**BLG336E, Analysis of Algorithms II**

Istanbul Technical University

Department of Computer Engineering

CRN: 21348 - 21349 Syllabus - Spring 2024 Term

**Professor(s):** İlkay Öksüz ([oksuzilkay@itu.edu.tr](mailto:oksuzilkay@itu.edu.tr)), Mehmet Baysan ([baysanm@itu.edu.tr](mailto:baysanm@itu.edu.tr))

**TA(s):** Erdi Sarıtaş ([saritas21@itu.edu.tr](mailto:saritas21@itu.edu.tr)), Doğukan Arslan ([arslan.dogukan@itu.edu.tr](mailto:arslan.dogukan@itu.edu.tr)), Mehmet Selahaddin Şentop ([sentop22@itu.edu.tr](mailto:sentop22@itu.edu.tr)), Enes Erdoğan ([erdogane16@itu.edu.tr](mailto:erdogane16@itu.edu.tr)), Yusuf Kızılkaya ([kizilkaya22@itu.edu.tr](mailto:kizilkaya22@itu.edu.tr))

**Lecture Hours:** Monday, 13.30-16.29

**Course web site:** Ninova

**Course Description**

**Prerequisites:** BLG 335E MIN DD or BLG 335 MIN DD or BLG 381 MIN DD or BLG 381E MIN DD

**Grading Policy:**

|  |  |
| --- | --- |
| Midterm Exam: | 30% |
| Homework Assignments (3 x 10) | 30% |
| Final Exam: | 40% |

**VF Condition:** 15/50 (HW1 + HW2 + Midterm)

**Learning Outcomes of the Course:**

1. Ability to formulate the complexity of a given algorithm (problem).
2. Ability to analyze the complexity of a given algorithm in terms of time.
3. Ability to compare the complexities of some algorithms used for the same purpose under various conditions.
4. Ability to develop a program to solve a specific problem considering some performance criteria.

**References :**

1. Introduction to Algorithms, Cormen, Leiserson and Rivest, The MIT Pres/McGraw-Hill.
2. Fundamentals of Algorithmics, Brassards and Bratley, Prentice Hall (Available at the Central Library, QA9.58.B73 1996). ?- Algorithms and Complexity, Wilf.

**BLG336E - Spring 2023 Semester- Tentative Course Schedule:**

|  |  |  |
| --- | --- | --- |
| Week | Date | Topic |
| 1 | 12-Feb | Introduction. Some representative problems |
| 2 | 19-Feb | Stable Matching |
| 3 | 26-Feb | Basics of algorithm analysis. |
| 4 | 4-Mar | Graphs (Project 1 announced) |
| 5 | 11-Mar | Greedy algorithms-I |
| 6 | 18-Mar | Greedy algorithms-II |
| 7 | 25-Mar | Divide and conquer (Project 2 announced) |
| 8 | 1-Apr | Dynamic Programming I |
| 9 | 15-Apr | Dynamic Programming II |
| 10 | 22-Apr | Network Flow-I (Project 3 announced) |
| 11 | 29/30-Apr | **Midterm** |
| 12 | 6-May | Network Flow II |
| 13 | 13-May | NP and computational intractability-I |
| 14 | 20-May | NP and computational intractability-II |

Note: **This syllabus and schedule are subject to change.**