Statistical Process Control (61210)

Instructors: ST. PSARAKIS

Core Course, 2nd semester, 3.5 ECTS units
Course level: Graduate (MSc)
Language: English

Course Description

Definition of quality. Basics on quality and statistical quality control. An introduction to Acceptance sampling and Design of Experiments. Cause and effect chart and Pareto chart. The philosophy of statistical process control. Control charts for variables and attributes. Individual control charts. EWMA and CUSUM charts Capability indices. Control charts for autocorrelated data. Introduction to multivariate control charts. Basics of six sigma methodology.

Prerequisites

Students should have good knowledge of estimation and statistical inference. It is also useful to have basic knowledge of the statistical language R.

Target Learning Outcomes

The student after the course will acquire the skills needed to deal with problems improving the quality of products or services using statistical methods.

Recommended Bibliography

- Montgomery D (2019) Introduction to Statistical Quality Control, 8th Edition Wiley.
- Qiu P. (2013) Introduction to Statistical Process Control, CRC Press.
- Ταγαράς Γ.(2001) Στατιστικός Έλεγχος Ποιότητας, εκδόσεις ΖΗΤΗ.

Teaching and Learning Activities

One three-hour lecture per week, one one-hour laboratory, study exercises as homework (some to be submitted).

Assessment and Grading Methods

85% Written examination.
15% project/assignment based on simulated data applying the methodologies and techniques described during the course accompanied with short scientific report.