – Input/output, finiteness, definiteness, effectiveness,
	3rd	writing an algorithm with pseudo code, algorithms and programs
2nd	1st	Algorithmic Complexity: Concept of algorithmic complexity
	2nd	space complexity, Big-O notation,
	3rd	Time complexity, worst case, average case and best-c as e analysis,
3rd	1st	Big-O notation, Finding the complexity of an algorithm
	2nd	Recursive algorithms: Concept of iteration and recursion,
	3rd	Examples of recursive algorithms – Fibonacci series, factorial.
4th	1st	Tower-of-Hanoi problem.
	2nd	Complexities of recursive algorithms, conversion of recursive algorithm to iterative algorithm.

		3rd	Algorithm Paradigms: Greedy,
5th		1st	Divide and Conquer.
		2nd	Branch and Bound.
		3rd	Dynamic Programming and Backtracking.
6th		1st	Sorting: The sorting problem.
		2nd	Bubble sort,
		3rd	Selection sort
7th		1st	Insertion sort,
		2nd	Merge sort,
		3rd	Quick sort,
8th		1st	Heap sort,
		2nd	Radix sort. Searching: Symbol Tables,
		3rd	Binary Search Trees,
9th		1st	Balanced Search Trees.
		2nd	Hashing, Hash Tables.
		3rd	Graphs: Definition of a directed and undirected graph.
10th		1st	Paths
		2nd	Cycles, spanning trees
		3rd	Directed Acyclic Graphs.
11th		1st	Topological Sorting. Minimum Spanning Tree
		2nd	Shortest Path algorithms: Dijkstra's algorithm
		3rd	Flow-based algorithms.
12th		1st	Practice problems
		2nd	Previous year question paper discussion
		3rd	Mock viva preparation
13th		1st	Doubt clearing session
		2nd	Monthly Class Test-01
		3rd	Previous year question paper discussion
14th		1st	Doubt clearing session
		2nd	Mock viva preparation
		3rd	Doubt clearing session
15th		1st	Monthly Class Test-02
		2nd	Doubt clearing session
		3rd	Quiz Test

Asmita Pranayani

Prepared By: 11/07/25

Snistvy
11/07/25

Verified By:

HOD
Comp. Science & Engg. Dept.
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