Study program: Mechanical engineering

Type and level of studies: Master studies

Course unit: Product And Process Quality Improvement

Teacher in charge: prof. dr Milan Kolarević

Language of instruction: English

ECTS: 6

Prerequisites: Statistics and probability

Semester: Summer

Course unit objective:
Introduction to basic concepts of statistical quality control as methodology for solving practical problems.

Learning outcomes of the course unit
Mastering the techniques of applying statistical process control through practical examples of the application of statistical tools for analyzing and improving product quality and ensuring stability and process capability.

Course unit contents

Theoretical classes

- Quality, process and control. TQM, SPC process and system. Understanding the processes and statistical process control.
- Tolerances. The loss function
- The collection and presentation of data
- The variability of the process
- Process capability
- Measurement errors. The optimal level of the process. Setting up the process.
- Process control
- Process control with numerical quality characteristics
- Attribute control charts
- Designing quality control charts
- Process Improvement

Practical classes

Exercise, Other modes of teaching, Study research work

Literature

D.C.Montgomery, G.C.Runger, *Applied Statistics and Probability for Engineers*, 6th Edition, Wiley, 2014.
Oakland J.S., *Statistical Proces Control*, Butterworth Heinemann, 2008,
Stapenhurst T., *Mastering Statistical Proces Control*, Butterworth Heinemann, 2005,
Wetherill G.B., Brown D.W., *Statistical Proces Control, Theory and practice,* Springer, 1991.

Number of active teaching hours				**Other classes**
Lectures: 3	Practice: 1	Other forms of classes:	Independent work: 1	

Teaching methods
Lectures, Numerical computational exercises. Study research work

Examination methods (maximum 100 points)

Exam prerequisites	**No. of points:**	**Final exam**	**No. of points:**
Student's activity during lectures	10	oral examination	
practical classes/tests		written examination	50
Seminars/homework		.....	
Project	40		
Other			

Grading system

Grade	**No. of points**	**Description**
10	**91-100**	Excellent
9	**81-90**	Exceptionally good
8	**71-80**	Very good
7	**61-70**	Good
6	**51-60**	Passing
5	**Less than 50**	Failing