

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>(-)</b>		Code <b>1011102211011125142</b>
Field of study <b>Engineering Management - Full-time studies -</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>1 / 1</b>
Elective path/specialty <b>Quality Systems and Ergonomics</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>elective</b>
Cycle of study: <b>Second-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>15</b> Classes: <b>-</b> Laboratory: <b>15</b> Project/seminars: <b>-</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>social sciences</b>		ECTS distribution (number and %) <b>3 100%</b>
<b>Responsible for subject / lecturer:</b> dr inż. Anna Mazur email: anna.mazur@put.poznan.pl tel. 0048 61 665 33 65 Faculty of Engineering Management ul. Strzelecka 11 60-965 Poznań		<b>Responsible for subject / lecturer:</b> dr inż. Małgorzata Jasiulewicz-Kaczmarek email: malgorzata.jasiulewicz-kaczmarek@put.poznan.pl tel. 00 48 61 665 33 65 Faculty of Engineering Management ul. Strzelecka 11 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Student defines and describes the basic concepts and principles of quality management, fundamentals of organization and management.
2	<b>Skills</b>	The ability to verify and assess the phenomena in the implementation of the processes in enterprises. Ability to interpret and describe the insights and observations.
3	<b>Social competencies</b>	The student is aware of the importance of quality for its receivers and creators of its level.
<b>Assumptions and objectives of the course:</b>		
1. Familiarizing the students with the theory regarding rules for the application of the principles, methods and techniques used in quality management. 2. Students acquire practical skills of principles application, methods and techniques in the process of solving quality problems in an industry.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. Defines the following concepts: the principle, method, technique, pro quality tool - [K2A_W01] 2. Describes the phenomena occurring within the organization, process and production in order to select appropriate tools for their visualization and analysis - [K2A_W01] 3. Recognizes and names quality management principles, methods, techniques and tools - [K2A_W01] 4. Explains the pros and cons and the application of the principles, methods, techniques and tools in the quality management process, production and operations - [K2A_W01] 5. Can characterize the scrutinized situation and choose the appropriate pro quality principles, methods, techniques and tools - [K2A_W01] 6. Can explain how to apply the principle, method, technique and a tool - [K2A_W01] 7. Points to the best pro quality principles, methods, techniques and tools o apply to a particular problem - [K2A_W12] 8. Chooses principles, methods, techniques and pro quality tools to an existent problem - [K2A_W12] 9. Formulates problem tasks in terms of quality management in order to address them through the principles, methods, techniques and tools - [K2A_W12]		
<b>Skills:</b>		

1. Can interpret the rules to be applied in the quality management - [K2A\_U02]
2. Can design a quality management system policy for the selected quality problem in the organisation or at the level of the process - [K2A\_U06]
3. It has the ability to practically apply the principles, methods, techniques and tools in quality management - [K2A\_U06]
4. Estimates and interprets the data using tools and pro quality techniques - [K2A\_U06]
5. Creates a database necessary for the application of principles, methods, techniques and tools in quality management - [K2A\_U06]
6. By means of the methods, tools and techniques, he evaluates the quality level of the process and the production - [K2A\_U02]
7. Evaluates the maturity level of a pro quality organization by means of principles - [K2A\_U02]
8. Can verify the rules, methods, techniques and tools of quality management - [K2A\_U06]
9. Presents the results and conclusions based on the application of the principles, methods, techniques and tools to the management of the company - [K2A\_U02]
10. On the basis of the results obtained from the application of the principles, methods, techniques and tools, he decides about some possible solutions to the problem - [K2A\_U02]

**Social competencies:**

1. Is aware of the meaning of quality and its level in the processes, activities and products - [S2A\_K06]
2. Is capable of assessing the correctness of qualitative phenomena - [S2A\_K06]
3. Is determined to work towards improving the quality of phenomena that exist in the natural conditions of business functioning - [K2A\_K03]
4. Is willing to undertake improvement activities - [K2A\_K03]
5. As a result of training, the student is aware of and understands the aspects and the effects of activities in the field of quality management - [K2A\_K03]

