

SYLLABUS

Name: Quality engineering

Name in Polish:

Name in English: Quality engineering

Information on course:

Course offered by department: Faculty of Organisation and Management
Course for department: Silesian University of Technology
Study level and form: [Master's degree/Beachelor's degree, Full-time](#)
Term: [Winter semester 2025/2026](#)
Coordinator of course edition: Dr hab. inż. Patrycja Hąbek, prof. PŚ

Default type of course examination report:

Language:

English

Course homepage:

<https://platforma.polsl.pl/roz/>

ECTS

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Short description:

Based on the knowledge gained during the lecture, laboratory classes and the completed project, the student will acquire the knowledge and skills necessary for managing product and process quality.

Description:

Lecture 30h:

1. Introduction to quality
2. Evolution in quality management,
3. Process approach in quality management
4. Principles of quality management
5. Quality management system based on ISO 9001
6. Implementation and assessment of the quality management system
7. Quality management system documentation,
8. Quality improvement methods and tools

Laboratory 15h:

1. Development of a quality policy for a selected industrial enterprise
2. Defining quality goals and proposing quality assessment indicators resulting from the quality policy
3. Process mapping - developing a map and card for the selected process
4. Identification of the causes of defects using the Ishikawa diagram.
5. Conducting a Pareto-Lorenz analysis using data from the Ishikawa diagram.

Project 30h:

The project provides students with a hands-on opportunity to apply a process-oriented approach. Students will select a real-world organisation and work on improving its efficiency and quality. The project will emphasise identifying critical processes, applying process improvement tools and techniques, and proposing the key performance indicators.

Bibliography:

1. Tague N. R. (2005). The Quality Toolbox, Second Edition, American Society for Quality, Quality Press, Milwaukee
2. Hąbek P.: Quality engineering tools in production process improvement, Cross-border exchange of experience production engineering using principles of mathematics. Modern mathematical methods in engineering 3mi, 22.1. - 24.1. 2018, Horni Lomna. VSB - Technical University of Ostrava, Silesian University of Technology. Ostrava : VSB - Technical University of Ostrava, 2018, s. 58-64
3. Hąbek P.: The concept of using FMEA method for sustainable manufacturing, Systemy Wspomagania w Inżynierii Produkcji, Cross-border exchange of experience in production engineering using principles of mathematics, vol.6, iss.2, 2017, pp.49-55
4. Tague N. R. (2005). The Quality Toolbox, Second Edition, American Society for Quality, Quality Press, Milwaukee
5. <https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/iso9001-2015-process-appr.pdf>
6. <https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/>

Learning outcomes:

Knowledge. Knows and understands:

K1A _W2 Theories and general methodology of research in management and quality sciences as well as the nature, place and importance of social sciences in engineering and managerial activities specific to the management and organization of sociotechnical systems.

K1A _W3 Basic engineering processes and technologies in the life cycle of technical equipment, objects and systems and ways of solving typical engineering tasks, particularly in relation to the organization of production processes and production management.

Skills. Is able to:

K1A _U2 Identify, analyze and interpret social and economic phenomena and processes using knowledge in the field of social sciences and standard methods and tools of management and quality sciences in engineering management activities aimed at shaping the efficiency, productivity and organization of production enterprises.

K1A _U11 Independently plan and implement their own lifelong learning.

Social competences. Is ready for:

K1A _K2 Fulfilling social obligations, co-organizing activities for the social environment, initiating activities for the public interest, thinking and acting in an entrepreneurial manner.

Assessment methods and assessment criteria:

Lecture: EXAM of knowledge provided during lectures. Passing threshold: 50% of points.

Laboratory:

1. To pass the laboratory, a positive assessment of each of the report is required.
2. The reports are assessed in terms of technical preparation and their content.
3. The arithmetic mean of the grades obtained from all reports is a partial grade from the laboratory classes

Project:

1. A positive evaluation of the project report and its presentation is required to complete the project classes
2. The report is assessed in terms of technical preparation and its content.

The final grade for the subject is the arithmetic mean value of the exam grade and partial grades for laboratory and project classes.

Practical placement: