



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Contemporary Concepts and Methods of Quality Management

### Course

Field of study

Engineering Management

Area of study (specialization)

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

Tutorials

15

Projects/seminars

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

dr hab. inż. Agnieszka Misztal prof. PP

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Responsible for the course/lecturer:

dr inż. Anna Mazur

Faculty of Engineering Management

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### Prerequisites

Student defines and describes the basic concepts and principles in the field of quality management, the foundations of organization and management. The student is able to verify and evaluate phenomena occurring during the implementation of processes in enterprises and has the ability to interpret and describe the observations and observations. The student is aware of the importance of quality for its recipients and creators of its level. The student is aware of the need to shape products and processes, taking into account quality, normative and legal requirements.

### Course objective

Presenting the essence of using modern methods and tools in quality management. Acquisition by



students of the practical ability to apply quality management methods and tools in processes, ventures, products and systems.

### Course-related learning outcomes

#### Knowledge

The student knows how to use quality management methods and tools to model information processes and decision-making processes (P7S\_WG\_02).

The student knows how to model processes and phenomena related to quality management in organizations using mathematical statistics methods and tools (P7S\_WG\_03).

The student fluently defines concepts related to quality management as well as methods and tools for quality management (P7S\_WG\_04).

The student very good knows data acquisition methods used in quality management (P7S\_WG\_07).

#### Skills

The student is able to carry out cause-and-effect analysis for processes and phenomena occurring in organizations using appropriately selected methods and tools of quality management (P7S\_UW\_01, P7S\_UW\_07).

The student is able to apply advanced quality management methods and tools to model phenomena occurring in processes, products and management systems (P7S\_UW\_02).

The student is able to correctly interpret the results and draw conclusions from the methods and quality management tools used (P7S\_UW\_06).

The student is able to critically analyze the results of the application of quality methods and tools and then propose a concept for improving the studied phenomena taking into account technical, organizational and economic aspects (P7S\_UW\_09).

#### Social competences

The student is aware that quality management requires an interdisciplinary approach and teamwork (P7S\_KK\_01)

The student knows how to use cause-and-effect analysis and is able to use it and give it rank in achieving the objectives of the subject (P7S\_KK\_02).

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture:

Formative assessment: answers to questions regarding the content of previous lectures

Summative assessment: The pass a test consisting of 10-20 mixed questions (test and open), scored on a two-point scale of 0, 1. Passing threshold: 55% of the points.



#### Tutorials:

Formative assessment: assessment of the current progress of the implementation of tasks, for each task the student receives a partial assessment.

Summative assessment: arithmetic average of partial grades obtained for individual tasks.

#### Laboratory classes:

Formative assessment: assessment of the current progress of the implementation of tasks, for each task the student receives a partial assessment.

Summative assessment: arithmetic average of partial grades obtained for individual tasks.

### Programme content

Lecture: The essence of perfecting in organizations. Kaizen - essence and tools. Classification of quality management methods and tools. Modern methods and tools of quality management and application of them.

Tutorials: Developing the quality function, applying the QFD method in products, services and processes. Failure mode and effects analysis, different variations of the FMEA method. Practical applications of the FMEA method.

Laboratory classes: Application of the R&R method to analyze selected phenomena in organizations. Measuring systems. Analysis of measuring systems for unmeasurable features. Kappa method, problems in determining and interpreting Cohen's Kappa coefficient.

### Teaching methods

Informative lecture, problem lecture, seminar lecture, talk, discussion in the form of a snowball, project method, simulation method, workshop method, demonstration method.

### Bibliography

Basic

Gołaś H., Mazur A., Zasady, metody i techniki wykorzystywane w zarządzaniu jakością, Wydawnictwo Politechniki Poznańskiej, Poznań 2010.

Hamrol A.: Zarządzanie i inżynieria jakości. Warszawa PWN, Warszawa 2017.

Grabowska M., Hamrol A., Starzyńska B., Poradnik menedżera jakości, Wydawnictwo Politechniki Poznańskiej, Poznań 2010.

Wolniak R., Skotnicka-Zasadzień B., Metody i narzędzia zarządzania jakością. Teoria i praktyka, Wydawnictwo Politechniki Śląskiej, Gliwice 2011.

Stadnicka D., Wybrane metody i narzędzia doskonalenia procesów w praktyce, Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów 2017



Nermend K., Metody analizy wielokryterialnej i wielowymiarowej we wspomaganie decyzji, PWN, Warszawa, 2017.

Norma PN-EN 60812:2009 Techniki analizy nieuszkodzalności systemów. Procedura analizy rodzajów i skutków uszkodzeń (FMEA), PKN, Warszawa, 2009.

Additional

Konarzewska-Gubała E., Zarządzanie przez jakość. Koncepcje, metody, studia przypadków, WAE, Wrocław 2003.

Łagowski E., Żuchowski J., Narzędzia i metody doskonalenia jakości, Wydawnictwo Politechniki Radomskiej, Radom 2004.

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	65	2,0
Classes requiring direct contact with the teacher	45	1,5
Student's own work (literature studies, preparation for laboratory classes, preparation for tutorials, preparation for tests). <sup>1</sup>	20	0,5

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