



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Quality and Safety Management

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### Course

Field of study

Management and Production Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

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### Number of hours

Lecture

30

Laboratory classes

Tutorials

15

Projects/seminars

**Number of credit points**

3

Other (e.g. online)

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### Lecturers

Responsible for the course/lecturer:

prof. Adam Hamrol

Responsible for the course/lecturer:

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### Prerequisites



Has knowledge of the basics of management, production organization, production methods, and the basics of mathematical statistics

### Course objective

Knowing and understanding the importance of various aspects of product quality. Acquiring the ability to use in a company the principles, methods and tools of quality engineering and quality management  
Acquiring knowledge and skills in the field of determining the qualitative ability of the process and determining the quality level of products

Understanding the principles of designing and functioning of quality management systems

Understanding the principles of product safety declaration

### Course-related learning outcomes

#### Knowledge

Understands various aspects of quality. Realizes the social and economic importance of quality.

He knows the place of quality in the product life cycle and principles of pro-quality product design.

Has knowledge about the tools for measuring and assessing the quality of machines, processes and the quality of products

He knows the basics of statistical process control and statistical quality control of products

Has knowledge of strategies, principles and tools for continuous process improvement

He knows the basics of quality management systems, auditing and certification

#### Skills

Can identify critical qualitative characteristics and on the basis of measurement results determine their statistics in a sample and estimate population parameters

Can analyze the qualitative ability of the process

He can design and use a process control card

He can identify problems in the processes with ensuring the planned quality and also indicate the possibilities of their solutions

#### Social competences

He can cooperate and lead a team performing tasks in the field of quality management  
Is aware of the responsibility of the engineer and the quality manager for the products manufactured by the companies

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

An exam at the end of the semesters based on a multiple-choice test. The test contains 50 questions.

Minimum for passing the exam: 60% correct answers

### Programme content

The scope of engineering and quality management. Aspects of quality. Design quality, workmanship, quality of use. Planning, assurance and quality control. Continuous quality improvement. Quality-oriented design methods: FMEA, QFD, experimental methods. Control of products and processes.



Statistical process control (SPC), quality ability indicators, control charts, acceptance sampling. Principles, methods and tools of quality management. Concepts of process improvement in the context of product quality: TQM, Six Sigma. Quality systems that meet the requirements of ISO 9000. Designing quality systems. Auditing, certification and maintenance of quality systems. Accreditation. Product safety - CE mark. Economic aspects of quality management.

### Teaching methods

The lecture illustrated with a multimedia presentation containing the discussed program content.

Problem solving. Simple design tasks.

### Bibliography

Basic

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

Zymonik Z., Hamrol A., Grudowski P.: Zarządzanie jakością i bezpieczeństwem. Polskie Wydawnictwo Ekonomiczne, 2013  
Ram Chandra, Environmental Waste Management, CRC Press, 2015

Additional

Starzyńska B., Hamrol A., Grabowska M.: Poradnik menedżera jakości. Kompendium wiedzy o narzędziach jakości. Wydawnictwo Politechniki Poznańskiej, Poznań 2010

Szczepańska K.: Koszty jakości dla inżynierów. Wydawnictwo Placet. Warszawa 2009

### Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for classes, preparation for exam, project preparation) <sup>1</sup>	30	1

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