COURSE DESCRIPTION CARD - SYLLABUS

Course name
Assesing the quality capability of processes [S1IBiJ1>OZJP]

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
full-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
30

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

Knowledge and skills related to the engineering aspects of process and system quality, conducting mathematical analysis and using the assumptions of mathematical statistics in solving the problems posed.

Course objective

Acquisition of practical skills in the application of quality management methods and tools in the assessment of the quality capability of processes.

Course-related learning outcomes

Knowledge:
1 The student knows to an advanced degree the issues of quality systems and technical safety, including the principles of occupational safety and health, and understands how these systems prevent hazards and minimize their effects with particular emphasis on the role of conducted assessment of the quality capability of processes [K1_W02].
2. The student has an advanced knowledge of mathematical and statistical methods used in the analysis and assessment of the qualitative capability of processes, taking into account quantitative and qualitative data [K1_W04].

3. The Student has advanced knowledge of methods, techniques, tools used in preparation for scientific research and applied in solving engineering tasks on the qualitative capability of processes, taking into account the variability of the process, measurement system and attributes and using information technology, computer support [K1_W11].

Skills:
1 The student is able to properly select sources to analyze and evaluate processes and phenomena related to quality management, formulating methods to improve them [K1_U01].
2. The student is able to take into account system, social, technical, organizational, economic and ethical aspects in solving engineering tasks [K1_U03].
3. The student is able to use analytical, simulation and experimental methods to formulate and solve tasks on the assessment of the quality capability of processes, including with the use of information and communication methods and tools [K1_U04].

Social competences:
1. The student identifies and analyzes cause-and-effect relationships in quality management processes, which allows effective problem solving and decision making in the implementation of the set objectives with consideration of the application of rank [K1_K01].
2. The student is aware of the importance of non-technical aspects and consequences of engineering activities, including their impact on the environment and the related responsibility for decision-making [K1_K03].
3. The student is able to demonstrate professionalism and observe professional ethics, promoting respect for diversity and building a culture of safety and quality, making a critical assessment of the knowledge possessed in this regard [K1_K06].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative assessment: assessment of current progress on tasks, the student receives points for each task.
Summative assessment: the sum of the points awarded for each task and for the final credit. Pass threshold: 50% of the points.

Programme content

Program includes the application of quality management methods and tools in assessing the quality capability of processes.

Course topics

Practical aspects of the application of methods and tools in assessing the quality capability of processes. Process variability (short-term and long-term - SPC). Measurement system variability (MSA for measurable (R&R) and attributes (KAPPA)).

Teaching methods

Multimedia presentation illustrated with examples given on the blackboard and performance of tasks given by the instructor - practical exercises.

Bibliography

Basic:
Dennis A., Wixom B.H., Roth M.R., Systems analysis and design, Wiley 2019
Piotrowski M., Procesy biznesowe w praktyce, Wydawnictwo Helion 2016

Additional:
Meadows D.H., Myślenie systemowe. Wprowadzenie, Wydawnictwo Helion 2020
Cempel C., Teoria i inżynieria systemów - zasady i zastosowania myślenia systemowego, Wydawnictwo Naukowe Instytutu Technologii Eksploatacji, Radom 2008.
Piekarczyk, A., & Zimniewicz, K., Myślenie sieciowe w teorii i praktyce. Polskie Wydawnictwo Ekonomiczne 2010

Mierzwiak R., Nowak M., Modele decyzyjne w teorii systemów szarcyh. Wydawnictwo PTE Poznań 2020

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	0,50