



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Lean production and logistics

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### Course

Field of study

Logistics

Area of study (specialization)

Corporate Logistics

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

polish

Requirements

elective

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### Number of hours

Lecture

15

Tutorials

15

Laboratory classes

Projects/seminars

15

Other (e.g. online)

### Number of credit points

5

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### Lecturers

Responsible for the course/lecturer:

dr hab. inż. Łukasz Hadaś, prof. PP

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Wydział Inżynierii Zarządzania

ul. Rychlewskiego 2, 60-965 Poznań

Responsible for the course/lecturer:

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### Prerequisites

The student knows the basic concepts related to the management of production. The student has the



ability to perceive and interpret the phenomena occurring in the field of management. The student is aware of the impact of waste on the efficiency of the production system.

### Course objective

The aim of the course is present to students of Lean Management as a management concept. Students are expected to master the basic principles of Lean and the use tools of Lean Production in the improvement process.

### Course-related learning outcomes

#### Knowledge

1. Student knows the Lean Production and its basic concepts - [P7S\_WG\_02]
2. Student knows the concept of value stream mapping - [P7S\_WG\_03]
3. Student knows the types of waste in the production system - [P7S\_WG\_05]
4. Student knows Lean principles and their application in the area of production and logistics - [P7S\_WG\_08]
5. The student knows the basic Lean Management tools used in production and logistics - [P7S\_WK\_01]

#### Skills

1. Student is able to indicate improvements in the production process in the field of waste elimination - [P7S\_UW\_04]
2. Student is able to design an enterprise logistics system using Lean tools and techniques - [P7S\_UW\_05]
3. The student is able to design the analysis process to evaluate the proposed solutions based on Lean Management tools - [P7S\_UK\_01]

#### Social competences

The student is aware of the responsibility for their own work and readiness to comply with the rules of teamwork and taking responsibility in the project group - [P7S\_KR\_01]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

#### Formative assessment:

- a) For the project: on the basis of progress in the implementation stages of the project, and knowledge of the issues necessary to carry
- b) for the classes: on the basis of discussions on knowledge of the issues necessary for the proper performance of the exercises
- c) for the lecture: on the basis of answers to questions about the topics covered in previous lectures

#### Recapitulative assessment:



a) For the project: on the basis of (1) the quality of the project (2) answers to questions about the project b) For classes: from prepared reports. c) for the lecture: on the basis of colloquium - written work on the issues discussed during the lecture. The exam can be applied after obtaining the ratings of the project and the laboratory. The exam is passed, after giving the correct answers to most questions

### Programme content

Lectures:

Presentation of the origins of Lean management, history of development of the Toyota Production System (TPS). Tools and conceptions: Open-book management, kanban, TPM - Total Productive Maintenance, Multi-process handling, Single-Piece Flow (continuous flow), 5S, 5W1H, Visual Management, Kaizen, Poka-Yoke. Organization of the work on the principles of 5S and standardized work. Techniques for mapping of business processes. Single Minute Exchange or Dies (SMED). JiT and JIS. Principles of Lean Production: Specify Value; Identify the Value Stream, Flow, Pull, Perfection.

Project / classes:

Value Stream Mapping. Current and future stage, Separation of value streams, production takt time calculation, Yamazumi chart, Production logistics: layout, milk runner, kanban. Stock management.

Flow control of material flow in the production hall (decision-making game)

### Teaching methods

Lecture: Information lecture, problem lecture

Exercise: exercise method, decision game

### Bibliography

Basic

1. Hadaś Ł., Cyplik P., TOC i Lean Production, Idea, narzędzia, praktyka zastosowania, Wydawnictwo Politechniki Poznańskiej, Poznań, 2013
2. Rother M., Shook J., Naucz się widzieć. Eliminacja marnotrawstwa poprzez mapowanie strumienia wartości, Wrocław Center for Technology Transfer, Wrocław 2003.
3. Rother M., Hans R., Tworzenie ciągłego przepływu. Przewodnik dla menadżerów, inżynierów i pracowników produkcji, Wrocław Center for Technology Transfer, Wrocław 2004.

Additional

1. Womack James P., Jones Daniel T., Odchudzenie firm - eliminacja marnotrawstwa- kluczem do sukcesu, Centrum Informacji Menedżera, Warszawa 2001.2. Liker J. K., Droga Toyoty. 14 zasad zarządzania wiodącej firmy produkcyjnej świata, MT Biznes, Warszawa 2005
2. Liker J. K., Droga Toyoty. 14 zasad zarządzania wiodącej firmy produkcyjnej świata, MT Biznes, Warszawa 2005



### Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,0
Classes requiring direct contact with the teacher	65	3,0
Student's own work (literature studies, preparation for classes/tutorials, written preparation of classes and project, preparation for colloquium) <sup>1</sup>	60	2,0

<sup>1</sup> delete or add other activities as appropriate