



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Business process modeling [S2AiR2-ISA>PO3-MPB]

Course

Field of study

Automatic Control and Robotics

Year/Semester

1/2

Area of study (specialization)

Intelligent Control Systems

Profile of study

general academic

Level of study

second-cycle

Course offered in

Polish

Form of study

full-time

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

15

Other

0

Tutorials

0

Projects/seminars

0

Number of credit points

2,00

Coordinators

dr inż. Tomasz Piaścik

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Lecturers

Prerequisites

1. The student has basic knowledge of selected algorithms and data structures as well as methodology and techniques of procedural and object-oriented programming. He knows and understands the basic processes taking place in the software development cycle. [(K1_W11), (P6S_WG)] 2. The student is able to obtain information from bibliography, databases and other sources; has the ability to self-educate in order to improve and update professional competences. [K1_U01 (P6S_UU)] 3. The student is ready to critically evaluate his or her knowledge. He understands the need for and knows the possibilities of continuous learning - improving professional, personal and social competences, he/her is able to inspire and organize the learning process of others. [K1_K01 (P6S_KK)]

Course objective

An introduction to the design and modeling of business processes that constitute the basis for the functioning of the organization. Presentation of the stages of process modeling, basic requirements related to process modeling, process mapping and notations supporting the design of business processes.

Course-related learning outcomes

Knowledge:

1. The student has elementary knowledge of business process modeling. [(P7S_WG)]
2. The student knows and understands the essence of the process approach to business management. [(P7S_WG)]
3. Knows and understands selected areas of mathematics in enhanced level; has extended and deepened knowledge necessary to formulate and solve complex tasks in the field of control theory, optimization, modelling, identification and signal processing [K2_W1] [P7S_WG]
4. Has an organized and in-depth knowledge within the selected automation and robotics areas [K2_W10] [P7S_WG]
5. Has knowledge of development trends and the most important new achievements in the field of automation and robotics and related scientific disciplines [K2_W12] [P7S_WG]

Skills:

1. Is able to perform a business analysis of a problem. [P7S_UW]
2. Is able to describe a business process using BPMN notation. [P7S_UW]
3. Has basic skills in designing, testing and optimizing business processes. [P7S_UW]
4. Can make a preliminary economic analysis of engineering activities [K2_U18] [P7S_UW]
5. Can identify elements of control systems and formulate a design specification of a complex control system, taking into account non-technical aspects [K2_U21] [P7S_UW]
6. Potrafi dokonać identyfikacji elementów i układów sterowania oraz sformułować specyfikację projektową złożonego systemu sterowania z uwzględnieniem aspektów pozatechnicznych [K2_U21] [P7S_UW]

Social competences:

1. Is ready to critically evaluate his knowledge [P7S_KK]
3. Is ready to recognize the importance of knowledge in solving cognitive and practical problems. [P7S_KK]
3. Understands the need for and knows the possibilities of continuous learning - improving professional, personal and social competences, the graduate is able to inspire and organize the learning process of others [K2_K1] [P7S_KK]
4. Is ready to think and act in an entrepreneurial way [K2_K5] [P7S_KO]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The final grade consists of partial grades for:

- answers to control questions during laboratory classes,
- tasks performed during laboratory classes,
- case study analysis,
- tasks commissioned to be performed outside the time of laboratory classes,
- activity during classes,
- final test of the lecture (15-20 pytań).

Programme content

A business process can be defined as a set of logically related tasks performed to achieve specific business outcomes. By using the concept of an input-output model, it can be characterized as a process that has one or more types of inputs and produces an output value for the customer. Most organizations - enterprises operate in a process-related manner. The analysis of business processes and their modeling affect the effectiveness of the enterprise, the effectiveness and usefulness of the services it provides, including services provided electronically. In practice, modeling business processes consists in isolating the most important components of a given process and describing them. The adopted model may have different levels of detail (in the same description method). The existing in practice formal modeling methods have several common features - the most important, however, in this case is activity orientation. During the lecture, the most popular notations will be briefly described and their characteristic features important for the intended comparison. The greatest emphasis will be placed on presenting BPMN (Business Process Modeling Notation) and illustrating its use on examples. During the lecture, the following will be discussed:

- the concept of a process,
- processes in the enterprise,
- creating a process description,
- process description errors,

- process optimization,
- process testing - goals and methods of business process modeling,
- introduction to BPMN,
- application of BPMN for process modeling

Laboratory classes:

- practical exercise of selected aspects of business process modeling presented during the lecture
- presenting and discussing design practices - case study analysis,
- getting acquainted with the BPMN notation
- describing processes in BPMN notation.

Course topics

none

Teaching methods

Lecture:

- lecture with multimedia presentation supplemented with examples given on the board,
- interactive lecture with elements of discussion,
- theory presented in close connection with practice.

Laboratory class:

- multimedia shows (instructional videos),
- discussions of the presented content,
- demonstration of examples at the table.

Bibliography

Basic:

1. Piotrowski M., Procesy biznesowe w praktyce, Helion, 2014

Additional:

1. Żeliński J., Analiza biznesowa. Praktyczne modelowanie organizacji, Helion, 2017
2. Drejewicz S., Zrozumieć BPMN. Modelowanie procesów biznesowych. Wydanie 2 rozszerzone, Helion, 2017
3. Business Process Model and Notation (BPMN) Version 2.0.2, OMG Object Management Group, December 2013

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