

L1-Introduction

Thursday, August 6, 2020 3:54 PM

Design and Analysis of Algorithm

Instructor: Shafiq Ur Rahman

Objectives

The objective of the course is to mainly teach algorithm design techniques, in order to enhance & strengthen your design capability. Emphasis shall also be placed on Analysis of algorithms also.

Goals:

- better understanding with general algorithmic techniques & performance measures.
- ability to understand and appreciate the importance of data structures and algorithms in the performance of applications
- ability to apply design techniques to unseen algorithmic problems

Textbook

Introduction to Algorithms: Cormen, Leiserson and Rivest. McGraw-Hill

Algorithms : Sanjay Dasgupta, C.H. Papadimitriou, U.V. Vazirani

Course contents

- Introduction
- Review Comparison based Sorting & Asymptotic Analysis
- Non-Comparison based Sorting Algorithms
- Recursion
- Classes of Algorithms
 - Divide and Conquer
 - Greedy Method
 - Dynamic programming ???
- Graph Algorithms

Grading

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|------------------|-----|
| • Assignments | 15% |
| • Quiz | 15% |
| • Class Activity | 10% |
| • Mid Term | 20% |
| • Final | 40% |

Reference Books

- *The Design and Analysis of Computer Algorithms* by Alfred V. Aho, John E. Hopcroft, and Jeffrey D. Ullman
- *The Algorithm Design Manual* by Steven S. Skiena
- *Fundamental of Computer Algorithms*: Ellis Horowitz and Sartaj Sahni, Second Edition
- *Algorithms* 4th Edition by Robert Sedgewick