COURSE DESCRIPTION CARD - SYLLABUS

Course name

Statistical Process Control

Course

Field of study

Management and production engineering

Year/Semester

2/3

Area of study (specialization)

Quality Management

Profile of study

general academic

Level of study

Second-cycle studies

Course offered in

polish

Form of study

full-time

Requirements

elective

Number of hours

Lecture

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

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Faculty of Mechanical Engineering

Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Basic knowledge of mathematical statistics. The ability to think logically and independently obtain information from various sources, as well as understanding the need for learning.

Course objective

The aim of the course is to provide knowledge and skills in the field of quality inspection and its planning as well as skills in the selection of statistical methods for data analysis.

Course-related learning outcomes

Knowledge

The student will acquire knowledge in the field of quality inspection and its planning, methods of statistical process control, statistical acceptance inspection and statistical analysis of measurement

systems. Classes will cover the theory of using slection methods of measuring systems to evaluate product quality.

Skills

Student is able to choose a measuring device and design a measurement strategy adequate to the measuring task. Students will be able to: propose the type and form of quality inspection depending on the nature of a process, select a measure of process quality capability, calculate and interpret capability indicies, design and interpret a process control charts, develop a process control plan, plan statistical acceptance control. Student is able to organize the visual inspection station and to choose and use in practice the optical system.

Social competences

The student can work in a group. Student is aware of the need and role of data analysis methods and of modern measuring systems in the economy and the need to constantly expand knowledge.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Credit in writing or oral on the basis of scoring questions (credit in the event of obtaining 51% of points:> 50% - dst,> 60% - dst plus,> 70% - db,> 80% - db plus,> 90% points - very good) carried out at the end of the module.

Project/Study Visits: Credit based on the evaluation of the completed project presented in the form of a written report and presentation.

Programme content

Classes will be conducted in blocks consisting of lectures and projects.

Topics of classes:
Quality inspection - its forms and types.
Control plan.
Quality process indicies.
Process control charts for features for numerical and alternative evaluation.
Special charts.
Statistical acceptance inspection.
Vision and optical inspection.

Teaching methods

Lecture: The lecture will be illustrated with a multimedia presentation containing the discussed program content

Project: practical classes

Bibliography

Basic

1. Hamrol A., Zarządzanie jakością z przykładami, PWN, Warszawa, 2008.

2. Smith G. M., Statistical Process Control and Quality Improvement, Pearson Prentice Hall, 2004.

3. Montgomery D.C., Introduction to Statistical Quality Control, John Wiley&Sons, 2009.

Additional

1. Montgomery D.C., Managing, Controlling, and Improving Quality, Wiely, 2010

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	30	1,5

[1] delete or add other activities as appropriate