



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Management in industry 4.0 [S2TCh2>ZwP]

### Course

Field of study	Year/Semester
Chemical Technology	1/2
Area of study (specialization)	Profile of study
Applied Electrochemistry	general academic
Level of study	Course offered in
second-cycle	polish
Form of study	Requirements
full-time	compulsory

### Number of hours

Lecture	Laboratory classes	Other (e.g. online)
0	0	0
Tutorials	Projects/seminars	
15	0	

### Number of credit points

1,00

### Coordinators

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### Lecturers

### Prerequisites

Knowledge of the basics of management, concerning the social, economic, legal and organizational conditions of running a business.

### Course objective

The student will learn the essence of management and will become familiar with the importance of management for the creation and development of enterprises in the era of industry 4.0. The student will also learn the principles of operation and achievements of Industry 4.0.

### Course-related learning outcomes

Knowledge:

Student:

1. Defines the essence and importance of management for the functioning and development of enterprises in Industry 4.0

2. Identifies management functions in enterprises in Industry 4.0
3. Indicates the benefits of using modern management methods in Industry 4.0

Skills:

Student:

1. Can forecast social processes and phenomena (cultural, political, legal, economic) using standard methods and tools in the field of industry 4.0 management
2. Analyzes proposed solutions to specific management problems and proposes appropriate solutions in this regard and is able to bear responsibility for own work and jointly implemented tasks and is ready to submit to the rules of teamwork
3. Designs solutions to problems with the use of modern information and communication technologies in enterprise management in industry 4.0.

Social competences:

Student:

1. Works in a group during project preparation.
2. Can independently and critically expand knowledge and skills.
3. Can act in an entrepreneurial way.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

During the semester, the student has the opportunity to collect credit points. You can get a maximum of 100 points, passing requires at least fifty points. If the student did not manage to collect the required number of points during the classes, he/she will have the opportunity to do so in the correction session by performing certain tasks.

Scored tasks within the exercises:

- group project - 80 points
- presentation - 20 points

### Programme content

1. Introduction to management issues in industry 4.0: evolution of management principles and methods.
2. Enterprise Management Functions in Industry 4.0 (PO3C)
3. Industry 4.0 components.
4. Competences and skills of employees and managers of industry 4.0
5. The use of modern information and communication technologies to support management. The Internet of Things and a new value proposition.
6. Smart and Connected Product Business Models

### Teaching methods

Excercise classes - discussion, demonstration, subject exercises, problem tasks performed individually, problem tasks performed in a team, case study

### Bibliography

Basic:

1. Sobieraj J. (2019), Rewolucja przemysłowa 4.0, Wydawnictwo Naukowe Instytutu Technologii i Eksploatacji - PIB w Radomiu.
2. Schwab K. (2018), Czwarta rewolucja przemysłowa. Wydawnictwo Studio EMKA.

Additional:

1. Ustundag A., Cevikcan E. (2018), Industry 4.0: Managing The Digital Transformation, Springer.
2. Bartodziej Ch.J. (2017) The Concept Industry 4.0. Springer, Wiesbaden.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,50