

**IE 403 – Quality Planning and Control
Spring 2023 - 2024**

Team

Instructor

Z. Didem Demir

didem.demir@sabanciuniv.edu

Office Hours

Monday 11:30 – 12:00

Teaching Assistants

Kıvanç Karakaş

Emre Yıldırım

Ekin Yıldırım

Learning Assistants

Hüseyin Can

Kerim Taşkıran

Sudenaz Türkkın

Begüm Topsever

Doğa İpek Gürleyik

Meeting Times and Locations

Lecture Monday, 8:40-11:30 am, at FENS L045

Content

The course will be carried out with emphasis to the DMAIC (Define, Measure, Analyse, Improve, Control) cycle. The contents of the lectures are organized in the following order:

Define

Quality control systems and quality management
Process Mapping

Measure

Measurement Systems Analysis
Data Collection and Patterns in Data
Process capability analysis
Acceptance sampling

Analyse

Confidence Intervals
 Process Characterization and Estimation
Hypothesis tests
 T tests
 ANOVA
 F test
 Chi Square Test
 Regression

Improve

FMEA (Failure Modes and Effects Analysis)

Control

Methods of statistical process control (SPC)

Lecture Notes, Textbook and Reading Material

The course content will be delivered primarily based on the lecture notes. The lecture notes will be available on SUCourse+ before the lectures. The lecture notes cover the entire content of the course. Presentations shown during lecture hours will be a selected subset from the notes and students are obliged to read the entire content after the lectures.

The following textbook is the secondary resource:

Montgomery, D.C., *Statistical Quality Control: A Modern Introduction*, 6th Edition, John Wiley & Sons.
 ISBN 978-0470-23397-9 (International Student Version).

The sections of the textbook associated with the material covered in the lecture notes should be read by the students regularly **after** the topics are discussed in the class. Additional reading material may be assigned or suggested by the instructors and the TAs from time to time during the semester.

Software: Minitab Release 19/20

The courses will be delivered using Minitab as the statistical analysis software. Therefore, all students are responsible to have a running version of Minitab Release 19/20; details for installing and licensing Minitab will be announced on the first day of the lectures and recitations. Along with this,

1. Minitab exercises will be done during lecture hours as well as recitations.
2. During the recitation classes, Minitab applications will be exemplified; therefore, all students are expected to follow the recitation lecture by personally doing the Minitab exercises using their laptops.
3. There will be some quizzes online and they will include computer exercises that require Minitab analysis as well. The same is true for the Midterms and Final.
4. Assignments during the term will usually include analyses on Minitab as well as their practical interpretations.

Term Lecture Planning and Grading

The lectures and assessments of this term are going to be conducted as given in the table below.

Monday (08:40-11:30)		
	Lecture	Assessment
1	February 19	-
2	February 26	-
3	March 4	-
4	March 11	-
5	March 18	-
6	March 25	In Class Exercise (Quiz) 1
7	April 1	
	April 8	
8	April 15	Midterm
9	April 22	-

10	April 29	-
11	May.06	In Class Exercise (Quiz) 2
12	May.13	-
13	May.20	
14	May.27	-
		Final (date TBA)

Please follow the updates on SuCourse regarding the content, timing and application details (presence requirements, online links etc.)

The letter grade will be based on the percentages of the components given below:

Projects	15%
Assignments	10%
Quizzes	20%
Midterm	25%
Final	30%

The students' overall grade will be calculated with the percentages given in the table above. Later, the highest score will be treated as 100 and others grades will be adjusted with this normalization. Those who score less than 40 after the normalization will not be able to pass this course.

Quizzes

Quizzes are composed of short (30-45 minutes) exercises using Minitab or multiple-choice/open ended/fill in the blanks tests to be done individually during the regular class meetings. The SuCourse+ will be the medium for online tests and quizzes but the students are required to be physically present in the classroom in order to take the quiz. **There is no make-up for missed in-class exercises.** The quizzes will all be graded and will be given following the submission of a similar assignment on the topics.

Assignments and Projects

Students may be given daily or weekly assignments during the term. Assignments will be announced on the SUCourse+. Submissions for daily or weekly work will be graded and also be correlated with the results of the following quiz for academic integrity and personal contribution. There is no make-up for missed assignment submissions. **Due dates are strictly applied; no late work is accepted.**

2 Projects will be assigned as group work. It can either be an article review or a case-study elaboration or Minitab analysis. Follow the announcements in SuCourse+ for additional information and timing. **Due dates are strictly applied; no late work is accepted.** Students are not allowed to discuss and/or share their work with other students unless the work is assigned as a group work. The project submissions should follow the non-plagiarism protocols and the maximum Turnitin similarity rating can be 15%.

Midterm and Final Exams

Midterm and Final exams are going to be conducted according to University Regulations, physically on campus. Each exam will be composed of two main parts and grading breakdown will be announced prior to each test:

1. A classical examination (multiple choice, fill in the blanks, interpretations and composition type of open-ended questions)
2. Case study type of exercises using Minitab to be submitted as Minitab analysis output and practical interpretation.

The midterm and the final exams will be 2 or 2,5 hours long.

There will be only one single make-up exam which will be given during the second week of the final period that suits all of the eligible attendees. Students to take a make-up test should provide legal documentation to the faculty administrative office. Do not contact your instructor individually about the make-up test. **There is no make-up for the make-up test!**

Attendance

Students are expected to participate in lecture hours and recitation classes. Attendance will be taken and recorded and will be used as a “leverage” in final mark calculation.

Academic Integrity

Students are expected to honor the academic integrity principles according to the SU rules and procedures. Non-compliance to academic integrity principles through plagiarism, using or accomplishing another person's work, and/or submitting previously used work will be penalized severely. Please see [INSTRUCTION LETTER FOR STUDENT CODE OF CONDUCT AND DISCIPLINE](http://www2.sabanciuniv.edu/yonerger/SR/E-ISR-C210-01.html) on the internal SU web.<http://www2.sabanciuniv.edu/yonerger/SR/E-ISR-C210-01.html>

Announcements and SUCourse+

Students are responsible for all announcements made during the regular class meetings and recitation hours. Starting from the second week of classes, students should follow the SUCourse+ site for this class regularly as they are responsible for all announcements and postings on this site without any other type of notice.
