



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Advanced methods and systems for project and production management [S2Elmob1-SSP>ZMiSZPP]

### Course

Field of study

Electromobility

Year/Semester

1/2

Area of study (specialization)

Car Onboard Systems

Profile of study

general academic

Level of study

second-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

15

### Number of credit points

2,00

### Coordinators

dr inż. Agnieszka Grzelczak

agnieszka.grzelczak@put.poznan.pl

dr inż. Marta Pawłowska-Nowak

marta.pawlowska-nowak@put.poznan.pl

### Lecturers

### Prerequisites

Student starting this course should know the basic issues in the field of management and project and production management. They should also be able to associate and integrate the obtained information, analyze phenomena occurring in the environment, draw conclusions, formulate and justify opinions. The student should also be able to work in a team.

### Course objective

Familiarizing students with advanced methods and systems of project and production management.

### Course-related learning outcomes

Knowledge:

He has knowledge of methods and tools specific to project and production management, with particular emphasis on the area of electromobility.

### Skills:

Can obtain information (in Polish and English) from various sources, interpret it, critically evaluate it, analyze it and synthesize it, as well as draw conclusions and formulate and justify opinions.  
Able to work individually and in a team; is able to lead a team in the implementation of projects related to electromobility in a way that ensures timely implementation of design and production tasks.

### Social competences:

He is aware of the importance of the latest scientific and technical achievements in solving research and practical problems and, if necessary, supporting himself with expert opinions.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: The knowledge acquired during the lecture is verified during a written colloquium, which consists of open and closed questions, scored according to the level of difficulty. Passing threshold: 50% of points.

Project: The skills acquired during project classes are verified on the basis of the progress of project tasks (implemented as a team) and project defense. Passing threshold: 50% of points.

### Programme content

Construction project management  
Project management tools  
Methods of searching for errors and analyzing causes  
Project management methodologies  
The project team  
Introduction to production management  
Elements of the structure of the production process  
Production planning  
Supplies management  
Conventional production systems  
Contemporary production management concepts

### Course topics

Introduction to construction project management: creating a project requirements book, project card, design order.

Project management tools: basics, Gantt chart, network plan.

Methods of searching for errors and analyzing the causes of their occurrence: 5xWHY, Ishikawa Diagram, 8D Method, Pareto Principle.

Project management methodologies: discussion of various methodologies (e.g. Agile, Waterfall, PRINCE2), their application and selection of the appropriate methodology.

Project team: project team structure, roles and responsibilities, team management, communication in the project team.

Introduction to production management: basic concepts and goals of production management.

Elements of the production process structure: preparatory process, basic process, service processes, auxiliary processes, production control processes.

Production planning: methods of forecasting demand for products, setting a production program.

The structure of the production process on a micro scale: production cycle, stages of the production cycle, management of individual stages.

Inventory management: inventory management strategies, inventory optimization techniques, Just-in-Time (JIT).

Conventional production systems: principles of rational organization of production, comparison of production systems.

Production analysis: methods of analyzing production processes, production efficiency indicators.

Contemporary production management concepts: Lean Manufacturing, Six Sigma, Total Quality Management (TQM), Industry 4.0.

### Teaching methods

Lecture: Lecture with a multimedia presentation, supplemented with examples given on the board.

Lectures conducted in an interactive way with students, initiating discussions, taking into account various aspects of the presented issues.

Project: Project method - team implementation of a large, multi-stage cognitive or practical task.

## Bibliography

Basic:

1. Trocki M., Metodyki i standardy zarządzania projektami, PWE, Warszawa, 2017.
2. Wysocki R., Efektywne zarządzanie projektami. Tradycyjne, zwinne, ekstremalne, Helion, Gliwice, 2013.
3. Knosala R. (red.), Inżynieria produkcji. Kompendium wiedzy, PWE, Warszawa, 2017.
4. Pająk E., Klimkiewicz M., Kosieradzka A., Zarządzanie produkcją i usługami, PWE, Warszawa 2014.

Additional:

1. Głodzieński E., Efektywność w zarządzaniu projektami. Wymiary, koncepcje, zależności, PWE, Warszawa, 2017.
2. Trocki M., Nowoczesne zarządzanie projektami, PWE, Warszawa, 2012.
3. Muhlemann A., Oakland J., Lockyer K., Zarządzanie. Produkcja i usługi, PWN, Warszawa, 2001.
4. Brzeziński M. (red.), Organizacja i sterowanie produkcją, AW Placet, Warszawa, 2002.
5. Pająk E., Zarządzania produkcją, Wydawnictwo Naukowe PWN, Warszawa 2017.
6. PMBOK® Guide - 7th Edition, Pennsylvania, 2021.

## Breakdown of average student's workload

	Hours	ECTS
Total workload	55	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	25	1,00