COURSE DESCRIPTION CARD - SYLLABUS

Course name

Quality Engineering

Course

Field of study

Transport

Year/Semester

1/2

Area of study (specialization)

Road transport

Profile of study

general academic

Level of study

First-cycle studies

Course offered in

Polish

Form of study

full-time

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

1

Lecturers

Responsible for the course/lecturer:

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Faculty of Civil and Transport Engineering

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Responsible for the course/lecturer:

Prerequisites

KNOWLEDGE: the student has a basic knowledge of the design, manufacture and operation of vehicles and technical objects

SKILLS: the student is able to integrate the obtained information, interpret it, draw conclusions, formulate and justify opinions

SOCIAL COMPETENCES: the student is aware of the importance and understands the non-technical aspects and effects of transport activities

Course objective

Getting acquainted with the concepts of quality management and quality engineering instruments as

well as the importance of the category of "quality" for the mobility of society, especially road transport, and learning the methods of influencing the quality level of transport services.

Course-related learning outcomes

Knowledge

The student has ordered and theoretically founded general knowledge in the field of key issues of technology and detailed knowledge in the field of selected issues in this discipline of transport engineering

The student has knowledge of important development trends and the most important technical achievements and of other related scientific disciplines, in particular transport engineering

The student knows the basic techniques, methods and tools used in the process of solving tasks in the field of transport, mainly of an engineering nature engineering

Skills

The student is able, when formulating and solving tasks in the field of transport, to apply appropriately selected methods, including analytical, simulation or experimental methods

The student is able to take into account in the process of formulating and solving tasks in the field of transport engineering also non-transport aspects, in particular social, legal and economic issues

Social competences

The student understands that in technology, knowledge and skills very quickly become obsolete

The student is aware of the importance of knowledge in solving engineering problems, knows examples and understands the causes of malfunctioning transport systems that have led to serious financial and social losses or to serious loss of health and even life

The student correctly identifies and solves dilemmas related to the profession of a transport engineer

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Control test and project, in which a parametric multi-criteria method is used to quantify the quality level of selected transport services, with the emphasis on ecological aspects.

Programme content

Quality - definitions, descriptive and comparative interpretation, quality attributes. Quality engineering - subject and scope. Quality cost classification and system.

Conditions for shaping quality in design, quality determinants in production, quality in operation and liquidation. Quality control tools.

Quality assurance and management. TQM: Deming rules, Japanese approach (5S, kaizen), EFQM model. Normative quality management. Process orientation in management

The specificity of the quality of services. Elements of the service quality system: structure, management responsibility, role of resources. Operational components of the service quality system.

Conditions and specificity of the quality of transport, including road transport. The quality of the transport service and the quality of the transport system. Conditions for the implementation of recycling and quality aspects in the assessment of vehicle recycling processes.

Quality quantification. Review of methods for assessing the quality of services and facilities. Comprehensive quality assessment methods. Principles of parameterization of quality criteria. Averaged quality marks methods. Qualitative assessment of selected objects: vehicles, elements of technical transport infrastructure or transport services.

Teaching methods

Lecture with a multimedia presentation, consultations supporting the development of the project

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

3. Hamrol A., Mantura W., Zarządzanie jakością, WN PWN, Warszawa 2009

4. Kolman R., Kwalitologia. Wyd. Placet, Warszawa 2009

5. Szczepańska K., Koszty jakości dla inżynierów. Wyd. Placet, Warszawa 2009

6. Grudowski P., Podejście procesowe w systemach zarządzania jakością w małych i średnich przedsiębiorstwach. Wyd. PG, Gdańsk 2007

Additional

1. Ch.-T. Su, Quality Engineering. CRC Press, Boca Raton 2013

2. T. Pfeifer, Quality management. Strategies, methods, techniques. Carl Hanser Verlag, Muenchen 2000

3. Womack J.P., Jonem D.T., Szczupłe rozwiązania. Wyd. Lean Enterprise Institute Polska, Wrocław 2010

4. Urbaniak M., Zarządzanie jakością, środowiskiem oraz bezpieczeństwem w praktyce gospodarczej. Wyd. Difin, Warszawa 2007

5. Kłos Z., Elementy inżynierii jakości i ekologii maszyn. Wyd. Politechniki Poznańskiej, Poznań 1998

Breakdown of average student's workload

	Hours	ECTS
Total workload	40	1,0
Classes requiring direct contact with the teacher	30	0,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	10	0,5

[1] delete or add other activities as appropriate