



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Quality management

### Course

Field of study

Management Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

part-time

Year/Semester

3/5

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

10

Tutorials

10

Laboratory classes

Projects/seminars

10

Other (e.g. online)

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

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## Prerequisites

Basic knowledge of technical issues, statistics and work organization

## Course objective

Acquiring knowledge and skills related to engineering aspects of product and process quality, in particular regarding quality evaluation, methods of product quality control as well as critical process control points and their supervision

## Course-related learning outcomes

### Knowledge

1. Student has basic knowledge about the life cycle of industrial products including machinery and related quality issues [P6S\_WG\_14; P6S\_WG\_15]
2. Student knows the basic methods, techniques and tools used in quality engineering in relation to typical industrial technologies, has extended, theoretically founded general knowledge related to statistical methods used in process control and product control [P6S\_WG\_16]
3. Student has knowledge of quality management including quality management standards, principles, methods and supporting tools [P6S\_WK\_02]

### Skills

1. Student uses norms and standards adequately to the given task in the field of quality management [P6S\_UW\_08]
2. Student can effectively use to solve simple problems in the field of machine construction and operation methods and tools used in quality management taking into account their interdependence as well as organizational, technical and economic conditions [P6S\_UW\_11; P6S\_UW\_14; P6S\_UW\_15]
3. Student can design control activities in relation to selected technological operations and standards for the organization of control activities [P6S\_UW\_16]

### Social competences

1. Student recognizes the cause-and-effect relationship between events / inconsistencies and can rank and prioritize them [P6S\_KK\_02]
2. Student recognizes the need to work in a team and is able to define tasks related to the implementation of the project [P6S\_KO\_01]

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment:

- a) tutorials: assessment of current progress of task implementation
- b) lectures: answers to questions about the content of previous lectures,



c) project: evaluation of the current progress of the project task implementation.

Summative rating:

a) tutorials: presentation of reports on exercises performed (arithmetic average of partial grades);

b) lectures: The pass a test questions, scored on a two-point scale of 0, 1. Passing threshold: 50% of the points.

c) Project: project task and presentation

### Programme content

Lecture:

Basic concepts related to quality, product quality features, quality engineering in product design, manufacture, operation and utilization, quality assessment and analysis, quality control and control, tools and methods of quality control and SKO and SPC control, visualization tools, determining causes and effects and determining the importance of problems affecting product quality. Quality management principles, norms and standards

Exercises:

Tools used to visualize quality problems: flowchart, flowchart, process map, control sheet - examples. Tools used to identify the causes and effects of quality problems: Ishikawa diagram, relationship diagram, matrix diagram - examples. Tools used to determine the importance of problems with quality, e.g. the Pareto-Lorentz diagram.

Project

Quality planning - quality plans, standards for implementing technical control

### Teaching methods

1. Lecture: multimedia presentation, illustrated with examples on the board.
2. Tutorials: multimedia presentation illustrated with examples given on a blackboard and performance of tasks given by the teacher - practical exercises.
3. Project: project task and presentation

### Bibliography

Basic

Quality management principles

<https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100080.pdf>

Application of 7 QC Tools to Investigate the Rejection of Lathe Beds – Case Study of a Machine Tool Manufacturing Company <https://www.sdmimd.ac.in/SDMRCMS/cases/CIM2015/4.pdf>



<https://www.nikunjboraniya.com/2018/10/7-qc-tools-for-process-improvement.html>

Additional

ISO 9001:2015 - Quality management systems — Requirements

Jasiulewicz-Kaczmarek M., ISO 9000:2015 quality management principles as the framework for a maintenance management, 2016 DOI: 10.21008/j.0239-9415.2016.069.05

### Breakdown of average student's workload

|  | Hours | ECTS |
|--|-------|------|
| Total workload   | 100   | 4,0  |
| Classes requiring direct contact with the teacher  | 35    | 1,5  |
| Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests, project preparation) <sup>1</sup> | 65    | 2,5  |

<sup>1</sup> delete or add other activities as appropriate