International University of Logistics and Transport in Wrocław

Leading					
Item	**Land traffic engineering**				
Module	**W**	**ECTS points**	**5**	**Reference number of the study program**	**L/2024/SPS/S/P - L/2024/SPS/N/P**

Direction	**Specialty**	**Academic year**
LOGISTICS	**Transport safety**	
Term	V	**Year of study** III

Form of studies	**Stationary**				**Part-time**			
Form of classes	**Lecture**	**Exercises**	**Laboratories**	**Design**	**Lecture**	**Exercises**	**Laboratories**	**Design**
Number of hours	**16**	**14**		**12**	**12**	**12**		**9**
TOGETHER	**42**				**33**			

Objective of the course	The course aims to familiarize students with the principles of land traffic systems and methods for their analysis and optimization. It develops skills in using mathematical and computer tools to evaluate transportation processes. It also prepares students for decision-making in traffic organization and management.

Minimum knowledge required from the student before starting classes

Basic knowledge of mathematics (algebra, elements of probability theory), basic logistics and general knowledge of transport systems and computer operation.

Recommended literature to study before starting classes

Dastbaz M. 2015: Green Information Technology: A Sustainable Approach, Elsevier LTD, Oxford

SUBJECT-SPECIFIC LEARNING OUTCOMES (SLE)			**KEU**	**EVALUATION METHODS**	
	CODE	**FORM**	**CODE**	**CODE**	**FORM**
KNOWLEDGE	**W01**	Possesses basic knowledge of mathematics and statistics enabling the formulation and solution of simple problems occurring in logistics and traffic engineering.	K1_W05_L_P	MO2	Written exam in the form of a closed, single-choice test
	W02	Knows the economic, social, technical and legal conditions related to the functioning of transport and logistics systems.	K1_W09_L_P	MO4	Written exam in the form of open tasks
	W03	Has basic knowledge of the technical aspects of logistics, including transport, warehousing and IT infrastructure, as well as the use of modern technologies in logistics systems.	K1_W11_L_P	MO4	Written exam in the form of open tasks
SKILLS	**U01**	Is able to use basic mathematical and probabilistic tools to describe and analyze transport problems and apply information technologies to plan, forecast and evaluate logistics processes.	K1_U03_L_P	MO6	Written test in the form of a closed, single-choice test
	U02	Is able to analyse and evaluate the quality, safety and efficiency of transport and logistics processes, as well as conduct basic economic analyses of projects.	K1_U06_L_P	MO7	Written test in the form of a closed, single-choice test
	U03	Is able to analyze logistics and transport processes and use supply chain management tools and indicators, taking into	K1_U11_L_P	MO11	Passing the report
SOCIAL COMPETENCES	**K01**	Is ready to properly set priorities and effectively organize his/her own and team work when carrying out tasks.	K1_K01_L_P	MO14	Continuous assessment (ongoing preparation for classes)

Subject content	Lecture	Introduction to Civil Traffic Engineering, Transport Systems – Structure and Functions, Road Traffic Characteristics, Road Infrastructure Capacity Analysis, Road Traffic Control and Traffic Lights – Design Principles, Road Safety, Road Accidents – Analysis and Prevention, Urban Transport and Mobility Management, Intelligent Transport Systems (ITS), Transport Infrastructure and Its Importance, Transport Planning and Traffic Forecasting, Transport and the Environment, The Future of Transport – Logistics 4.0 and Automation
	Exercises	Calculation of basic traffic parameters, Road capacity calculations, Traffic safety assessment, Road accident analysis, Transport cost analysis, Transport efficiency indicators, ITS case study, Transport infrastructure analysis, Transport environmental impact assessment, Application of IT tools in traffic analysis
	Laboratories	
	Projects	Traffic light design, road capacity calculations, traffic data analysis

Teaching methods	**CODE**	**FORM**
	MD2	Informative lecture using multimedia techniques
	MD10	Case method
	MD16	Laboratory exercises – solving tasks and problems

Compulsory literature	1	Brauneis. F 2024: Intellectual Property Protection of Fact based Works Copyright and Its Alternatives, Wydawnictwo Edward Elgar Publishing Ltd, Londyn
	2	Helmold M, Yilmaz A, Dathe T, Flouris T. 2022: Supply Chain Risk Management: Cases and Industry Insights, Wydawnictwo Springe,m Warszawa
Additional literature	1	Szafranek R. 2023: The Power of Changing a Workplace: How to Create a Resilient Culture Where People and Business Flourish, Wydawnictwo HR Hints, Kraków

Conditions for passing the course
Passing the Civil Engineering course requires attendance and active participation in classes (lecture, tutorials, and laboratory). Completion and submission of reports and presentation of work are the basis for passing the tutorials. The final grade is composed of the lecture grade (30%), tutorial grade (30%), and laboratory grade (30%) of the final grade.