COURSE DESCRIPTION CARD - SYLLABUS

Course name
Traditional and modern manufacturing systems

Course

Field of study
Logistics

Year/Semester
1/1

Area of study (specialization)
Logistics Systems

Profile of study
general academic

Level of study
Second-cycle studies

Course offered in
English

Form of study
full-time

Requirements
elective

Number of hours

Lecture
30

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars
30

Number of credit points

5

Lecturers

Responsible for the course/lecturer:
Ph.D., Eng. Agnieszka Grzelczak

Mail to: agnieszka.grzelczak@put.poznan.pl
Faculty of Engineering Management
ul. J. Rychlewskiego 2, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

The student knows the basic concepts related to the design, implementation and operation of production systems in mechanical engineering industries. He should also be able to obtain information from specified sources and be willing to cooperate as part of a team.

Course objective

Mastering the student's knowledge, skills and social competences related to the essence, scope of application and methods of designing and implementing modern production systems.

Course-related learning outcomes

Knowledge

dependencies in the given area and their relations with logistics [P7S_WG_01]

issues in the field of production engineering and its connections with the field of logistics [P7S_WG_02]

extended concepts for logistics and its detailed problems and supply chain management [P7S_WG_05]

detailed methods, tools and techniques characteristic for studied subject on the course of logistics [P7S_WK_01]

Skills

collect on the basis of the literature of the subject and other sources (in Polish and English) and in an orderly manner, provide information on the problem within the framework of logistics and its specific issues and supply chain management [P7S_UW_01]

communicate using appropriately selected resources in a professional environment and in other environments as part of logistics and its specific issues as well as supply chain management [P7S_UW_02]

assess the suitability and the possibility of using new achievements (techniques and technologies) in the field of logistics and functionally related areas [P7S_UW_06]

formulate and solve tasks through interdisciplinary integration of knowledge from different fields and disciplines used to design logistics systems [P7S_UO_01]

Social competences

recognize causal relationships in achieving the set goals and grading the significance of alternative or competitive tasks [P7S_KK_01]

responsibility for own work and readiness to comply with the rules of working in a team and taking responsibility for the tasks carried out jointly [P7S_KR_01]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lectures is verified by the exam and by tests (quizzes) at individual classes (via the Moodle platform). Passing threshold: 50% of points.

The skills acquired during design classes are verified on the basis of the progress in the implementation of project tasks (implemented as a team) and the defense of the project. Passing threshold: 50% of points.

Programme content

Lecture: Methods and techniques of designing production systems used in classical production systems - balance model and assembly line balancing model. Classification of classic production units according to the American-European model. Methods of designing production systems according to the JiT concept (0 inventories), lean production systems and agile production systems.

Project: Designing a production system according to classical and modern methods.

Teaching methods

Lecture: informative (conventional) lecture - providing information in a structured way, supported by a multimedia presentation, illustrated with examples and tasks, and the case study method - analysis of specific illustrative (illustrative) or problematic (problem identification) cases.

Project: project method - individual or team implementation of a large, multi-stage cognitive or practical task, the effect of which is the creation of a work.

Bibliography

Basic

Sure D.R., Manufacturing Facilities. Location, Planning and Design , third edition, CRC Press, Taylor & Francis Group, Boka Raton, London, New York, 2009.
Paulo Davim J., Modern Manufacturing Processes, Elsevier Books, 2020.
Groover M.P., Fundamentals of Modern Manufacturing, John Wiley & Sons, 2021.

Additional

Fertsch M., Pawlak N., Stachowiak A., Współczesne systemy produkcyjne, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011.
Golińska P., Tradycyjne i nowoczesne systemy produkcyjne, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011.
Grzelczak A., Werner-Lewandowska K, Eliminating Muda (Waste) in Lean Management by Working Time Standardization, Arabian Journal for Science and Engineering, 2016, vol. 6, iss. 3, 2016.
Siewczyńska M., Grzelczak A., Factors Affecting the Implementation Of BIM in A Design Office as Part of the Industry 4.0 Idea, 37th IBIMA Conference: 30-31 May 2021, Cordoba, Spain.

Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,0
Classes requiring direct contact with the teacher	60	2,5
Student's own work (literature studies, preparation for tests/exam, project preparation) [1]	65	2,5

[1] delete or add other activities as appropriate