# COURSE DESCRIPTION CARD - SYLLABUS

Course name

Lean production and logistcs

## Course

Field of study

Logistics

Year/Semester

2/3

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

15

Laboratory classes

Other (e.g. online)

Tutorials

15

Projects/seminars

15

## Number of credit points

3

## Lecturers

Responsible for the course/lecturer:

Ph.D., D.Sc., Eng. Łukasz Hadaś, University Professor

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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 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

1. 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:

Lecture: Formative assessment: on the basis of answers to questions about the issues discussed in previous lectures or a partial test. Summative assessment: on the basis of a test - written work - on the issues discussed in the lecture or test. The lecture is passed after providing factually correct answers to most of the issues raised, the pass mark is 50% of points.

Tutorial: Formative assessment: on the basis of a conversation on the knowledge of the issues necessary for the correct implementation of the current exercise. Summative assessment: based on a written study.

Project: Formative assessment: on the basis of the progress in the implementation of the stages of the project and knowledge of the issues necessary for its implementation. Summative assessment: on the basis of the substantive quality of the implemented project and the defense of the completed project.

## Programme content

Lecture: 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 handing, 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.

Tutorial: 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.

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

## Teaching methods

Lecture: information lecture, problem lecture.

Exercise: exercise method.

Project: 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 J.P., Jones D.T., Odchudzanie 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.

## Breakdown of average student's workload

| | Hours | ECTS |
|---|---|---|
| Total workload | 75 | 3,0 |
| Classes requiring direct contact with the teacher | 45 | 2,0 |
| Student's own work (literature studies, preparation for classes/tutorials, written preparation of classes and project, preparation for colloquium) [1] | 30 | 1,0 |

[1] delete or add other activities as appropriate