IE 409 Project Scheduling and Management

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The Objective of the Course
The objective of this course is to introduce the student to the quantitative aspects of the body of knowledge in project management. Emphasis is given to implementing quantitative techniques already acquired in other courses.

Course Outline
Overview of project management process; project and portfolio selection; project idea generation, formulation, financing, bidding, budgeting, and cash flow analysis; team formation and building; deterministic and stochastic unconstrained project scheduling; resource leveling; resource-constrained project scheduling algorithms; progress and cost control of projects; agile and hybrid project management; examples of management of projects from various sectors.

Learning Outcomes
Upon successful completion of the IE 409 Project Scheduling and Management course, students are expected:
- to grasp the project management process and be able to use quantitative tools of project management;
- to be able to identify, analyze and model management problems suitable for formulation as projects;
- to be capable of participating in practice in the formulation, description, planning, scheduling, control, and proper termination of the project;
- to be able to transform project descriptions into mathematical programming models by employing project networks and solve them using appropriate solution techniques;
- to grasp the essentials of project selection and financial aspects of project management such as financing, bidding, budgeting, and cash flow analysis;
- to learn the use of one major project management software tool (MS Project).

Topics To Be Covered
An introduction to project management  
Modeling of projects  
The deterministic unconstrained project scheduling process  
Time-cost trade-off  
Stochastic unconstrained project scheduling  
Resource leveling  
The resource-constrained project scheduling problem  
Progress and cost control of projects  
Project contract types, bidding, and payment schedule  
Uncertainty and risk issues  
Agile and hybrid project management  
Project and portfolio selection models

Grading
Group Project  15
Individual Project  15  
Midterm Exam  25  
Quizzes  20  
Final Exam  25  

Make-up Policy
Make-up is given only for the midterm exam and only to those with an official excuse, i.e., a medical report issued or approved by the SU Health Center. Those with a valid medical report given or approved by the SU Health Center will be given a make-up exam in the week before the last week of classes covering the scope of the whole term.

Group and Individual Projects
For the group and individual projects, MS Project software will be employed. An MS Project Individual Assignment will be given, counting as 10% of the Individual Project grade. For coding, you will be using gurobi, python, or C++ according to which one you are familiar with.

Quizzes
A large percentage of quizzes will be given during the recitation hours. Seven quizzes will be given, and the best five will be included in your final course grade. There will be no make-up for the quizzes.

Homework is assigned but not graded.

Disclaimer
The instructor reserves the right, when necessary, to alter the grading policy, change examination date, and modify the syllabus and course content. Modifications will be announced on SUCourse+. Students are responsible for the changes announced.

Attendance
Attendance is not compulsory but highly recommended. You must attend the synchronous Zoom lectures, recitations, etc., and real-time online quizzes with your SU email account.

Academic Integrity
Each student in this course is expected to abide by the Sabanci University Academic Integrity Statement (available at https://www.sabanciuniv.edu/en/academic-integrity-statement). Cheating is subject to disciplinary action and a null grade.

Textbook

Reading Material
The Powerpoint presentations, handouts, and journal paper assignments.

Optional Reading