COURSE DESCRIPTION CARD - SYLLABUS

Course name
Industry 4.0 Systems [S1Inf1>SP4]

Course

Field of study
Computing

Year/Semester
3/6

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
24

Laboratory classes
30

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

4,00

Coordinators

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Lecturers

Prerequisites

The student starting this course should have basic knowledge of databases, software engineering and computer networks. Should have the ability to solve basic tasks regarding software development and the ability to obtain information from indicated sources. The student should also understand the necessity to expand his competences and be ready to cooperate within the team.

Course objective

Providing students with basic knowledge about the concept of Industry 4.0, modern enterprise management, enterprise computerization, the basics of ERP and BI systems functioning and development. Developing students" problem-solving skills in the field of financial management, HR and payroll issues, sales, business analysis and selected industry solutions. Developing the ability to integrate, expand and maintain IT systems supporting business management.

Course-related learning outcomes

Knowledge:
1. has a structured and theoretically founded general knowledge of the concept of Industry 4.0 and basic issues related to modern enterprise management, enterprise computerization, ERP and BI systems
2.has basic knowledge about the life cycle of (software) IT systems of enterprises, and in particular about the key processes taking place in them
3. knows the basic methods and tools used in the construction of IT solutions for the use of Companies 4.0

Skills:
1.can obtain information on the computerization of Enterprises 4.0 from various sources, including literature, documentation and databases, both in Polish and in English, integrate them properly, interpret them and critically evaluate them
2.can - in accordance with the given specification - design and implement an exemplary IT solution for Enterprises 4.0, using appropriate methods, techniques and tools
3. is able to notice in the process of formulating and solving IT tasks their social, legal and economic aspects

Social competences:
1. understands that in IT solutions for Companies 4.0, knowledge and skills evolve quickly and require constant updating
2. is aware of the importance of knowledge in developing and maintaining IT systems of Enterprises 4.0, knows examples and understands the causes of malfunctioning IT systems that have led to serious financial or social losses

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
The knowledge acquired during the lecture is verified on a written test. Passing threshold 50% of points; it is not allowed to use any auxiliary materials during the test.
The knowledge and skills acquired during laboratory classes are verified by assessing the student"s preparation for individual sessions of laboratory classes, assessment of skills related to the implementation of laboratory exercises, assessment of knowledge and skills related to the implementation of project tasks.

Programme content

-Basic concepts of Industry 4.0;
- IT systems supporting business management - ERP and BI systems.

Course topics

LECTURE:
- Introduction - basic concepts: Industry 4.0, enterprise management, enterprise computerization, ERP and BI systems.
- Elements of business management - basics of accounting, cash-flow, HR and payroll issues.
- IT systems supporting business management - ERP and BI systems.
- Development, maintenance and integration of ERP systems.
- Modeling of the ETL process, design and construction of a data warehouse.

LABORATORY CLASSES:
Classes are conducted with the use of enterprise management systems, positioned as Industry 4.0 systems.
- To familiarize the student with the selected functionality of the financial and accounting module as well as the HR and payroll module of ERP systems.
- To familiarize the student with the selected functionality of the BI module.
- Programming in the development environment of the ERP system and implementation of programming projects, developing the skills of expanding and integrating enterprise management systems.

Teaching methods

1. lecture: multimedia presentation, presentation illustrated with examples given on the board, solving tasks, demonstrating functionality and methods of solving tasks in ERP and BI systems.
2. laboratory classes: problem solving, practical exercises, discussion, team work, demonstration of functionality and methods of solving tasks in the ERP and BI systems.

Bibliography

Basic
1. Industry 4.0, Alasdair Gilchrist, APress, 2016.
2. Design Principles for Industrie 4.0 Scenarios: A Literature Review. Herman Mario, Pentek Tobias, Otto Boris, Technische Universitat Dortmund, 2015.
3. Podstawy zarządzania organizacjami, Ricky W. Griffin, Wydawnictwo Naukowe PWN, 2009
Additional
Technical and operational documentation of systems used during classes.

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	54	2,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	46	1,50