



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Infrastructure of Industry 4.0

### Course

Field of study

Engineering Management

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

English

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

Tutorials

Projects/seminars

Other (e.g. online)

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

Ph.D., Eng. Michał Trziszka

Responsible for the course/lecturer:

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Faculty of Engineering Management

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### Prerequisites

Contemporary production management concepts. Basic knowledge about industry 4.0.

### Course objective

The aim of the course is to familiarize students with the basic concepts related to industry 4.0 and its impact on the functioning of enterprises in terms of program and server infrastructure.

### Course-related learning outcomes

Knowledge

has a basic knowledge of the life cycle of machines [P6S\_WG\_14]

has a basic knowledge of the life cycle of industrial products [P6S\_WG\_15]



knows the basic methods, techniques, tools and materials used to solve simple engineering tasks in the field of construction and operation of machines [P6S\_WG\_16]

knows typical industrial technologies and knows in depth the technologies of construction and operation of machines [P6S\_WG\_17]

#### Skills

correctly uses normative systems and selected norms and rules (legal, professional, moral) in order to solve a specific task in the field of management [P6S\_UW\_08]

can identify design tasks and solve simple design tasks in the construction and operation of machines [P6S\_UW\_14]

is able to design the structure and technology of simple parts and components of machines and to design the organization of production units of the first complexity level [P6S\_UW\_16]

#### Social competences

is aware that creating products that meet the needs of users requires a systemic approach, taking into account technical, economic, marketing, legal, organizational and financial issues [P6S\_KO\_02]

is aware of the importance and understands the non-technical aspects and effects of engineering activities, including its impact on the environment, and the related responsibility for decisions [P6S\_KR\_01]

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge acquired during the lecture is verified by one colloquium at the last lecture. The test consists of 10-15 questions (test and open), variously scored. Passing threshold: 50% of points. Final issues on the basis of which questions are prepared will be sent to students by e-mail using the university e-mail system.

#### Programme content

1. Introduction to Industry 4.0 - concept, scope of impact
2. Cyber-physical systems. Virtualization, modeling and examples of use.
3. Internet of Things. Characteristics, implementation requirements.
4. Cloud computing.
5. Cloud infrastructure solutions
6. Impact of the development of industry 4.0 on the functioning of enterprises.
7. Management in industry 4.0

#### Teaching methods



Lecture: multimedia presentation, illustrated with examples on the board.

## Bibliography

Basic

Czwarta rewolucja przemysłowa, Schwab Klaus, Wydawnictwo Studio Emka, 2018

Additional

## Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	15	0,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests, project preparation) <sup>1</sup>	35	1,5

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