

Course Name	Course Code	semester	T + P	Credit	ECTS
Algorithm Design and Analysis		5	3 + 0	3	5

Prerequisite Courses	None
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Language of Course	Turkish
Course class	Compulsory
Coordinator of Course	
Instructor	
Course Assistant	
Objective of Course	The aim is to present and analyze the basic data structures and algorithms used in computer engineering.
Course Learning Output	Design skills of recursive algorithms, partition and conquer algorithms
Course Contents	Analysis and design of algorithms. O-notation. Divide and conquer algorithms. Dynamic programming. Backtracing and Branch & Bound methods. Mathematical complexity of sorting and search algorithms. Graph algorithms. NP-difficult and NP-complete problems. Basic NPC problems. Analysis of set processing algorithms. Introduction to parallel algorithms.

Weeks	Topics
1	Introduction, definitions, examples, basic sorting algorithms, algorithm time complexity
2	Recursive algorithms, divide and conquer algorithms
3	Linear sorting algorithms
4	Medium, small, large value finding, probability analysis and problems
5	Amortization analysis
6	Tree structures and algorithms
7	MIDTERM
8	Dynamic programming,
9	greedy algorithms,
10	Drawing algorithms, search algorithms, minimum covering trees
11	Find the shortest path
12	Matrix multiplication and linear programming
13	Network flow algorithms
14	Network flow algorithms
15	FINAL EXAM

General Sufficiency
To be able to analyze and design algorithms that can solve the general engineering problems that we encounter in our daily life
References
Dr. Rifat Cölkese, 2009, Algorithm Development and Data Construction. Istanbul: Papatya Publishing
Assessment
Midterm exam: 40%, Final exam: 60%; Project or homework evaluations can be made at the beginning of the semester.