PNS SCHOOL OF ENGG. & TECH., MARSHAGHAI

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING LESSON PLAN

BRANCH : CSE	SEMESTER : 3rd	NAME OF THE TEACHING FACULTY : MR. BISWARANJAN SWAIN
SUBJECT : Algorithms(CSEPC 209)	NO. OF DAYS PER WEEK CLASS	SEMESTER FROM DATE: 14.07.2025 TO 30.11.2025

WEEK	CLASS DAY	THEORY TOPICS
1ST	1st	**1. Introduction to Algorithms**: Basics of C language.
	2nd	Definition of algorithm,
	3rd	Criteria of algorithms – Input/output, finiteness, definiteness,
	4th	Effectiveness of Algorithm
2ND	1st	writing an algorithm with pseudocode
	2nd	algorithms and programs
	3rd	Review of chapter
	4th	Question discussion
3RD	1st	**2. Algorithmic Complexity:** Concept of algorithmic complexity
	2nd	space complexity, time complexity,
	3rd	time complexity
	4th	worst case, average case
4TH	1st	average case and best case analysis,
	2nd	Big-O notation
	3rd	Finding the complexity of an algorithm
	4th	Review of chapter
5th	1st	Question discussion
	2nd	**3.Recursive algorithms:** Concept of iteration and recursion
	3rd	examples of recursive algorithms
	4th	Fibonacci series
6th	1st	Complexities of Fibonacci series
	2nd	factorial, Tower-of-Hanoi problem
	3rd	Tower-of-Hanoi problem
	4th	Complexities of Factorial
7th	1st	Complexities of Tower-of Hanoi problem
	2nd	conversion of recursive algorithm to iterative algorithm.
	3rd	Review of chapter
	4th	Question discussion

8th	1st	**4.Algorithm Paradigms** Greedy Approach
	2nd	Examples of Greedy algorithm
	3rd	Divide and Conquer
	4th	Examples of Divide and Conquer
9th	1st	Branch and Bound
	2nd	Examples of branch and bound
	3rd	Dynamic Programming and Backtracking
	4th	Examples of Dynamic programming
10th	1st	Review of chapter
	2nd	Question discussion
	3rd	**5. Sorting:** The sorting problem
	4th	Bubble sort
11th	1st	Bubble sort Example
	2nd	Selection sort
	3rd	Insertion sort
	4th	Mergesort
12th	1st	Quicksort
	2nd	Heap sort
	3rd	Radix sort
	4th	Searching: Symbol Tables
13th	1st	Binary Search Trees
	2nd	Balanced Search Trees
	3rd	Hashing,Hash Tables.
	4th	Review of chapter
14th	1st	**6. Graphs:** Definition of a directed and undirected graph
	2nd	Paths, Cycles, spanning trees
	3rd	Directed Acyclic Graphs.
	4th	Topological Sorting
15th	1st	Minimum Spanning Tree algorithms
	2nd	Shortest Path algorithms: Dijkstra's algorithm
	3rd	Flow-based algorithms
	4th	Review of chapter

Biswaranjan Swain

SIGNATURE OF H.O.D

Biswaranjan Swain

SIGNATURE OF LECTURER