CS 473/573 - Algorithms I - 2018-2019 Fall

Instructor: Cevdet Aykanat

Schedule:
Section 1: EE-412 Tuesday 09:40-10:30, Thursday 10:40-12:30
Section 2: EE-412 Tuesday 13:40-15:30, Thursday 15:40-16:30
Spare hours are going to be used as needed. Check course web page for announcements.

Text Book: T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein *Introduction to Algorithms*, Mit Press and McGraw-Hill, 2009. Third Edition

Assistants: M. Ozan Karsavuran, Nabil Abubaker, Mustafa Duymuş

Course Web Page: http://cs.bilkent.edu.tr/~ozan.karsavuran/473

Credits: 3, **ECTS Credits**: 6
Prerequisites: CS 202

Grading:
- Midterm: 25%
- Final: 25%
- Mid-week exams: 45%
- Attendance: 5%

Mid-week exams: Time & Classroom TBD

Course Contents
WEEK(1): Introduction: analyzing algorithms, designing algorithms.
WEEK(2): Asymptotic notation.
WEEK(3): Divide and conquer: Strassen
WEEK(4): Randomized quicksort: analysis.
WEEK(5): Medians and order statistics.
WEEK(6): Heaps: heapsort, priority queues.
WEEK(7): Sorting in linear time.
WEEK(8): Dynamic programming: matrix-chain multiplication, longest common subsequence.
WEEK(9): Dynamic programming: 0/1 Knapsack problem, resource allocation problem.
WEEK(10): Greedy algorithms: activity selection problem, Huffman codes.
WEEK(11): Greedy algorithms: task scheduling problem.
WEEK(12): Elementary graph algorithms: BFS, DFS.
WEEK(13): Elementary graph algorithms: topological sort, SCC.
WEEK(14): Review

Remarks
- Copying or communicating during an exam is considered as cheating. Students caught cheating in an exam will be subject to disciplinary action, as explained in the "Student Disciplinary Rules and Regulation."
- Students failing to obtain 15 points out of 75 points until final exam will get FZ.
- There will be 6 mid-week exams.
- Mid-week exam dates and classrooms will be announced later.
- In mid-week exams, books are open but any other resources are forbidden. (Books must be clean and unused. Books containing any written text are **strictly** not allowed. Sharing books during exam is strictly forbidden.)
- In all exams, smart watches, phones, and any other electronic devices must be turned off.
- One of these mid-week exams having least grade will be omitted at final grading. The least grade is determined for each student individually.
- All students are strictly encouraged to attend all mid-week exams.
- For students missing $m \geq 2$ mid-week exams due to health problems (all of which are reported officially) there will be $m - 1$ makeups at the end of semester. Topics of makeups are same as topics of the final exam.