

The screenshot shows a Moodle LMS portal for the course 'Designing and Analysis of Algorithms'. The browser address bar shows the URL '192.168.34.250/moodle/course/view.php?id=3'. The user is logged in as 'Satish Bhalshankar'. The course title is 'Designing and Analysis of Algorithms'. The left sidebar contains a navigation menu with options like 'Dashboard', 'Site home', 'Site pages', 'Current course', 'DAA', 'Participants', 'Badges', 'General', 'UNIT 1: Analysis of Algorithms', 'UNIT 2: Divide and Conquer Algorithm', 'UNIT 3: Greedy Algorithm', 'UNIT 4: Dynamic Programming', 'UNIT 5: Backtracking and Branch and Bound', and 'My courses'. The main content area displays 'UNIT 1: Analysis of Algorithms' with a description: 'What is an algorithm?, The efficient algorithm, Average, Best and worst case analysis, Asymptotic Notations, Analyzing control statement, Loop invariant and the correctness of the algorithm, Sorting Algorithms and analysis: Bubble sort, Selection sort, Insertion sort, Heap sort, Sorting in linear time : Bucket sort, Radix sort'. Below the description are links to documents: 'What is an algorithm?, The efficient algorithm', 'Analyzing control statement, Loop invariant and the correctness of the algorithm', 'Time Complexity', 'Average, Best and worst case analysis, Asymptotic Notations', and 'Sorting Algorithms and analysis: Bubble sort,'. The right sidebar contains sections for 'SEARCH FORUMS', 'LATEST NEWS', 'UPCOMING EVENTS', and 'RECENT ACTIVITY'. The bottom taskbar shows the Windows operating system with several open applications including 'Computer', 'Course: Designin...', 'Suryaputra Kam', and 'Untitled - Paint'.

The screenshot shows the Moodle LMS portal for the course 'Designing and Analysis of Algorithms', displaying Unit 2 and Unit 3 content. The browser address bar shows the URL '192.168.34.250/moodle/course/view.php?id=3'. The user is logged in as 'Satish Bhalshankar'. The left sidebar contains a navigation menu with options like 'Badges', 'Backup', 'Restore', 'Import', 'Publish', 'Reset', 'Question bank', 'Switch role to...', and 'Site administration'. The main content area displays 'UNIT 2: Divide and Conquer Algorithm' with a description: 'Divide and Conquer Algorithm: Introduction, Recurrence and different methods to solve recurrence, GCD, Multiplying large Integers Problem, Problem Solving using divide and conquer algorithm - Binary Search, Max-Min problem, Sorting (Merge Sort, Quick Sort)'. Below the description is an assignment titled 'ASSIGNMENT NO 2' with the instruction 'SUBMIT ANY TWO OUT OF FOLLOWING:' and a list of four options: '1. BINARY SEARCH', '2. MIN MAX ALGO', '3. MERGE SORT', and '4. QUICK SORT'. Below Unit 2 is 'UNIT 3: Greedy Algorithm' with a description: 'General Characteristics of greedy algorithms, Problem solving using Greedy Algorithm - Activity selection problem, Minimum Spanning trees (Kruskal's algorithm, Prim's algorithm), Graphs: Shortest paths, The Knapsack Problem, Job Scheduling Problem, Huffman code'. Below the description is an assignment titled 'ASSIGNMENT NO 3' with the instruction 'SUBMIT ANY TWO OUT OF FOLLOWING:' and a list of two options: '1. KRUSKAL'S MINIMUM SPANNING TREE ALGORITHM' and '2. PRIM'S MINIMUM SPANNING TREE ALGORITHM'. The bottom taskbar shows the Windows operating system with several open applications including 'Computer', 'Course: Designin...', 'Suryaputra Kam', and 'Untitled - Paint'.

## UNIT 4: Dynamic Programming

Introduction, The Principle of Optimality, Problem Solving using Dynamic Programming – Calculating the Binomial Coefficient, Multi-Stage Graph 0/1 Knapsack problem, All Points Shortest path, Longest Common Subsequence

### ASSIGNMENT NO 4

SUBMIT ANY TWO OUT OF FOLLOWING:

1. MULTISTAGE GRAPH ALGORITHM (GRAPHICALLY ONLY)
2. 0/1 KNAPSACK PROBLEM
3. ALL PAIRS SHORTEST PATH
4. LONGEST COMMON SUBSEQUENCE

## UNIT 5: Backtracking and Branch and Bound

**Backtracking and Branch and Bound:** The N Queen's problem, Hamiltonian cycle and 0/1 knapsack problem

**Max flows Network:** Ford-Fulkerson Algorithm

**Geometric algorithms:** convex hull

**Amortized analysis**

### ASSIGNMENT NO 5

SUBMIT ANY TWO OUT OF FOLLOWING