COURSE DESCRIPTION CARD - SYLLABUS

Course name
Quality engineering [N1IBiJ1>IJ]

Course

Field of study
Safety and Quality Engineering

Year/Semester
3/5

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
9

Laboratory classes
9

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

dr hab. inż. Małgorzata Jasiulewicz-Kaczmarek
prof. PP
malgorzata.jasiulewicz-kaczmarek@put.poznan.pl

dr inż. Anna Mazur prof. PP
anna.mazur@put.poznan.pl

Lecturers

Prerequisites

Basic knowledge of technical issues, statistics and work organization

Course objective

Acquiring knowledge and skills related to engineering aspects of product and process quality, in particular regarding quality evaluation, methods of product quality control as well as critical process control points and their supervision

Course-related learning outcomes

Knowledge:
1. The student has advanced knowledge of phenomena related to the life cycle of products [K1_W06].
2. The student has advanced knowledge of quality engineering in relation to products and processes [K1_W07].

Skills:
1. The student is able to use appropriate methods and techniques to design objects, systems or processes that meet high quality standards [K1_U07].
2. The student is able to apply quality standards and norms in solving practical engineering tasks. [K1_U08].
3. The student is able to plan, organize and carry out individual and team work and conduct experiments, including measurements and computer simulations, interpret the obtained results and draw conclusions [K1_U11].

Social competences:
1. The student is able to notice cause-and-effect relationships in the implementation of set goals and use ranks in relation to the importance of alternative or competing tasks [K1_K01].
2. The student is aware of the importance of knowledge in solving problems in the field of quality engineering and continuous improvement [K1_K02].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment:
a) Laboratory: ongoing assessment of the tasks performed. For each task the student receives the number of points specified in the conditions for passing the task. It is possible to complete the task with a minimum of 51% of the points.
b) lectures: answers to questions about the content of previous lectures,
Summative assessment:
a) Laboratory: each task must be passed for a minimum of 51%, the sum of points obtained for each task is converted into a grade. The grade is entered according to the following rules:
96 - 100 points - Very Good; 84 - 95 points - Good plus; 73 - 83 points - Good; 61 - 72 points - Sufficient plus; 51- 60 points - Fair; 00 - 50 points - Insufficient.
b) lectures: The test consists of 20-30 questions (test), scored on a two-point scale 0, 1. Passing point: 50% of points. Passing issues, on the basis of which the questions are developed, are based on the content provided to students during the lectures and additional materials indicated by the teacher.

Programme content

The course content includes topics related to the engineering aspects of product and process quality, particularly concerning quality assessment, methods of controlling product quality levels, and critical control points of processes and their supervision.

Course topics

The lecture program covers the following topics:
Basic concepts related to quality, product quality features, quality engineering in product design, manufacture, operation and utilization, quality assessment and analysis, quality control and control, tools and methods of quality control and SKO and SPC control, visualization tools, determining causes and effects and determining the importance of problems affecting product quality.
laboratory classes cover the topics:
Product quality control. Quality control planning. Selection of quality control methods. Single-stage, multi-stage, normal/severe control plans. Control charts - types, examples and applications.

Teaching methods

1. Lecture: multimedia presentation, illustrated with examples on the board.
2. laboratory classes: solving tasks using IT techniques, solving problem tasks, case studies and completing tasks given by the teacher - practical exercises..

Bibliography

Basic:
Antosz K., Carlos Sa J., Jasiulewicz-Kaczmarek M., Machado J., Lean Thinking in Industry 4.0 and Services

for Society, Wydawnictwo IGI Global, 2023 - 312 s.
Hamrol A.: Zarządzanie i inżynieria jakości. Warszawa PWN, Warszawa 2017.
Mazur A., Gołaś H., Zasady, metody i techniki wykorzystywane w zarządzaniu jakością, Wydawnictwo Politechniki Poznańskiej, ISBN 978-83-7143-908-7, Poznań 2010, s. 113.
Mazur A., Iwanowicz A., Ławniczak I., Mazurek P., Doskonalenie stanowiska pracy operatora wózka widłowego z wykorzystaniem instrumentarium zarządzania jakością, Logistyka nr 6/2014, Instytut Logistyki i Magazynowania, Poznań, 2014, s. 12310-12315.
Prussak W., Jasiulewicz-Kaczmarek M., Elementy inżynierii systemów zarządzania jakością. Wydawnictwo Politechniki Poznańskiej, Poznań 2010 .
Sałaciński T.: Inżynieria jakości w technikach wytwarzania. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2016.

Additional:
Grudowski P., Przybylski W., Siemiątkowski M.: Inżynieria jakości w technologii maszyn. Wydawnictwo Politechniki Gdańskiej, Gdańsk 2006.
Olejnik T., Wieczorek R., Kontrola i sterowanie jakością w przemysle elektromaszynowycm, Wydawnictwo PWN, Warszawa, 1982.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	18	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	32	1,50