COURSE DESCRIPTION CARD - SYLLABUS

Course name
Quality Improvement Tools [S1DSwB1>NDJ]

Course

Field of study
Data Science in Business

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
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
15

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

The student has basic knowledge of quality management and the functioning of business processes in organizations. They understand key concepts related to product and service quality, as well as the fundamental principles of quality management. They are familiar with issues related to quality perception and have knowledge of the seven traditional and seven new quality management tools.

Course objective

The objective of the course is to introduce students to knowledge concerning quality improvement in organizations, and the practical aspects of utilizing quality management tools employed in fostering a culture of continuous improvement in businesses.

Course-related learning outcomes

Knowledge:

Characterizes quality attributes and the differences in creating product quality and service quality [DSB1_W03].
Describes quality improvement tools, including KAIZEN, TQM, lean management, and waste elimination strategies [DSB1_W04].

Skills:
Analyzes and visualizes data related to process and system quality, using problem identification and optimization tools [DSB1_U04].
Formulates the specification of quality issues, selects process improvement tools, and applies the Deming Cycle and the 6S method in practice [DSB1_U05].
Conducts a critical analysis of the effectiveness of implemented improvement actions, assessing the impact of sustainable development and lean strategies on process quality [DSB1_U07].
Applies quality standards and norms in process analysis and improvement, utilizing the employee suggestion system to engage in quality enhancement [DSB1_U10].

Social competences:
Considers the impact of quality improvement actions on the functioning of the organization and their significance for innovation and sustainable development [DSB1_K05].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative Assessment:
LECTURE: Students are encouraged to actively engage in the lecture. For each meaningful contribution, they receive one point, which is incorporated into their final test score.
PROJECT: Continuous assessment of the progress in fulfilling the project task. The project is divided into three stages, with students earning a specified number of points for each stage.
Summative Assessment:
LECTURE: The colloquium consists of 20-30 questions (multiple-choice), scored on a two-point scale (0, 1). The passing threshold is 51% of the points. The qualifying topics, based on which the questions are developed, are derived from the content presented to students during lectures and additional materials indicated by the instructor.
PROJECT: Presentation of the project task during class and providing oral answers within the scope of understanding the principles and tools of quality management. Conversion of points earned for each project stage based on the following scale: 90 - 100 points - Very Good, 80 - 89 points - Good plus, 70 - 79 points - Good, 62 - 70 points - Satisfactory plus, 53 - 61 points - Satisfactory, 0 - 52 points - Unsatisfactory.

Programme content

The program covers both theoretical and practical issues related to quality improvement in organizations using appropriate quality management tools.

Course topics

Lecture Program:
The lecture program covers the following topics: Quality characteristics, differences in creating quality for products and services. Process and system quality. Culture of continuous improvement, TQM, KAIZEN. Examples of KAIZEN tools. Practical aspects of striving for continuous improvement. Waste and its elimination. Lean and green aspects in quality improvement. Sustainable development in quality improvement.
Project Program:
The project program covers the following topics: tools for identifying problems, eliminating waste, and optimizing processes. The Deming Cycle and its practical implementation. The 6S methodology as a foundational element for improvement and the initial step towards lean management. A suggestion system as a method for enhancing quality and fostering employee engagement.

Teaching methods

Lecture: Multimedia presentation illustrated with examples presented on the board.
Project: Multimedia presentation illustrated with examples presented on the board, along with a

discussion of potential solution concepts for the project task.

Bibliography

Basic:
Imai M., Gemba kaizen: zdroworozsądkowe, niskokosztowe podejście do zarządzania, Wydawnictwo MT Biznes, Warszawa, 2006.
Jasiulewicz-Kaczmarek, M. (2024). Maintenance 4.0 Technologies for Sustainable Manufacturing. Applied Sciences, 14(16), 7360.
Liker J.F., Droga Toyoty. 14 zasad zarządzania wiodącej firmy produkcyjunej świata, Wydawnictwo MT Biznes, Warszawa, 2005.
Mazur A., Siedem tradycyjnych i siedem nowych narzędzi zarządzania jakością, Wydawnictwo Politechniki Poznanskiej, Poznań, 2023, 112 s.
Mazur A., Quality Management, Wydawnictwo Politechniki Poznańskiej, Poznań, 2022, 216 s.

Additional:
Nowak, D. (Ed.). (2021). Production-operation Management: The Chosen Aspects. PUEB Press. Poznań University of Economics and Business.
Maurer R., Filozofia Kaizen. Jak mały krok może zmienić Twoje życie. Wydawnictwo Helion, Warszawa, 2013.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	45	2,00