



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Quality in the design of earth and road machinery

### Course

Field of study

Mechanical and Automotive Engineering

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

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

15

Projects/seminars

0

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

dr inż. Łukasz Gierz

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tel. 61-6652225

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

mgr inż. Dawid Romek

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tel. 61-647 58 79

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

### Prerequisites

Knowledge: Has a basic knowledge of the operation and maintenance processes of machines.

Skills: Can use modern means of sharing and disseminating information scientific, technical and legal

Social competences: Understands the importance of legal norms in society and mechanisms market.

### Course objective

Learn the basic concepts of management and engineering quality and the importance of this category for society. Understanding the conformity assessment procedures for machines.



## Course-related learning outcomes

### Knowledge

Has knowledge of the principles of safety and ergonomics in the design and operation of machines and the threats that machines pose to the natural environment.

Has general knowledge of standardization, EU recommendations and directives, national, industry and international standards systems, and industrial standards.

Has extended knowledge of the standards for working machines in the field of methods of calculating and testing machines, safety, including road safety, environmental protection as well as mechanical and electrical interface.

### Skills

Can perform a medium complex design of a working machine or its assembly using modern CAD tools, including tools for spatial modeling of machines and calculations using the finite element method.

He can design the technology of exploitation of a selected machine with a high degree of complexity.

Can interact with other people as part of teamwork and take a leading role in teams.

### Social competences

Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on its own.

It is ready to initiate actions for the public interest.

Is ready to fulfill professional roles responsibly, taking into account changing social needs, including:

- developing the professional achievements,
- maintaining the ethos of the profession,
- observing and developing the rules of professional ethics and acting towards the observance of these rules.

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Written exam, completion of the exercise

## Programme content

Quality system in the enterprise. Specifying quality - qualitative factors, quality criteria. Shaping the quality, elements of shaping the quality, effective functioning of the system. Implementation of the quality system, implementation issues, organization of work. Quality Certification. Functioning of the quality system, Introduction to the Act on Conformity Assessment and Market Surveillance, Basic terminology: machine, partly completed machine, placing on the market, distributor, importer, etc.,.



Standards: harmonized with DM2006 / 42 / EC, types of harmonized standards, Risk assessment in machine construction in accordance with PN-EN ISO 12100: 2012 7, Particularly dangerous machines, Requirements for technical documentation and user manuals,. EC declaration of conformity, Declaration of incorporation of partly completed machinery, Product marking in accordance with DM 2006/42 / EC

### Teaching methods

1. Lecture with multimedia presentation
2. Exercises - solving problems

### Bibliography

Basic

1. Gawlik J., Kiełbus A.: Metody i narzędzia w analizie jakości

wyrobów. Politechnika Krakowska, Kraków 2008, s.79-92.

2. Dyrektywa Maszynowa 2006/42/WE

Additional

1. Kolman R.: Kwalitologia, wiedza o różnych dziedzinach jakości. Wydawnictwo PLACET Warszawa 2009, s.312-322.

2. Samek A.: Współpraca specjalistów w procesie projektowania. Przegląd Mechaniczny 3/2008, s.16-19

### Breakdown of average student's workload

	Hours	ECTS
Total workload	70	3,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	30	1,0

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