STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Basics of Road Traffic**		Code **1010631261010612396**
Field of study **Transport**	Profile of study (general academic, practical) **(brak)**	Year /Semester **3 / 6**
Elective path/specialty **Engineering of Pipeline 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 **2**
Lecture: **1**	Classes: **1**	Laboratory: **-**	Project/seminars: **-**	

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 %**)** **2 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledge about the construction of the means of transport (road and rail vehicles, aeroplanes and ships), the typical infrastructure and traffic regulations. Basics of the probability theory and statistics.
2	**Skills**	Methods of measuring the physical characteristics. General rules for modelling the time dependent processes. The spreadsheet skills.
3	**Social competencies**	Cooperation and work in a team. Defining the priorities and task hierarchy in achieving the group objectives. The correct identification of problems and the approach to the trying to decide dilemmas. Responsibility.

Assumptions and objectives of the course:

Forms of transport and the characteristics of traffic flow. Modes of transport: road, rail, air, maritime and inland waterways ones. The basic concepts in the field of traffic engineering, in the case of various transport modes. Factors influencing traffic formation: humans - vehicles - infrastructure. Basics in the scope of design, organisation, management and control of traffic flow. Forms of the traffic organisation. Rules for the traffic description and modelling. Factors affecting the traffic volume, their regulation and connection with safety.

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

Knowledge:

1. Knows the aims and research approaches to traffic engineering - [K1A_W21]

2. Knows terms from the scope of traffic engineering for the various means of transport - [K1A_W05]

3. Knows and properly interprets the fundamental parameters of the traffic and road - [K1A_W05]

4. Knows methods of the measurements, researches and analyses - [K1A_W06]

5. Knows the principles of traffic flow and its regulating - [K1A_W21]

6. Knows ways to care for the traffic safety and natural environment - [K1A_W24]

Skills:

1. Is able systemically to consider the system: human - vehicle - road and its surroundings   - [K1A_U18]

2. Is able to measure, research and analyse the basic traffic parameters   - [K1A_U01]

3. Is able to specify the road and traffic conditions, and to determine the basic road parameters - [K1A_U01]

4. Is able to define the need and scope of modelling, simulation and traffic control   - [K1A_U18]

5. Is able to formulate the traffic priorities taking the safety and environment into consideration   - [K1A_U16]

Social competencies:

1. Is able to work in a team in carrying out measurements and studying their results - [K1A_K04]

2. Is able to define priorities for the traffic system designing - [K1A_K05]

3. Understands the need for systemically work on the traffic projects - [K1A_K01]

4. Understands the purpose of applying the careful resolutions owing to the safety and environment - [K1A_K02]

Assessment methods of study outcomes

Lectures: credit on the grounds of written tests

Exercises: individual reports from the performed measurements and researches of road traffic

Course description

Basic terms of the traffic engineering. The purpose, scope and methods of traffic engineering. Fundamental traffic parameters: the flow rate (volume), the density and the flow velocity. The road and traffic (actual driving) conditions, and the road capacity. Drivers and road users features, and the factors affecting the human behaviour. Vehicle characteristics. The road transport infrastructure. The objectives of road traffic measurements. Types of the measurements and tests. Measurement methods and their recording. Compilation of the measurement results, their analysis and visualization. Traffic modelling and simulation. General classification of the traffic models. Characteristics of essential models. Introduction to the numerical road simulations. The road capacity and its elements. Levels of service. The capacity determination - road traffic case studies. Capacity of roads, streets and junctions (with rights of way, roundabouts, and traffic lights). Development strategies for transportation and traffic. Instruments for implementing the transport policy. Traffic management (the aims, means and methods). Organisation of traffic and its designing. Charges and road tolling. The road traffic steering: control and signalling systems. Traffic lights: the purposes of applying and the justification for installation. The advantages and disadvantages. Types of signalling and its coordination. Traffic supervision systems. The public transport: preferences, priorities and the economic, social and environmental effects. The methods and means of a favouring treatment. The parking: types, organisation and control. The road safety: the evidence and statistics gathered from accidents, factors, analyses and assessments. Broad lines of action. Tasks and solutions. Ecology of transport.

Basic bibliography:

1. Guca S., Suchorzewski W., Tracz M., Inżynieria ruchu drogowego, teoria i praktyka, Warszawa, WKiŁ 2009

2. Datka S., Suchorzewski W., Tracz M., Inżynieria ruchu drogowego, Warszawa, WKiŁ 1999

Additional bibliography:

1. Komar Z., Wolek C., Inżynieria ruchu drogowego ? wybrane zagadnienia, Wrocław, WPW 1994

2. Szczuraszek T. (ed.), Bezpieczeństwo ruchu miejskiego, Warszawa, WKiŁ 2008

Result of average student's workload

Activity	Time (working hours)
1. Participation in lectures	15
2. Lecture consultations	1
3. Preparing for tests	8
4. Admission to the testing	0
5. Participation in classes	15
6. Class exercise consultations	1
7. Preparing for the credit	1
8. Admission to credit tests	0

Student's workload

Source of workload	hours	ECTS
Total workload	41	2
Contact hours	32	2
Practical activities	0	0