COURSE DESCRIPTION CARD - SYLLABUS

Course name
Optimization of production processes [N1ZiIP2>OPP]

Course

Field of study
Management and Production Engineering

Year/Semester
4/8

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
8

Projects/seminars
8

Number of credit points

2,00

Coordinators

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 methods and tools for optimizing production processes in practice

Course-related learning outcomes

Knowledge:
Has knowledge of process effectiveness and efficiency measures.
Has knowledge of reducing variability, identifying constraints, eliminating waste in production processes.
The student knows statistical tools appropriate for developing data necessary for making optimizing decisions.

Skills:
Is able to define measures of process effectiveness and efficiency, collect data needed to determine them, and analyze the obtained results.

The student is able to develop a model of an optimization task and then analyze possible decisions using decision support methods.
The student is able to use selected computer programs in the decision-making process.

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 production process optimization. Decision support methods and tools.

Course topics

Exercises: Principles and objectives of optimizing production processes and resources (limiting variability, identifying constraints; eliminating waste. Measures of evaluating the optimization (effectiveness and efficiency) of production processes and resources. Classification, regression and grouping methods, cluster analysis. Methods of estimating and inferring production processes and their evaluation.
Project: Simulation classes presenting selected decision problems subject to optimization in production processes. Application of selected methods and tools for optimization.

Teaching methods

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

Bibliography

Basic:
Hamrol A.:Strategiei i praktyki sprawnego działania. Lea, Six Sigma I inne. Wydawnictwo Naukowe PWN, Warszawa 2017
Larose D.: Odkrywanie wiedzy z danych. PWN, Warszawa 2013.
Trzaskalik T.: Wielokryterialne wspomaganie decyzji. Metody i zastosowania. PWE, Warszawa 2014

Additional:
Aczel A.D., Statystyka w zarządzaniu, Wydawnictwo Naukowe PWN, Warszawa 2000.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	16	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	34	1,50