

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Lean production and logistcs		Code 1011102321011117651
Field of study Logistics - Full-time studies - Second-cycle	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 2
Elective path/specialty Corporate Logistics	Subject offered in: Polish	Course (compulsory, elective) elective
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 15 Classes: 15 Laboratory: - Project/seminars: 15		No. of credits 5
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art		ECTS distribution (number and %)
Responsible for subject / lecturer: dr hab. inż. Łukasz Hadaś email: lukasz.hadas@put.poznan.pl tel. (61) 665 34 01 Wydział Inżynierii Zarządzania ul. Strzelecka 11 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	The student knows the basic concepts related to the management of production
2	Skills	The student has the ability to perceive and interpret the phenomena occurring in the field of management
3	Social competencies	The student is aware of the impact of waste on the efficiency of the production system
Assumptions and objectives of the course: 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.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student characterized types of waste in the management system of enterprise - [K2A_W03] 2. The student explains the implementation of the lean approach in the area of production and logistics - [K2A_W05] 3. Student characterized idea of Lean and its basic concepts - [K2A_W09] 4. The student explains the concepts of value stream mapping - [K2A_W10] 5. The student characterized the basic tools of Lean Management - [K2A_W13] 6. The student describes the practice of supply Just-in-Time and Just-in-Sequence - [K2A_W18]		
Skills:		
1. The student can self-study to expand the ability to apply lean tools - [K2A_U05] 2. Students can design a process of analysis to evaluate the proposed solutions based on the tools of Lean Management - [K2A_U09] 3. Student can suggest improvements of the production process for waste elimination - [K2A_U16] 4. Students can design a logistical system using the tools and techniques: milk runner, Kanban and 5S - [K2A_U17]		
Social competencies:		
1. The student is aware of their responsibility for their own work and the willingness to subordinate with the rules of teamwork and take responsibility in the group of project - [K2A_K03]		
Assessment methods of study outcomes		

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

Course description

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 handing, Single-Piece Flow (continuous flow), 5S, 5W1H, Visual Management, Kaizen, Poka-Yoke
 The steps to implement Lean Production: Specify Value; Identify the Value Stream, Flow, Pull, Perfection.
 Organization of the work on the principles of 5S and standardized work. Techniques for mapping of business processes.
 Single Minute Exchange or Dies (SMED).

Projects / classes:

Value Stream Mapping. Current and future stage,
 Separation of value streams, production takt time calculation, Yamazumi chart,
 Internal logistics: layout, milk runner, kanban. Stock management,
 Flow control of material flow in the production hall (decision-making game)

Didactic methods:

Lecture: Information lecture, problem lecture
 Exercise: exercise method, decision game

Basic bibliography:

- Hadaś Ł., Cyplik P., TOC i Lean Production, Idea, narzędzia, praktyka zastosowania, Wydawnictwo Politechniki Poznańskiej, Poznań, 2013
- Liker J. K., Droga Toyoty. 14 zasad zarządzania wiodącej firmy produkcyjnej świata, MT Biznes, Warszawa 2005
- Rother M., Shook J., Naucz się widzieć. Eliminacja marnotrawstwa poprzez mapowanie strumienia wartości, Wrocław Center for Technology Transfer, Wrocław 2003.
- Rother M., Hans R., Tworzenie ciągłego przepływu. Przewodnik dla menadżerów, inżynierów i pracowników produkcji, Wrocław Center for Technology Transfer, Wrocław 2004.

Additional bibliography:

- Hadaś Ł., Fertsch M., Cyplik P., Planowanie i sterowanie produkcją, Wydawnictwo Politechniki Poznańskiej, Poznań, 2012
- Womack J.P., Jones D.T., Lean Thinking - szczupłe myślenie. Eliminowanie marnotrawstwa i tworzenie wartości w przedsiębiorstwie, ProdPress.com, Wrocław 2008.

Result of average student's workload

Activity	Time (working hours)
1. Lecture	15
2. Project	15
3. Classes:	15
4. Own study/work	35
5. Consultations	10
6. Preparation for the course credits	35

Student's workload

Source of workload	hours	ECTS
Total workload	125	5
Contact hours	55	2
Practical activities	30	1