



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Resources of Industry 4.0

Course

Field of study

Engineering management

Area of study (specialization)

Enterprise resources and process management

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

Tutorials

Projects/seminars

15

Other (e.g. online)

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

Ph.D., D.Sc., Eng. Joanna Kałkowska, University

Professor

Responsible for the course/lecturer:

Mail to:joanna.kalkowska@put.poznan.pl

Wydział Inżynierii Zarządzania

ul. J. Rychlewskiego 2, 60-965 Poznań

Prerequisites

Student has knowledge of the foundations of management and information technologies carried out at first cycle of studies. In addition, he is able to integrate and use already acquired knowledge in practice and is ready to work within team structures.

Course objective

The aim of the course is to interest students in the issues of industry 4.0 and to provide students with knowledge of the various conditions concerning adjusting enterprises to the requirements of industry 4.0 with the particular emphasis on the used resources.

Course-related learning outcomes

Knowledge



has in-depth knowledge of legal standards, their sources, changes and ways of influencing organizations, with particular emphasis on economic law [P7S_WG_01]

knows in-depth the methods and tools for modeling information and decision-making processes [P7S_WG_02]

has extended knowledge of the subject of contextual sciences in relation to management sciences and ergological sciences and the research methods used in them, as well as about common and specific conceptual apparatus in relation to management sciences and technical sciences [P7S_WG_04]

has knowledge of the connections in network organizations (concerns, holdings, clusters, etc.) and in-depth knowledge of organizational dependencies between organizational units of the enterprise, as well as virtual units [P7S_WG_06]

has an extensive knowledge of systems, objects and technical devices, understands their role and importance in shaping economic organizations [P7S_WG_10]

Skills

has the ability to use the acquired knowledge in various scopes and forms, extended by a critical analysis of the effectiveness and usefulness of the applied knowledge [P7S_UW_03]

has the ability to independently propose solutions to a specific management problem and carry out a decision-making procedure, in this scope [P7S_UW_04]

is able to properly analyze the causes and course of social processes and phenomena (cultural, political, legal, economic), formulate their own opinions on this subject, as well as formulate simple research hypotheses and verify them [P7S_UW_07]

is able to make a critical analysis of the existing technical solutions in a functioning economic organization and propose their restructuring and improvements [P7S_UW_09]

is able to take responsibility for own work and jointly performed tasks, and manage the work in a team [P7S_UO_01]

Social competences

is aware of the interdisciplinary nature of knowledge and skills needed to solve complex organizational problems and the need to create interdisciplinary teams [P7S_KK_01]

can see the cause-effect relationships in the implementation of the set goals and rank the importance of alternative or competitive tasks [P7S_KK_02]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge acquired during the lecture is verified by a test carried out after the last lecture. The test consists of 20 closed questions. Assessment threshold: 50% of the points (satisfactory).



Knowledge acquired under the project is verified on the basis of solving individual tasks covered by the curriculum. The student receives points for each task. Assessment threshold: 50% of the points (satisfactory).

Programme content

Lecture: The essence of industry 4.0. Challenges and megatrends related to the fourth industrial revolution (advanced automation and robotization, intelligent technologies and materials, sharing economy). Key technologies of industry 4.0. Industry 4.0 pillars and their resources - technological resources (connectivity, automation, autonomization, intelligent product), organizational resources (cooperation, strategy, employees, leadership), process resources (standardization, integration with the environment, product life cycle integration, internal integration). Problems of adjusting enterprise resources to the requirements of industry 4.0.

Project: project of adjusting enterprise resources to the requirements of industry 4.0

Teaching methods

Monographic lecture in the form of a multimedia presentation, with elements of a seminar lecture.

Project: solving project tasks based on the case study method

Bibliography

Basic

1. Kozłowski K., Zygmuntowski J. (red.), FutureInsights: Technologie 4.0 a przemiany społeczno-gospodarcze, Oficyna Wydawnicza SGH, Warszawa 2017
2. Sobieraj J., Rewolucja przemysłowa 4.0, Instytut Technologii Eksploatacji- PIB w Radomiu, Radom 2018
3. Mazurek G., Transformacja cyfrowa biznesu – perspektywa marketingu”, PWN, Warszawa 2019

Additional

1. Schwab K., The Fourth Industrial Revolution, World Economic Forum, Geneva 2016

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for project, preparation for tests) ¹	45	2,0

¹ delete or add other activities as appropriate