



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Quality Engineering

### Course

Field of study

Year/Semester

Transport

1/2

Area of study (specialization)

Profile of study

Ecology of Transport

general academic

Level of study

Course offered in

Second-cycle studies

Polish

Form of study

Requirements

full-time

elective

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

15

0

0

Tutorials

Projects/seminars

15

0

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

Prof. Zbigniew Kłos, Ph.D.(Eng.), D.Sc.

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Faculty of Civil and Transport Engineering

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### Prerequisites

**KNOWLEDGE:** Student has fundamental knowledge about management of organizations and fundamental knowledge on innovation development in the field of transport

**SKILLS:** Student possesses ability of perceiving and associating of phenomena occurring in management of market oriented organizations in the field of transport and is able to interpret them, draw practical conclusions and to formulate opinions

**SOCIAL COMPETENCES:** Student has the awareness of importance and understands the effects of undertaking innovative, market oriented, activities, concerning pro-ecological issues



## Course objective

Transmitting to the students the knowledge of fundamental issues connected with understanding the role of quality category in modern economy and acquainting them with basic tools of quality engineering implementation in organizations with the special emphasis of ecological problems

## Course-related learning outcomes

### Knowledge

The student has advanced and in-depth knowledge of transport engineering, theoretical foundations, tools and means used to solve simple engineering problems

The student has advanced detailed knowledge of selected issues in the field of transport engineering

The student knows the economic, legal and other conditions of the operation of transport companies

### Skills

The student is able to obtain information from literature, databases and other sources (in Polish and English), integrate them, interpret and critically evaluate them, draw conclusions and formulate and exhaustively justify opinions

The student is able - when formulating and solving engineering tasks - to integrate knowledge from various areas of transport (and, if necessary, also knowledge from other scientific disciplines) and apply a systemic approach, also taking into account non-technical aspects

The student is able to make a critical analysis of existing technical solutions and propose their improvements (improvements)

The student is able - in accordance with the given specification, taking into account non-technical aspects - to design a complex device, system in the field of transport engineering or a process and to implement this project - at least in part - using appropriate methods, techniques and tools, including adapting the existing or developing new tools

### Social competences

The student understands the importance of using the latest knowledge in the field of transport engineering in solving research and practical problems

The student is aware of the need to develop professional achievements and to comply with the rules of professional ethics

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Control test and evaluation of student's elaborations of the report on pro-environmental valuation of transportation means

## Programme content

Definition of quality. Changes of quality. Shaping of quality. Assurance and management of quality: standard, organizational, cultural approaches. Total Quality Management. Specificity of Japanese and



American approach towards quality management. ISO 9000 standards. Quality assurance and management systems. Introduction to quality assurance and management systems documentation. Methods of technical objects and transport means quality evaluation. Relation between quality and environmental criteria. Introduction to quality costs. Quality of services

### Teaching methods

Lecture with multi-media presentation, analysis of evaluation methods of quality level of technical objects and transportation means

### Bibliography

Basic

1. J.S. Oakland, Total Quality Management. Butterworth Heinemann, Amsterdam 2003
2. K. Ishikawa, What is total quality control? Prentice-Hall inc., Englewood Cliffs 1988

Additional

1. Ch.-T. Su, Quality Engineering. CRC Press, Boca Raton 2013
2. T. Pfeifer, Quality management. Strategies, methods, techniques. Carl Hanser Verlag, Muenchen 200

### 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/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	30	1,0

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