COURSE DESCRIPTION CARD - SYLLABUS

Course name
Production logistics and material flow identification [S2ZiIP2-STPR>LPIPP]

Course

Field of study	Year/Semester
Management and Production Engineering	1/2
Area of study (specialization)	Profile of study
Production control	general academic
Level of study	Course offered in
second-cycle	Polish
Form of study	Requirements
full-time	elective

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
30	30	0
Tutorials	Projects/seminars	
0	15	

Number of credit points

6,00

Coordinators	Lecturers
dr inż. Krzysztof Żywicki	
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Prerequisites

The student has basic knowledge of production management

Course objective

Learning, understanding and acquiring the ability to apply in practice the principles and tools for supervising and maintaining technical resources in the implementation of production processes.

Course-related learning outcomes

Knowledge:
The student has structured, theoretically based, detailed knowledge related to the organization of production processes
The student has extended knowledge of designing production systems
The student has theoretically based, detailed knowledge of enterprise management and production processes
The student has structured, theoretically based knowledge of trends in improving the organization of control and supervision of production processes

Skills:
The student is able to organize production taking into account customer demand and production resources
The student is able to plan and carry out design work related to the organization of the production system.
The student is able to develop forecasts regarding the effectiveness and efficiency of production processes
The student is able to notice and identify problems occurring in systems and production processes, and select and use methods and tools appropriate to solve them.

Social competences:
Studet understands the need to make changes in production processes and in the company.
The student understands the need for continuous learning; can inspire and organize the learning process of team members.
The student is able to think and act in a creative and entrepreneurial way.
The student is aware of the effects of engineering activities in both technical and non-technical areas.
The student is aware of the consequences of decisions made and responsibility for decisions made.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Knowledge and skills acquired during lectures will be verified on the basis of a colloquium including definitional and problem questions. The test consists of 8-10 open questions and 2-4 computational tasks. The passing threshold is 50%. Laboratory: pass based on the preparation of a report. Project: Knowledge and skills acquired during project classes will be verified based on the presentation of the completed project during the last class of the semester.

Programme content

The concept of production logistics and production flow. The role of identifying and supervising the flow of materials in the production process. Warehouses and storage technologies. Internal transport.

Course topics

Lecture: The concept of production logistics and production flow. The role of identifying and supervising the flow of materials in the production process. Warehouses and storage technologies. Warehouses and storage technologies
Warehouse equipment. Internal transport. IT systems supporting materials management (WMS). Technical solutions supporting the identification and supervision of material flow.
Laboratory: Application of technical and IT solutions in production logistics processes: barcodes, RFID, RTLS. The use of WMS systems - supporting warehouse management.
Project: Designing a production logistics system for input data characterizing the production system. The project includes: - assumptions of the production logistics system - material flow map, - design and selection of warehouse equipment, - design and selection of internal transport means, - information flow design - selection of solutions for material flow identification

Teaching methods

Lecture: multimedia presentation illustrated with examples, solving tasks, discussion Laboratory: solving practical problems, teamwork, simulation, discussion. Project: Solving tasks (case study) in a team. Brainstorm. Discussion.

Bibliography

Basic:
Lewandowski Jerzy, Skołud Bożena, Plinta Dariusz, Organizacja systemów produkcyjnych, PWE, Warszawa 2014r.
Andrzej Szymonik Daniel Chudzik, Nowoczesna koncepcja logistyki produkcji, Difin 2020.
Fijałkowski J., Transport wewnętrzny w systemach logistycznych, Oficyna wydawnicza Politechniki Warszawskiej, Warszawa, 2003.
Fertsch M., Logistyka Produkcji, Wyd. Instytut Logistyki i Magazynowania, Poznań 2003.

Banaszak Z., Kłos S., Mleczko J., Zintegrowane systemy zarządzania, PWE, Warszawa 2011r
Andrzej Jardzioch, Krzysztof Kalinowski, Sławomir Kłos, Organizacja i planowanie produkcji, PWE 2023
Paweł Buchwald, Grzegorz Granosik, Aleksander Gwiazda , Internet Rzeczy i jego przemysłowe zastosowania, PWE 2022.

Additional:
Jędrzej Wieczorkowski, Iwona Chomiak-Orsa, Ilona Pawełoszek, Big data w zarządzaniu, PWE 2021.
Andrzej Jardzioch, Krzysztof Kalinowski, Sławomir Kłos, Organizacja i planowanie produkcji, PWE 2023
Paweł Buchwald, Grzegorz Granosik, Aleksander Gwiazda , Internet Rzeczy i jego przemysłowe zastosowania, PWE 2022.

Breakdown of average student's workload

	Hours	ECTS
Total workload	150	6,00
Classes requiring direct contact with the teacher	77	3,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	73	3,00