Course Description and Objectives

The use of projects and project management continues to grow in our society and its organizations. Like linear programming, the foundations of current project scheduling & management were laid out in World War II. Since then project scheduling & management has enjoyed an ever increasing popularity. In this course, our objective is to introduce the concepts behind successful project scheduling & management. We will learn about a variety of mathematical techniques helpful in many areas of project management: project selection, budgeting and cost estimation, scheduling, resource allocation, etc. However, the focus of the course is on the fundamental mathematical tools used commonly in project scheduling and resource allocation.

Course Outline

The contents of the course may change depending on the progress.

1. Introduction and overview.
2. Project selection models.
3. Project scheduling.
   a. Network diagrams.
   b. Basic temporal analysis.
      i. Minimizing the project duration. Conventional CPM/PERT Analysis. AoN Networks with Generalized Precedence Relationships (GPRs).
      ii. More general objective functions. Start-time dependent costs, net present value models, earliness/tardiness objectives.
   c. Time-cost trade-off problem.
      i. Continuous cost-time functions.
      ii. Discrete cost-time functions.
   d. Resource-constrained project scheduling.
   e. Multi-project scheduling.

Recitations

Generally, additional questions and material will be covered.

We will post an announcement if there will be a recitation the following Monday. Unless otherwise specified, there will be no recitation.

Grading

1. Assignments (10%). Assignments are due at the beginning of the lecture hour. We strongly recommend that you complete the assignments individually. Plagiarism will result in forfeiting your entire 10%. Please be aware that copying solutions from previous years’ solutions will be assessed as plagiarizing.
2. Midterm (35%).
3. Final (40%).
4. Term project (15%).
5. No makeup.

Software

Information and support for all academic software provided by the university can be found at:

http://mysu.sabanciuniv.edu/bt/servisler/tr/?yazilim/lisansli/yazilimlar.html

1. Some homework problems and your term project may require formulating an integer or linear programming model and actually solving it with mathematical programming software. You are expected to complete these assignments by drawing upon your knowledge of IBM ILOG OPL Studio from MS 301. A detailed set of instructions for installing IBM ILOG OPL Studio is provided on SUCourse. Documentation for IBM ILOG OPL Studio is installed automatically.
2. MS Project is a popular project management application that implements some of the planning and control techniques covered in the lectures. Click here to install MS Project 2003.
References


SUCourse

All content, assignments, announcements, etc., will be administered through SUCourse.

1. Follow all important dates pertaining to this course (exam dates, assignment deadlines) under “Schedule.”

2. All lecture and recitation notes and assignment solutions will be available under “Resources.”

3. Assignment descriptions and associated files will be provided under “Assignments.”