**Assessment methods of study outcomes**

Formative assessment:

- a) in the field of laboratories; on the basis of the current progress of tasks - the student receives partial assessments for the different stages of the curriculum.
- b) In the lecture: based on the answers to questions about the material discussed in the previous lectures

Collective assessment:

- a) in the laboratory on the basis of:
  - presentation of the practical application of methods, techniques and quality tools in the selected process / company,
  - discussion after the presentation
  - the form and quality of the materials prepared
- b) in lecture:
  - a test in the form of a selection test, with answers of which at least one is correct, each question is scored on a scale of 0 to 1. The examination is passed after obtaining at least 55% of the points. An exam may be taken by the student after completing the exercises
  - discuss the results of the test

**Course description**

1. Quality management basics
2. Rules, methods, tools, techniques of quality management
  - basic concepts related to quality management
  - classification of principles, methods, techniques and tools of quality management
3. Principles of quality management (principle of teamwork, Kaizen, Poka-Yoke, zero defects, the eight principles of quality management, fourteen principles of Deming's, quality management principles that are used in researching and developing products)
4. Quality management methods (FMEA, QFD, SPC, DOE, 8 d, 5s)
5. Quality Management Tools (Six Sigma, Ishikawa diagram, Pareto diagram, 5why-Lorenza, flow diagram, Shewhart, histogram, brainstorming, new tools of quality management)
6. Quality management techniques.

**DIDACTIC METHODS:**

- an informative lecture,
- problem solving,
- lecture lecture,
- talk,
- discussion in the form of a snowball,
- project method,
- workshop method,
- demonstration method.

**Basic bibliography:**

1. Gołaś H., Mazur A., Zasady, metody i techniki wykorzystywane w zarządzaniu jakością, Wydawnictwo Politechniki Poznańskiej, Poznań 2010.
2. Grabowska M., Hamrol A., Starzyńska B., Poradnik menedżera jakości, Wydawnictwo Politechniki Poznańskiej, Poznań 2010.
3. Hamrol A., Mantura W., Zarządzanie jakością ? teoria i praktyka, Wydawnictwo Naukowe PWN, Warszawa 2005.
4. Wolniak R., Skotnicka-Zasadzień B., Metody i narzędzia zarządzania jakością. Teoria i praktyka, Wydawnictwo Politechniki Śląskiej, Gliwice 2011.
5. Koronacki J., Nieckuła J., Thompson J., Techniki zarządzania jakością, od Shewharta do metody Six Sigma, Akademicka Oficyna Wydawnicza Exit, Warszawa 2005.
6. Łagowski E., Żuchowski J., Narzędzia i metody doskonalenia jakości, Wydawnictwo Politechniki Radomskiej, Radom 2004.
7. Łuczak J., Matuszak-Flejszman A., Metody i techniki zarządzania jakością, Quality Progress, Poznań 2007.
8. Konarzewska-Gubała E., Zarządzanie przez jakość. Koncepcje, metody, studia przypadków, WAE, Wrocław 2003.

**Additional bibliography:**

1. Hamrol A., Zapewnianie jakości w procesach wytwarzania, Wydawnictwo Politechniki Poznańskiej, Poznań 1995
2. Grudowski P., Hamrol A., Zymonik Z., Zarządzanie jakością i bezpieczeństwem, Polskie Wydawnictwo Ekonomiczne, Warszawa 2013
3. Łunarski J., Zarządzanie jakością ? standardy i zasady, Wydawnictwo WNT, Warszawa 2012.

**Result of average student's workload**

Activity	Time (working hours)	
1. Lectures	15	
2. Laboratory	15	
3. Consultations in laboratories	10	
4. Preparation for laboratory	15	
5. Preparation for a test	17	
6. Test	2	
7. Overview of the test results	2	
<b>Student's workload</b>		
Source of workload	hours	ECTS
Total workload	76	3
Contact hours	44	2
Practical activities	15	1