STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Information Engineering**	Code **1010621351010631297**

Field of study **Transport**	Profile of study (general academic, practical) **general academic**	Year /Semester **3 / 5**

Elective path/specialty **Railway Transport**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**

Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**

No. of hours				No. of credits **3**
Lecture: **1**	Classes: **-**	Laboratory: **1**	Project/seminars: **-**	

Status of the course in the study program (Basic, major, other) **other**	(university-wide, from another field) **university-wide**

Education areas and fields of science and art **technical sciences** **Technical sciences**	ECTS distribution (number and %**)** **3 100%** **3 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	The student possesses the basic knowledge of informatics and knows the software used for office work[PRK5]..
2	**Skills**	The student is able to use the software for office work (word processor, spreadsheet) and the Internet.
		The student is able to deal with specific problems that arise when using the computer[PRK5]..
3	**Social competencies**	The student is able to cooperate in a group, taking different roles.
		The student is able to define priorities in solving the tasks posed before her/him.
		The student demonstrates self-reliance in solving tasks, acquiring and improving her/his knowledge and skills[PRK5]..

Assumptions and objectives of the course:

The aim of the course is to provide students with information on software for scientific and technical calculations MATLAB, ANSYS, LABVIEW. Students acquire knowledge and skills related to the design of information systems for measuring, controlling and analyzing based on basic electronic and IT systems.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. has a structured, theoretically founded general knowledge in the field of technology, transport systems and various means of transport - [T1A_W03]

2. has knowledge of important directions of development and the most important technical achievements and other related scientific disciplines, in particular transport engineering - [T1A_W05]

Skills:

1. is able to obtain information from various sources, including literature and databases, both in Polish and in English, appropriate to integrate them, make their interpretation and critical evaluation, draw conclusions, and fully justify the opinions they formulate - [T1A_U01]

2. can - in accordance with a given specification - design (create a model of reality), formulate a functional specification in the form of use cases, formulate non-functional requirements for selected quality characteristics) and implement a device or a widely understood system of transport means using appropriate methods, techniques and tools - [T1A_U10]

3. is able to prepare and present, in Polish and English, a well documented elaboration of problems in the field of transport engineering, including an oral presentation - [T1A_U16]

Social competencies:

1. understands that in technology, knowledge and skills quickly become obsolete - [K1_K01]

2. correctly identifies and resolves dilemmas related to the profession of transport engineer - [K1_K05]

Assessment methods of study outcomes
Written test of lectures, written and practical credit of laboratory.

Course description
Overview of the ANSYS program. Sample analysis of engineering problems for flow and heat exchange problems in the ANSYS program: static mixer, solid flow, heat exchange in a finned pipe. Overview of the LABVIEW program. Exemplary solutions of control systems and measurement systems encountered in engineering practice with the help of LABVIEW. Overview of the MATLAB program. Sample analysis of engineering problems in the Matlab program.
Characteristics of basic control and measurement systems. Characteristics of available methods of process control and available sensors and transducers.

Basic bibliography:

Additional bibliography:

Result of average student's workload	
Activity	**Time (working hours)**
1. Preparation for the lectures	5
2. Participation in the lecture	15
3. Consolidation of the lecture content	10
4. Consultation	6
5. Preparation for the pass	10
6. Participation in the pass	1
7. Preparation for the laboratory classes	10
8. Participation in the laboratory classes	15
9. Consultation	5
10. Preparation for the pass	10
11. Participation in the pass	1

Student's workload		
Source of workload	**hours**	**ECTS**
Total workload	88	3
Contact hours	43	2
Practical activities	41	2