APPROXIMATION ALGORITHMS COURSE INFORMATION

Instructor: Assoc. Prof. Dr. Orhan Dagdeviren (http://netos.ube.ege.edu.tr/dagdeviren.html)
Course Web Page: http://netos.ube.ege.edu.tr/courses.html
Time: Wednesday, 13:30-16:00
Assistant: Res. Ass. Sercan Demirci (sercan.demirci@ege.edu.tr)
Aim and Content:

- This course aims to study approximation algorithm design and analysis.
- The course will especially cover graph theory and related problems.

Course Metarials: We will study mainly on Vijay V. Vazirani's Approximation Algorithms book.
Supplementary Metarials (Not Full List):

1. David P. Williamson and David B. Shmoys. 2011. The Design of Approximation Algorithms (1st ed.). Cambridge University Press, New York, NY, USA.
2. Ding-Zhu Du, Ker-I Ko, and Xiaodong Hu. 2011. Design and Analysis of Approximation Algorithms. Springer Publishing Company, Incorporated.
3. Teofilo F. Gonzalez. 2007. Handbook of Approximation Algorithms and Metaheuristics (Chapman & Hall/Crc Computer & Information Science Series). Chapman & Hall/CRC.

List of Topics:

1. Introduction
2. Set Cover
3. Steiner Tree and TSP
4. Multiway Cut and k-Cut
5. k-Center
6. Feedback Vertex Set
7. Shortest Superstring
8. Knapsack
9. Bin Packing
10. Minimum Makespan Scheduling
11. Euclidean TSP
12. Introduction to LP-Duality
13. Set Cover via Dual Fitting
14. Rounding Applied to Set Cover
15. Set Cover via the Primal-Dual Schema

Tentative Grading:
Coding Homeworks: 15 %
Written Homeworks: 20 %
Final: 25 %
Project: 25 %
Paper Presentation: 15 %

Attendance.