İSTANBUL KÜLTÜR UNIVERSITY

DEPARTMENT OF INDUSTRIAL ENGINEERING

IE 010 SCHEDULING APPLICATIONS IN MANUFACTURING AND SERVICES

SPRING 2011

Instructor: Assist. Prof. Fadime Üney-Yüksektepe **E-mail:** f.yuksektepe@iku.edu.tr

Class hours: Thursday 10:00 – 13:00 **Room**: Amfi B1-5

URL address for the course material: http://ie.iku.edu.tr/coursehome.asp?CourseID=595&PeriodID=45

Textbook:

1. Michael L. Pinedo, *Planning and Scheduling in Manufacturing and Services*, Springer Series, (2005).
2. Michael L. Pinedo, *Scheduling: Theory, Algorithms, and Systems*, Third Edition, Springer Series, (2008).

Course Description: This course gives an introduction to a broad range of scheduling problems that arise in both manufacturing and service organizations. We will examine a variety of scheduling techniques, starting from basic principles and leading to algorithms and computerized scheduling systems. We will apply these techniques to problems arising in production scheduling, project management, transportation scheduling and workforce scheduling. The emphasis is on practicality, with the goal of bringing the student up to the position where he or she knows where to look and what to expect to be able to do when faced with a situation that seems to involve some sort of scheduling problem. Instruction will be through a mix of lectures, readings, cases and problem sets.

Course objectives:

- To present the basic concept, techniques and algorithms for scheduling problems faced in manufacturing and service sectors.

Evaluation

Midterm Exam	30%	Quizzes	10%
Project	20%	Final exam	40%

Project Guidelines

Course project will be done individually. All reports should be typed with a maximum of 10 pages (1.5 line-spacing, 11 or 12 pt. font size). There are two possible outcomes from a project report as follows:

- To read and analyse a scheduling article on an industrial application. Suggest any improvements those need to be made and comment on its applicability to an industry in Turkey.
- To apply the techniques learned to a practical scheduling problem with a real data.

COURSE OUTLINE

Week	Date	Topic
1	February 10	**Chapter 1 & Chapter 2 & Chapter 3** Introduction, Manufacturing Models, Service Models
2	February 17	**Chapter 4** Project Planning and Scheduling
3	February 24	**Chapter 4 cont.`d** Project Planning and Scheduling
4	March 3	**Chapter 5** Machine Scheduling and Job Shop Scheduling
5	March 10	**Chapter 5** Machine Scheduling and Job Shop Scheduling
6	March 17	**Chapter 6** Scheduling of Flexible Assembly Systems
7	March 24	**Chapter 7** Economic Lot Scheduling
8	March 31	**MIDTERM**
9	April 7	**Chapter 9** Interval Scheduling, Reservations, and Timetabling
10	April 14	**Chapter 10** Scheduling and Timetabling in Sports and Entertainment
11	April 21	**Chapter 11** Planning, Scheduling and Timetabling in Transportation
12	April 28	**Chapter 12** Workforce Scheduling
13	May 5	**PROJECT PRESENTATIONS**
14	May 12	**PROJECT PRESENTATIONS**