COURSE DESCRIPTION CARD - SYLLABUS

Course name

Management of transport and logistics processes

Course

Field of study

Transport

Area of study (specialization)

Logistics of Transport

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/5

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

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Prerequisites

KNOWLEDGE: The student has an organized, theoretically founded general knowledge in the field of technology, transport systems and various means of transport.

SKILLS: The student is able to properly use information and communication techniques, applicable at various stages of the implementation of transport projects.

SOCIAL COMPETENCES: The student understands that knowledge and skills very quickly become obsolete in technology.

Course objective

The aim is to familiarize students with the basics of process modeling and simulation. It is also preparation for process management with the use of advanced database tools (process modeling and simulation).

Course-related learning outcomes

Knowledge

Has knowledge of important directions of development and the most important technical achievements and other related scientific disciplines, in particular transport engineering.

Knows the basic techniques, methods and tools used in the process of solving decision problems in the field of transport, mainly of its engineering nature.

Skills

Is able to formulate and solve tasks in the field of transport, use appropriately selected methods, including analytical, simulation or experimental methods.

Has the ability to formulate tasks in the field of transport engineering and their implementation using at least one of the popular tools.

Is able to organize, cooperate and work in a group, assuming different roles in it, and is able to properly define priorities for the implementation of a task set by himself or others.

Social competences

Is able to think and act in an entrepreneurial way, incl. finding commercial applications for the created system, taking into account not only business benefits, but also social benefits from the conducted activity.

Is aware of the social role of a graduate of a technical university, in particular, understands the need to formulate and convey to the society in an appropriate form information and opinions about engineering activities, technological achievements, as well as the achievements and traditions of the profession of a transport engineer.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Written test summarizing the lectures on the subject. Multiple-choice test at the end of the semester. Within the laboratory - the average of partial grades in the test.

Programme content

Lecture and laboratory classes are closely related. On the basis of the content presented during the lectures, the tasks (in most cases problematic, based on case studies) are performed during the laboratory classes.

1. Introduction: The process as a research subject; review of the concept of process definition, other key concepts related to the object (customer, added value, process-oriented vs. function-oriented enterprise, the bottleneck phenomenon), the concept of the business process management (BPM) cycle, key process notations, IT support of BPM cycle, discussion of the main thematic issues of the subject against the background of the BPM cycle.

2. Process modeling (basics of EPC notation) - stage 1 BPM: Methodical basics of formal process notation - EPC notation, ARIS House concept, key principles of modeling according to EPC notation, connection of process and organizational structure, hierarchy and structure of processes; VACD model, construction of basic models of processes in transport and logistics.

3. Process modeling (application of the ARIS tool) - step 1 BPM: Functional basics of a database tool supporting the BPM management cycle; ARIS Architect & Designer, techniques for modeling processes in the ARIS tool based on EPC notation, creating process reports (including the scope of employees' responsibilities, the scope of process support with IT tools functionalities, organizational barriers, etc.), database management in ARIS.

4. Process configuration - stage 2 BPM: Defining the key functional parameters of the process (permissible duration of activities, minimum staffing, permissible process costs, etc.), simulation verification of parameterization correctness (feasibility), simulation basics; creating a simulation model based on the process model (EPC notation), the concept of a process folder, key dynamic characteristics of the process (process efficiency, queue length, dynamic vs. static waiting time), simulation process control, evaluation of simulation results - statistics detailed and aggregated.

5. Process improvement (basics of process simulation) - stage 4 BPM: Variant analysis of changes in the process, construction and simulation testing of process improvement scenarios, conducting process simulations.

6. Process improvement (introduction of changes and change management) - stage 4 BPM: Defining the scope of necessary changes in the current configuration of the process, implementation of simulation results.

7. Knowledge summary: Test to check the level of acquired knowledge and skills.

Teaching methods

1. Lecture with the use of multimedia presentation.

2. Workshop methods.

3. The case studies.

4. Laboratories - process models, simulation experiments.

Bibliography

Basic

1. Davis R., Brabänder E., ARIS Design Platform. Getting started with BPM, Springer, 2010

2. Gabryelczyk R., ARIS w modelowaniu procesów biznesu, Difin, 2010

3. Sawicki P., Wielokryterialna optymalizacja procesów w transporcie, ITE, Radom, 2013

4. Sawicki P., Zarządzanie procesami, Politechnika Poznańska, Poznań, 2019 (e-skrypt udostępniany na stronie: piotr.sawicki.pracownik.put.poznan.pl)

5. Scheer A.-W., ARIS - Business Process Modeling, Springer, 2000

Additional

1. Kowalska-Napora E., Projektowanie procesów logistycznych, Wydawnictwo Economicus, Szczecin, 2012

2. Nowosielski S. (red), Procesy i projekty logistyczne, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław, 2008

3. Weske M., Business Process Management. Concepts, Languages, Architectures, Springer, 2012

4. Melao N., Pidd M., A conceptual framework for under-standing business process and business process modeling, Information System Journal, 2000, vol. 10, no. 2, s. 105-129

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	30	1,0

[1] delete or add other activities as appropriate