



**STANLEY**  
**COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN**  
( Approved by AICTE , New Delhi | Affiliated to Osmania University ,Hyderabad)  
Address : Chapel Road, Abids ,Hyderabad

CS 572

## PARALLEL ALGORITHMS

### UNIT-I

**Introduction to Parallel Algorithms and Architectures** - Approaches to Design of Parallel Algorithms, Architectural Constraints and Design of Parallel Algorithms, Performance Measures of Parallel Algorithms

### UNIT-II

**Parallel Design Strategies** - Parallel Prefix. Computations, Pointer Jumping, Matrix Operations in Parallel.

### UNIT-III

**Parallel Sorting** - Issues in Sorting on Parallel Computers, Sorting Networks, Bubble Sort and its Variants, Quicksort, Bucket and Sample Sort.

### UNIT-IV

**Parallel Graph Algorithms** - Definitions and Representations, Minimum Spanning Tree: Prim's Algorithm, Single Source Shortest Path - Dijkstra's Algorithm, All pairs shortest path algorithms, Algorithms for Sparse Graphs.

### UNIT-V

**Search Algorithms for Discrete Optimization Problems** - Definitions, Sequential search Algorithms, Search Overhead Factor, Parallel Depth first Search Parallel Breadth first Search, Speedup factors in Parallel Search Algorithms.

Suggested Reading:

1. Kenneth A. Berman and Jerome Paul "Algorithms " , Cengage Learning, 2002.
2. Ananth grama and Anshul Gupta "Introduction to Parallel Computing", Pearson Education Second Edition, 2004.

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