COURSE DESCRIPTION CARD - SYLLABUS

Course name
Organization of Production and Logistics in Automotive Industry

Course

Field of study
Engineering Management
Area of study (specialization)

Level of study
First-cycle studies
Form of study
full-time

Year/Semester
3/6
Profile of study
general academic
Course offered in
Polish
Requirements
elective

Number of hours

Lecture
15
Tutorials
15
Laboratory classes

Projects/seminars

Other (e.g. online)

Number of credit points

2

Lecturers

Responsible for the course/lecturer:
Ph.D., D.Sc., Eng. Paulina Golińska -Dawson

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Faculty of Engineering Management

ul. J. Rychlewskiego 2, 60-965 Poznań

Responsible for the course/lecturer:
Ph.D., Eng.Monika Kosacka-Olejnik

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Prerequisites

The student starting this subject should have a knowledge of the fundamentals of production

organization and logistics. He/she should also be able to obtain information from specified sources and be willing to cooperate as part of a team.

Course objective

To teach students the principles of organization of production and logistics in the automotive industry. Students learn also practical solutions used in this area.

Course-related learning outcomes

Knowledge

1. The student has basic knowledge about the vehicle's life cycle [P6S_WG_15]

2. The student knows the basic methods, techniques, tools and materials used in solving problems in the field of machine design and maintenance in the automotive industry [P6S_WG_16]

3. The student knows typical industrial technologies and knows in depth the technologies of machine design and maintenance in the automotive industry [P6S_WG_17]

Skills

1. The student is able to use analytical, simulation and experimental methods applicable in the automotive industry to formulate and solve engineering tasks [P6S_UW_10]

2. The student is able to see systemic, socio-technical, organizational, economic and non-technical aspects during formulating and solving engineering tasks in the automotive industry [P6S_UW_11]

3. The student is able to make a preliminary economic analysis of engineering activities undertaken in the automotive industry [P6S_UW_12]

4. The student is able to make a critical analysis of the technological processes of production and organization of production systems in the automotive industry [P6S_UW_13]

Social competences

1. The student is aware that products engineering that meet the needs of users in the automotive industry requires a systemic approach, taking into account technical, economic, marketing, legal, organizational and financial issues [P6S_KO_02]

2. The student is aware of the importance and understands the non-technical aspects and effects of engineering activities in the automotive industry, including its impact on the environment, and the related responsibility for decisions which have been made [P6S_KR_01]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Final test during the last class. The test consists of open and closed questions with different scores. The maximum number of points to be obtained during the test is 50 points. Tests (quizzes) and /or tasks related to topics presented during lectures, with different scores. The tests consist of open and closed questions. The maximum number of points to be obtained in class tests an/or tasks during class is 50 points. The passing treshold is 51% points.

Tutorials: Problem tasks carried out on the given exercises in accordance with the topic of lectures and activity in the classroom. Tasks are scored differently. The passing treshold is 51% points.

Programme content

Lecture: The automotive industry in Poland and in the world. History of automotive inudstry development and current trends. A car as an industrial product (components, applied production technologies). Car design processes. Car production process (assembly systems, organization of the assembly line) and organization of the car manufacturing plant. The process of planning and controlling production in a car manufacturing plant. Organization of deliveries to an automotive industry enterprise (JIT, JIS). Organization of the recycling of used cars and their components. Application of circular economy trends in the automotive industry. Modern solutions in the automotive industry related to the implementation of the Industry 4.0 concept.

Tutorials:Identification of activities, material flows, internal transport means in the vehicles' production. Monitoring parametres. Production planning. Disturbance management. Supply management. Waste identification in the vehicle life cycle. Analysis of vehicle's recovery options

Teaching methods

Lecture: conventional specialist lecture (with a multimedia presentation), problem lecture, case study method, work with a book.

Tutorials: brainstorming, case study method, tutorial method

Bibliography

Basic

1. Nieuwenhuis, P., & Wells, P. (Eds.). (2015). The global automotive industry. John Wiley & Sons.

2. Golinska P. (Ed.), Environmental issues in automotive industry, Springer Science & Business Media, 2013

3. Golińska P., Fertsch M., Organizacja produkcji i logistyki w przemyśle samochodowym, Wydawnictwo Politechniki Poznańskiej, 2012 (in polish)

Additional

1. Monden Y., Toyota Production System, Industrial Engineering and Management Press, Norcross, USA, 1983

2. Golinska-Dawson P., Kübler F. (Eds.), Sustainability in Remanufacturing Operations, Springer, 2017.

3. Batchelor, R. (1994). Henry Ford, mass production, modernism, and design (Vol. 1). Manchester University Press.

4. Kosacka-Olejnik, M. (2019). How manage waste from End-of-Life Vehicles?-method proposal. IFAC-PapersOnLine, 52(13), 1733-1737.

5. Meyr H. (2009) Supply chain planning in the German automotive industry. In: Meyr H., Günther HO. (eds) Supply Chain Planning. Springer, Berlin, Heidelberg.

6. Collins, R., Bechler, K., & Pires, S. (1997). Outsourcing in the automotive industry: from JIT to modular consortia. European management journal, 15(5), 498-508.

7. Juhász, J., & Bányai, T. (2018, May). What industry 4.0 means for just-in-sequence supply in automotive industry?. In Vehicle and Automotive Engineering (pp. 226-240). Springer, Cham.

8. Kulkarni, A. A., Dhanush, P., Chetan, B. S., Gowda, T., & Shrivastava, P. K. (2019). Recent Development of Automation in Vehicle Manufacturing Industries. International Journal of Innovative Technology and Exploring Engineering, 8(6S4), 410-413.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (preparation for final test from lecture, preparation for tasks related to lectures, preperation for tutorials, consultation) [1]	20	1,0

[1] delete or add other activities as appropriate