



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Improving production processes [S1ZiIP2>DPP]

Course

Field of study

Management and Production Engineering

Year/Semester

4/7

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

0

Other

0

Tutorials

15

Projects/seminars

15

Number of credit points

2,00

Coordinators

dr hab. inż. Krzysztof Żywicki

krzysztof.zywicki@put.poznan.pl

Lecturers

Prerequisites

Possesses knowledge of: basics of management, production management and organization, manufacturing techniques, quality management, mathematical statistics.

Course objective

Learning, understanding and acquiring skills in applying strategies, principles, methodologies and methods of improving production processes in practice

Course-related learning outcomes

Knowledge:

Has knowledge of the basic objectives, principles and strategies for improving production processes: reducing variability, identifying constraints, eliminating waste.

Has knowledge of process improvement methodologies (PDCA, DMAIC), principles ("pull or push"), methods and tools (FMEA, Pareto analysis, Ishikawa Diagram, 5 Why, value stream mapping, planning and conducting experiments.

Has knowledge of process effectiveness and efficiency measures.

Skills:

- Is able to practically implement the principles and apply the methods and tools of process improvement
- Is able to define the measures of process effectiveness and efficiency, collect the data needed to determine them, and analyze the obtained results
- Is able to prepare and conduct a project of process improvement due to meeting the requirements related to product quality
- Is able to prepare and conduct a project of improving a selected production area

Social competences:

- Understands the importance of improving production for the efficiency of production processes
- Is aware of the importance of continuous process improvement in maintaining or gaining the competitiveness of the enterprise
- Can independently develop knowledge and skills related to continuous improvement of production processes

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Exercises: final colloquium during the last class of the semester. The colloquium consists of 3-4 calculation tasks. Pass threshold 50%. Assignment of grades to percentage ranges of results: <90-100> very good; <80-90) good plus; <70-80) good; <60-70) satisfactory plus; <50-60) satisfactory; <0-50) unsatisfactory.

Project: presentation of the project developed by students (in groups) and discussion of the work.

Programme content

Principles and objectives of improving production processes. Methods and tools from various improvement strategies and concepts.

Course topics

Exercises: Principles and objectives of improving production processes and resources (limiting variability, identifying constraints; eliminating waste. Measures of assessing the improvement (effectiveness and efficiency) of production processes and resources. Practices, methods and tools of process improvement: Pareto analysis, Ishikawa diagram, 5 Why, FMEA, planning and conducting experiments (Design of Experiments). Improvement methodologies (PDCA; DMAIC, 8D). Project: Simulation classes on improving the production process. Application of the selected process improvement methodology. Application of selected methods and tools: value stream mapping, Pareto analysis, Ishikawa diagram.

Teaching methods

Exercises: performing calculations and tasks, performing experiments, discussion, teamwork.
Project: Project: solving practical problems, finding sources, teamwork, discussion.

Bibliography

Basic:

Hamrol A.:Strategiie i praktyki sprawnego działania. Lea, Six Sigma I inne. Wydawnictwo Naukowe PWN, Warszawa 2017

Mike Rother, John Shook. Naucz się widzieć. Wydawnictwo Lean Enterprise Institute Polska.

Additional:

Womack J. P., Jones D. T., Lean Thinking - szczupłe myślenie, ProdPress, 2008

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
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)	20	1,00