STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Modeling of Transportation Systems and Processes		**1010631211010622254**
Field of study: **Transport**	Profile of study (general academic, practical): **(brak)**	Year /Semester: **1 / 1**
Elective path/specialty: **Engineering of Pipeline Transport**	Subject offered in: **Polish**	Course (compulsory, elective): **obligatory**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time): **full-time**	
No. of hours: Lecture: **2** Classes: **1** Laboratory: **1** Project/seminars: **-**		No. of credits: **4**
Status of the course in the study program (Basic, major, other): **(brak)**	(university-wide, from another field): **(brak)**	
Education areas and fields of science and art: **technical sciences**		ECTS distribution (number and %): **4 100%**

Responsible for subject / lecturer:

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Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	The student has a basic general knowledge: processes, modelling, systems and relationships. The student knows and understands a basic general methods and practical tools in the field of transportation processes and systems.The student knows the main task of systems, such as: transport and logistics companies.
2	**Skills**	The student is able to use the concepts and methods in the description of processes and systems. Students can use their knowledge to analyze transport systems and processes.Student is able to identify specific problems in transportation systems.
3	**Social competencies**	Student is able to do a literature research and knows the rules of work group and discussion. The student has self-reliance in solving problems.

Assumptions and objectives of the course:

Acquiring of the knowledge about modelling of transport processes and systems and skills needed to perform a traffic and different models of transportation systems.

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

Knowledge:

1. Has a detailed knowledge of the transport systems modeling, models of transport systems, the distribution of streams in transport networks, transportation system environment, forecasting the development of transport systems, the dynamics of transport processes - [[K2A_W10]]

2. Has a structured, theoretically founded knowledge in the field of transport economics: economic importance and functions of transport - the location of production and settlement, elements of microeconomics, costs of transport and their structure, economic balance in the transport, nature and function of the transport market, competition in the transport market, prices of services - [[K2A_W11]]

Skills:

1. Is able to obtain information from the literature, internet, databases and other sources in Polish and English. Can integrate the information to interpret and learn from them, create and justify opinions - [[K2A_U01]]

2. Is able to communicate using a variety of techniques in a professional environment and other environments using the formal record of the design, technical drawings, concepts and definitions in the scope of the study area - [[K2A_U02]]

3. Has the ability to self-educate using modern teaching tools such as remote lectures, webpages and databases, educational software, electronic editions - [[K2A_U06]]

Social competencies:

1. Understands the need and knows the possibilities of lifelong learning, knows the need for acquiring new knowledge for professional development - [[K2A_K01]]
2. Is aware of and understands the importance and impact of non-technical aspects of mechanical engineering activities and its impact on the environment and responsibility for own decisions in short and long-term aspect - [[K2A_K02]]
3. Is able to identify and resolve the dilemmas associated with the profession, among others problems at the technology/environment level - [[K2A_K06]]

Assessment methods of study outcomes
Colloquium/exam
Course description
Introduction to modelling of transport processes and systems, traffic modelling in various towns (Poland / world), demand models (FSM, ABM, LM); model of supply (transportation networks, models for public transport),modal split (model calibration, individual and public transport), forecast, transportation studies, traffic simulation, software (tools) for the modelling and traffic simulation.
Basic bibliography:
Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Preparing for classes	14
2. Lectures	60
3. Consultation	5
4. Preparation for the colloquium/exam	18
5. Colloquium/exam	3

Student's workload

Source of workload	hours	ECTS
Total workload	100	4
Contact hours	68	0
Practical activities	0	0