

Boston University, College of Engineering
ENG ME 518: Product Quality

Course Information: Spring 2025

Prerequisite: Probability/statistics course or consent of instructor.

Meeting Details:

Monday and Wednesday 6:30 pm - 8:15 pm
PHO 205

Instructor:

Professor Perkins
Office: 15 St. Mary's Street, Room 138
Phone: (617) 353-4991
Email: perkins@bu.edu

Course Website:

Blackboard Learn

Office Hours:

Monday 1:00 pm - 2:00 pm (email me to confirm) and by appointment.

Course Readings:

Textbook: Douglas C. Montgomery, **Introduction to Statistical Quality Control**, (8th ed.), Wiley, 2020.

Homework:

Homework/in-class exercises will be 25% of course grade.

Exams/Projects:

Exams worth 40% of course grade.
Semester project and presentation worth 25% of course grade.

Attendance and Participation:

Attendance/Participation in class will be 10% of course grade.

AI Policy:

Except when otherwise explicitly noted, all responses on homework assignments must be your own.

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Course Syllabus: Spring 2025

- Introduction to Product Quality
- Cost and Implications of Quality
- Defect Definitions and Calculations
- Full Information, Partial Information
- Six Sigma: DMAIC Process
- Statistical Processes and Quality Control (SPC/SQC)
- Control Charts for Variables
- Control Charts for Attributes
- Process Capability Analysis
- Design of Experiments (DOE/DOX)
- Factors, Levels, Response, Design Matrix
- Factorial and Partial Factorial Designs
- Taguchi Method
- Acceptance Sampling

Learning Goals:

- Understanding of statistical concepts and solution methods and their relevance in MFG quality design and control
- Experience with application of statistical data analysis methods for solving quality design, control, and process/product improvement
- Experience with using statistical software for design and analysis of experiments
- Ability to produce well-organized and clearly written engineering reports and presentations