COURSE DESCRIPTION CARD - SYLLABUS

Course name
Traditional and modern manufacturing systems [S2Log2E-SL>TiWSP]

Course

Field of study
Logistics

Year/Semester
1/2

Area of study (specialization)
Logistics Systems

Profile of study
general academic

Level of study
second-cycle

Course offered in
english

Form of study
full-time

Requirements
elective

Number of hours

Lecture
15

Laboratory classes
0

Other (e.g. online)
0

Tutorials
0

Projects/seminars
30

Number of credit points

4,00

Coordinators

dr inż. Agnieszka Grzelczak
agnieszka.grzelczak@put.poznan.pl

Lecturers

Prerequisites

The student knows the basic concepts related to the design, implementation and operation of production systems in 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:
1. Student knows the dependencies governing production systems and processes and their connections with logistics [P7S_WG_01]
2. Student knows issues related to production systems [P7S_WG_02]
3. Student knows detailed methods, tools and techniques in the area of modern production systems [P7S_WK_01]
4. Student knows extended concepts for traditional and modern production concepts [P7S_WG_05]

Skills:
1. Student is able to collect and present in an orderly manner information regarding modern production systems based on the literature and other sources [P7S_UW_01]
2. Student is able to communicate using appropriately selected means in a professional environment and in other environments regarding production topics [P7S_UW_02]
3. Student is able to assess the usefulness and possibility of using new achievements in the field of concepts regarding production systems [P7S_UW_06]
4. Student is able to formulate and solve tasks through interdisciplinary integration of knowledge from fields and disciplines used to design modern production systems [P7S_UO_01]

Social competences:
1. Student notices the cause and effect relationships in the implementation of the set goals and make a gradation of significance of alternative or competitive tasks [P7S_KK_01]
2. Student is aware of the responsibility for their own work and readiness to submit to the rules of teamwork and responsibility for jointly performed tasks [P7S_KR_01]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: 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.
Lecture: 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.
Local education methods on the ekursy.put.poznan.pl platform.

Bibliography

Basic:
1. Fertsch M., Pawlak N., Stachowiak A., Współczesne systemy produkcyjne, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011.
2. Golińska P., Tradycyjne i nowoczesne systemy produkcyjne, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011.
3. Brzeziński M., Organizacja i sterowanie produkcją. Projektowanie systemów produkcyjnych i procesów sterowania produkcją, Agencja Wydawnicza Placet, Warszawa, 2002.
4. Mazurczak J., Projektowanie struktur systemów produkcyjnych, Wydawnictwo Politechniki Poznańskiej, Poznań, 2002.
5. Sure D.R., Manufacturing Facilities. Location, Planning and Design , third edition, CRC Press, Taylor & br/>Francis Group, Boka Raton, London, New York, 2009.

Additional:
1. Kosieradzka A. (red.), Podstawy zarządzania produkcją. Ćwiczenia, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2008.
2. Boszko J., Struktura organizacyjna przedsiębiorstwa i drogi jej optymalizacji, WNT, Warszawa, 1973.

3. 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.
4. 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	100	4,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	55	2,00