

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Quality Engineering		Code 1010611251010610240
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 5
Elective path/specialty Road Transport	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 2 Classes: 1 Laboratory: - Project/seminars: -		No. of credits 3
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 3 100%
Responsible for subject / lecturer: Prof. Zbigniew Kłos, Ph.D.(Eng.), D.Sc. email: zbigniew.klos@put.poznan.pl tel. 61 665 2231 Faculty of Machines and Transport ul. Piotrowo 3 60-965 Poznań		Responsible for subject / lecturer: Krzysztof Koper M.Sc. (Eng.) email: krzysztof.koper@put.poznan.pl tel. 61 665 21 10 Faculty of Machines and Transport ul. Piotrowo 3 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student has fundamental knowledge about management of organizations and fundamental knowledge on innovativity and innovation development
2	Skills	Student possesses ability of perceiving and associating of phenomena occurring in management of market oriented organizations and is able to interpret them, draw practical conclusions and to formulate opinions
3	Social competencies	Student has the awareness of importance and understands the effects of undertaking innovative, market oriented, activities
Assumptions and objectives of the course: To deliver to the students the knowledge of fundamental issues connected with understanding the role of quality category in modern economy, specially in the sector of road transportation and acquainting them with basic tools of quality engineering implementation in organizations.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Has general knowledge in the field of standardization, recommendations and EU directives, international, national and industry standards in the area of quality - [K2A_W09] 2. Has a basic knowledge of quality management systems. - [K2A_W15]		
Skills: 1. Is able to prepare a scientific paper in a foreign language on the quality issues, based on literature and other sources of information, including online sources and submit an oral presentation in this field. - [K2A_U02] 2. Is able to advise on the selection of machines within the selected equipment group, using quality valuation methods. - [K2A_U15]		
Social competencies: 1. Is aware of and understands the importance and impact of non-technical ? quality oriented ? aspects of mechanical engineering activities and its impact on the environment. - [K2A_K02] 2. Is aware of social role of mechanical engineer, understands the need for and is able to deliver opinions and knowledge in the field of fundamental quality issues. - [K2A_K06]		
Assessment methods of study outcomes		
Control tests.		

Course description		
<p>1. Terms "Quality" and "Quality engineering" and their scope: Quality " definitions, interpretations: descriptive and comparative, attributes of quality. Quality engineering " topic and scope.</p> <p>2. Shaping of quality in life cycle: Conditions of quality shaping in design processes. Determinants of quality in production phase, showing the quality in maintenance and liquidation phase. Tools of quality control.</p> <p>3. Quality management: Quality assurance and quality management. Total Quality Management: Deming principles, Japanese approach (5S, kaizen), EFQM model. Introduction to normative management of quality. Process orientation in management.</p> <p>4. Quality of services: Specificity of service quality. Elements of the system of service quality: structure, responsibilities of top management, role of resources. Operational elements of system of service quality.</p> <p>5. Quality in road transport: Conditions and specificity of transport quality, including specially road transport. Quality of transport service and quality of transport system. Conditions of realization of recycling and quality determinants of processes in vehicle recycling sector..</p> <p>6. Quality level evaluation: Quantification of quality. Review of methods of goods and services quality evaluation. Complex methods of quality evaluation. Principles of parametrization of of quality criteria. Method of UZJ " principles and applications. Quality evaluation of chosen objects dealing with transport.</p>		
Basic bibliography:		
<p>1. J.S. Oakland, Total Quality Management. Butterworth Heinemann, Amsterdam 2003</p> <p>2. K. Ishikawa, What is total quality control? Prentice-Hall inc., Englewood Cliffs 1988</p>		
Additional bibliography:		
<p>1. T. Pfeifer, Quality management. Strategies, methods, techniques. Carl Hanser Verlag, Muenchen 2002</p> <p>2. Ch.-T. Su, Quality Engineering. CRC Press, Boca Raton 2013</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. Lecture preparation	5	
2. Lecture participation	30	
3. Consolidation of lecture content	5	
4. Consultation	3	
5. Preparation for assessment	5	
6. Assessment participation	1	
7. Classes preparation	10	
8. Classes participation	15	
9. Consolidation of content	10	
10. Consultation	3	
11. Preparation for assessment	5	
12. Assessment participation	1	
Student's workload		
Source of workload	hours	ECTS
Total workload	93	3
Contact hours	53	2
Practical activities	0	0