SYLLABUS

Name: ***Designing of technological processes***
Name in Polish: ***Projektowanie procesów technologicznych***
Name in English:

Information on course:

Course offered by department:	Faculty of Organisation and Management
Course for department:	Silesian University of Technology
Study level and form:	Bachelor degree, Full-time
Term:	winter semester 2023/24
Coordinator of course edition:	Dr hab. inż. Dorota Klimecka-Tatar, prof. PCz

Default type of course examination report:

Report

Language:

English

Course homepage:

https://platforma.polsl.pl/roz/

ECTS

4

Short description:

The aim of the subject and its curriculum is to acquire structured knowledge, skills, and social competencies related to comprehensive technological process design, considering all input, process, and output data. The goal is also to acquire the ability to embed quality control (engineering) within the technological process and to design processes using modern Lean tools.

Description:

Detailed program contents
Lecture:

1. Model for designing technological systems and processes.
2. Introduction to process design based on the Toyota Production System (TPS).
3. Standardization and unification of technological processes and products.
4. Embedding quality control in the technological process.
5. Designing technological processes based on Lean Production tools and concepts.
6. Mapping and designing of value streams in technological and production processes.

Classes:

1. General characteristic of technological and production processes based on input and output data.
2. Designing and scheduling technological processes.
3. Utilization of quality management tools in the improvement of technological processes.
4. Building a value stream map for a selected type of technological/production process.

Total number of contact hours with academic instructors or other instructors and students:
Lecture: 30 hours
Classes: 30 hours

Total number of hours for student self-study:
Preparation for assessment: 15 hours
Preparation for classes: 15 hours
Preparation of reports: 30 hours
Total number of hours: 120
ECTS: 4

The number of ECTS credit points obtained through classes conducted with the direct participation of academic instructors or other instructors and students is 2.

Bibliography:

1. Womack J.P. 2009. Lean Thinking. ProdPublishing.com.
2. Boutros T., Purdie T. 2014. The Process Improvement Handbook: a Blueprint for Managing Change and Increasing Organizational Performance. New York. McGraw-Hill.
3. Supplementary resources:
4. Klimecka-Tatar D. 2017. Value Stream Mapping as Lean Production tool to improve the production process organization–case study in packaging manufacturing. Production Engineering Archives 17, 40-44.
5. Klimecka-Tatar D. 2018. Context of production engineering in management model of Value Stream Flow according to manufacturing industry. Production Engineering Archives 21, 32-35.
6. Ulewicz R., Kucęba R. 2016. Identification of problems of implementation of Lean concept in the SME sector. Ekonomia i Zarzadzanie 8(1), 19-25.

Learning outcomes:

Knowledge: knows and understands
K1A_W06 - to an advanced degree - selected facts, objects and phenomena, as well as the methods, theories and conditions related to them explaining the complex relationships between them, constituting basic general knowledge of mechanical engineering
K1A_W11 selected issues in basic manufacturing techniques and technological design

Skills: is able to
K1A_U07 design - according to a given specification - and build a simple technical system and carry out a technological process, using appropriately selected methods, techniques, tools and materials
K1A_U14 - use the acquired knowledge - formulate and solve complex and unusual problems and innovatively perform tasks in variable and not fully predictable conditions by: - properly selecting sources and information derived from them, evaluating, critically analyzing and synthesizing the information, - selecting and applying appropriate methods and tools, including advanced information and communication technologies (ICT)

Social competence: is ready for
K1A_K05 - responsible performance of professional roles, including adherence to professional ethics and demanding it of others, as well as caring for the achievements and traditions of the profession

Assessment methods and assessment criteria:

Lecture:
- Multimedia presentations.
- Case studies.
- Discussion and debate.

Classes:
- Completion of tasks according to instructions.
- Preparation of reports on the activities.

Assessment Methods and Criteria:

Lecture:
Attendance in lectures is not mandatory.
To pass the lecture, a positive evaluation can be obtained based on participation in the lecture or, in the case of not attending the lecture, by passing a concluding test.
A passing grade requires obtaining more than 50% of the possible points.

Classes:
Attendance in classes is mandatory.
In the event of a student's absence during classes and related academic deficiencies, these must be made up according to the specified conditions.
Classes tasks are carried out individually or in sections.
To pass the classes, it is necessary to submit correctly prepared reports from the activities and receive more than 50% of the possible points.
Reports from the activities are assessed in terms of both form and content.
Incorrectly prepared reports can be corrected twice.

The final assessment for the course takes into account 50% of the grade from the lecture and 50% of the grade from the laboratory. The final grade is the arithmetic average of the grades from the lecture and laboratory sessions.

Practical placement:

N/A