



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Contemporary Concepts and Methods of Quality Management

### Course

Field of study

Engineering Management

Area of study (specialization)

Business management of the future

Level of study

Second-cycle studies

Form of study

part-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

10

Laboratory classes

10

Other (e.g. online)

Tutorials

10

Projects/seminars

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

Ph.D., D.Sc., Eng., Małgorzata Jasiulewicz-Kaczmarek, Univeristy Professor

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Responsible for the course/lecturer:

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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

1. The student knows how to use quality management methods and tools to model information processes and decision-making processes [P7S\_WG\_02].
2. The student knows how to model processes and phenomena related to quality management in organizations using mathematical statistics methods and tools [P7S\_WG\_03].
3. The student fluently defines concepts related to quality management as well as methods and tools for quality management [P7S\_WG\_04].
4. The student very good knows data acquisition methods used in quality management [P7S\_WG\_07].

#### Skills

1. 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].
2. 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].
3. The student is able to correctly interpret the results and draw conclusions from the methods and quality management tools used [P7S\_UW\_06].
4. 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

1. The student is aware that quality management requires an interdisciplinary approach and teamwork [P7S\_KK\_01].
2. 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 questions, scored on a two-point scale of 0, 1. Passing threshold: 50% 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. Passing threshold: 50% of the points.

Laboratory classes:

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

Summative assessment: sum of points obtained for tasks and final test. Passing threshold: 50% of the points.

### Programme content

Lecture: Definition and essence of the SIX SIGMA concept, the DMAIC and DMADV cycle, tools and methods used in the various phases of the cycle

Tutorials: use of 7 old and 7 new tools, application of these tools in in-depth G8D analysis.

Laboratory classes: process variation (short and long term - SPC) and measurement system variation (MSA for measurable (R&R) and attributes (KAPPA))

### Teaching methods

Lecture: multimedia presentation illustrated with examples given on the board.

Tutorials: multimedia presentation illustrated with examples given on the blackboard and carrying out the tasks given by the teacher - practical exercises.

Laboratoryclasses: a multimedia presentation illustrated with examples given on the blackboard and the performance of laboratory exercises given by the teacher.

### Bibliography

Basic

Define-Measure-AnalyzeImprove-Control (DMAIC)

<https://cdn.ttgtmedia.com/searchSoftwareQuality/downloads/ect01TreasurechestSixSigma.pdf>

8D Method Overview for Suppliers, 2021 [https://media3.bsh-](https://media3.bsh-group.com/Documents/Overview_ProblemSolving_with_8D_Method_EN.pdf)

[group.com/Documents/Overview\\_ProblemSolving\\_with\\_8D\\_Method\\_EN.pdf](https://media3.bsh-group.com/Documents/Overview_ProblemSolving_with_8D_Method_EN.pdf)



MSA 4 th. Edition Quick Guide

[https://www.rubymetrology.com/add\\_help\\_doc/MSA\\_Reference\\_Manual\\_4th\\_Edition.pdf](https://www.rubymetrology.com/add_help_doc/MSA_Reference_Manual_4th_Edition.pdf).

PN-EN 60812:2009 EN 60812:2009. Analysis techniques for system reliability: procedure for failure mode and effects (FMEA)

Additional

ISO 18404:2015(en) Quantitative methods in process improvement — Six Sigma — Competencies for key personnel and their organizations in relation to Six Sigma and Lean implementation

Antosz K., Augustyn A., Jasiulewicz-Kaczmarek M., Application of VSM for improving the medical processes - case study, APMS 2021 IFIP AICT Springer

### Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for laboratory classes, preparation for tutorials, preparation for tests). <sup>1</sup>	30	1,0

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