

# Design and Analysis of Algorithms

## Course Objective

This course will give a wide introduction to a variety of algorithms that can be applied to industrial engineering with applications.

## Contents

- Basics of Algorithm Analysis
- Complexity Theory
- Sorting and Median Finding
- Divide and Conquer
- Dynamic Programming
- Selection and Sequencing
- Computational Geometry
- Randomized Algorithms
- Online Algorithms
- Local Search

## Textbooks

- \*T.H. Cormen, C.E. Leiserson, R.L. Rivest, C. Stein. Introduction to Algorithms.
- \*Jon Kleinberg and Eva Tardos. Algorithm Design.
- R.C.T. Lee, R.C. Chang, S.S. Tseng, Y.T. Tsai. Introduction to the Design and Analysis of Algorithms.

## Grading

Midterm Exam	30% (Cover basic topics)
Final Exam	40% (Cover advanced topics)
Research Project	30% (Implementation)