



AMERICAN UNIVERSITY OF BEIRUT
MAROUN SEMAAN FACULTY OF ENGINEERING AND ARCHITECTURE
DEPARTMENT OF INDUSTRIAL ENGINEERING & MANAGEMENT

INDE 430: Statistical Quality Control
SPRING 2023-2024

COURSE SYLLABUS

I. Meeting Time, Location, and Website:

Lecture: Monday/Wednesday

Location: Bechtel Engineering Building

Website: Moodle

II. Instructor:

Dr. Nabil Nehme

Office: Bechtel Engineering Building – Room 409

E-Mail: nn58@aub.edu.lb

Office Hours: Wednesday from 2 pm to 3:30 pm or by appointment

III. Description:

Design of quality control systems; quality methods for establishing product specifications; process control; variables and attributes charts; acceptance sampling; operating characteristics curves; process capabilities; QC software.

IV. Course Topics:

1. Introduction to Quality Control.
2. The DMAIC Process.
3. Statistical Methods in Quality Control.
4. Control Charts for Variables.
5. Control Charts for Attributes.
6. Process Capability Analysis.
7. Statistical Process Monitoring and Control Techniques.
8. Acceptance Sampling.

V. Course Objectives:

After completing the course, students should be able to

1. Define quality and the factors that contribute to quality
2. Carry out the steps of the DMAIC process
3. Recognize the different discrete and continuous distributions and their basic characteristic
4. Be able to make inferences about process quality using the appropriate tools and techniques



5. Be able to construct appropriate process control charts and use them to evaluate a process or system
6. Perform process capability analysis and use the results to evaluate the system
7. Perform acceptance sampling on a given lot to determine whether or not to reject that lot
8. Use statistical software to create statistical charts, make inferences on process quality, and create control charts for statistical quality control

VI. Instructional Methodology:

Lecture, class discussion, assignments, quizzes

VII. Textbooks:

Montgomery, Douglas (2013). *Introduction to Statistical Quality Control* (7th edition). John Wiley & Sons, Inc.

VIII. Performance Evaluation and Grading:

Midterm (Wednesday 20 th March 2024)	30 %
Final	40 %
Project	15 %
Assignments	10 %
Attendance	5 %

IX. Other Course Policies:

Homework

Homework problems will be assigned and graded frequently. Students are encouraged to spend plenty of time working on the homework problems and to discuss their solution with each other and the instructor. However, *each student should write and submit the homework individually. Do not type the homework. But do staple it. Doing the homework is the best way to excel in this course.*

Attendance Policy and Class Management

Students are personally responsible and accountable for learning the content of any class they miss. Students missing more than 20% of sessions before the last day for withdrawal may be dropped from the course without notice. No student will be admitted to class after 10 minutes from the beginning of the lecture. A student can miss no more than **4** sessions of instruction. By the **5th** session, the instructor may ask the student to drop the course.

Cells phones and other gadgets are not allowed in class.

Due Dates

Due dates will be strictly enforced. No homework is allowed to be presented after the due date.



Email

Information concerning the course may be sent by the instructor to students by email or through Moodle. Students are responsible for keeping AUB email accounts functioning properly.

X. Others:

- Students are expected to complete all work with the highest standard of integrity in line with AUB's Student Code of Conduct and MSFEA's Honor Code. Plagiarism, forgery, cheating or any form of academic misconduct will not be tolerated. Any of the above may cause a student's final course grade to be lowered significantly or the student may receive a failing grade, depending on the severity of the offence. Plagiarism is the presentation of the work of another as one's own work.
- All students must take exams as scheduled. Failure to take an exam during the assigned period will result in a grade of zero on that test unless the student has personally contacted me personally and received permission from me to be absent from the test.
- Any student whose name appears on the class list and stops attending classes and exams without officially withdrawing from the course will receive a failing grade "F".
- Any student caught cheating on an exam, whether copying someone else's work or helping someone to copy their work, will receive an F grade.
- AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a disability (including mental health, chronic or temporary medical conditions), please inform me immediately so that we can privately discuss options. In order to help establish reasonable accommodations and facilitate a smooth accommodations process, you are encouraged to contact the Accessible Education Office: accessibility@aub.edu.lb ; Extension: 3246; West Hall, 314.