

**EDUCATIONAL INSTITUTION:** KLAIPĖDA STATE UNIVERSITY OF APPLIED SCIENCES  
**FACULTY OF TECHNOLOGIES**  
**STUDY PROGRAMME:** TECHNOLOGY OF LAND TRANSPORT  
**NAME OF THE SUBJECT:** INFORMATION TRANSPORT SYSTEMS

Group of the subject*	Type of the subject**	Form of studies	Structure***				Total number of hours	Number of credits
			T	P	C	I		
SF	A	Full-time studies (FT)	30	9	3	38	80	3
		Part-time studies (PT)	12	6	24	38		

\*Group of the subject: GS — general study subjects; SF — subjects of the study field.

\*\*Type of the subject: C — compulsory subject; A — optional subject (alternative), FE — freely elective subject.

\*\*\*Structure: T — theory; P — seminars, workshops, laboratory works; C — consultations; I — individual work.

**Is it necessary to prepare for the studies of the subject?** Unnecessary

#### Annotation

The subject analyses SWOT analysis (strengths, weaknesses, opportunities and threats) of the performed installation of ITS in Lithuania, discusses the potential technical solutions of ITS installation, ITS planning and funding, overviews measures of ITS implementation in Lithuania until 2013 and investments that are necessary for the implementation of such measures, as well as the Intelligent Transport System, which is pretty new discipline, having different levels of acceptability, involvement and local adaptation in various countries. Transport specialists have to understand their opportunities and the best ways to implement them clearly. ITS contains all transport industries, taking into account all dynamically interoperable elements of the transport system, i.e. vehicles, infrastructure, a driver and a user.

#### The connection of results of the study programme with results of the study subject and study methods, as well as evaluation methods of the learning achievements

Results of the study programme	Results of the study subject	Study methods	Evaluation methods of the learning achievements
3. A student will be able to assess the structure of a transport system, its elements and their interoperability by designing technological processes of freight transport and passenger transport.	3.1. A student will be able to present information transport systems, their advantages and development opportunities.	An involving lecture, practical works, individual works, work in the groups, an individual work and analysis of literature.	Presentation and defence of workshops (1-5), presentation of individual works (1-3), presentation of individual/group report, answering to questions and examination in writing.
	3.2. A student will be able to determine impact of the information transport systems on the flows of cargoes and passengers.	An involving lecture, situation analysis, practical works, individual works, an individual work and analysis of literature.	Presentation and defence of workshops (1-5), presentation of individual works (1-3), presentation of individual/group report, answering to questions and examination in writing.
7. A student will be able to manage technological process of shipment optimally by assessing conditions of freight transport, processes in the logistics system, efficiency of mechanisms performing loading works and technical condition of vehicles.	7.1. A student will be able to select new information transport systems by designing technological processes of shipment.	An involving lecture, situation analysis, practical works, individual works, work in the groups and analysis of literature.	Presentation and defence of workshops (1-5), presentation of individual works (1-3), presentation of individual/group report, answering to questions and examination in writing.
	7.2. A student will be able to assess safety and quality of applied information transport systems in the shipment processes.	An involving lecture, situation analysis, practical works, individual works, work in the groups, an individual work and analysis of literature.	Presentation and defence of workshops (1-5), presentation of individual works (1-3), presentation of individual/group report, answering to questions and examination in writing.

## Contents and scope of the subject

Topic name and content description	Number of the contact hours, FT form			Number of the contact hours, PT form			I	Total number of hours
	T	P	C	T	P	C		
<b>1. Concept of the information system.</b> Primary components and functions of information system. Description of the information system.	2	-	-	1	-	1	2	4
<b>2. Logistics and resource management of “ArcGIS” software solution, as well as its opportunities</b> <i>An individual work No 1.</i> Logistics and data analysis of resource management.	2			-	-	2	3	5
<b>3. An overview of historical development of the information system.</b> Development of information processing. An automated design. Production control. Service sector. Development of information transport technologies and systems <i>An individual work No 2.</i> Analysis of information transport systems.	2	-	-	1	-	1	2	4
<b>4. Processing of transport information.</b> Information processes. Information codes. Databases. An integrated processing system of transport information. Electronic data processing.	2	-	-	1	-	1	3	5
<b>5. Peculiarities of information system implementation in the transport undertaking.</b> Design of information systems. Hardware of information system. Software of information system. Impact of information systems on the transport undertaking and its management. Potential problems of information system implementation in the undertaking. <i>Workshop No 1.</i> Operation and comparative analysis of digital and analogue tachographs	2	2	-	1	1	2	2	6
<b>6. Information transport systems.</b> Classification of information transport systems. Electronic logistics. Online electronic transport exchange. Information transit systems. “GALILEO” satellite system. Presentation of “ArcGIS” software platform and its opportunities <i>Workshop No 2.</i> Work with “ArcGIS” software.	4	2	-	2	1	3	5	11
<b>7. Information systems of freight transport undertakings.</b> Order fulfilment system of freight transport. Application of satellite systems used to track freight transport around the world. Satellite systems used to track and control vehicles in Lithuania. Route planning software for transport undertakings. Other software used in the freight transport undertakings. Navigation, tracking of vehicle locations in real-time and overview of travel history; <i>Workshop No 3.</i> Analysis of satellite tracking systems, performed by applying “ArcGIS” software. <i>Workshop No 4.</i> Route planning by using “ArcGIS” software	2	3	-	1	2	2	3	8
<b>8. Information systems of passenger transport undertakings</b> Organisation of public transport system. Importance of research of urban transport for the information systems. Work modelling of passenger transport by taxi cars. Electronic ticket of the public transport.	2	-	-	1	-	1	2	4
<b>9. Information systems of freight forwarding undertakings.</b> Information factors applied in the freight forwarding undertakings. International information systems of the freight forwarding undertakings.	2	-	-	-		2	2	4
<b>10. Information management systems of transport</b>	2	2	-	1	2	1	2	6

<b>terminals.</b> Information logistics systems, used to manage freight terminals. Electronic gate control system. Warehouse management systems. <b>Workshop No 5.</b> Analysis of “KIPIS” software								
<b>11. Information systems of rail transport.</b> Development of information systems. Information technologies and systems, used for freight transport. <b>An individual work No 2.</b> Analysis of information transport systems, applied in the rail transport.	4	-	-	1	-	3	2	6
<b>12. Information systems of multimodal transport.</b> Systems used in the multimodal transport. Types of information systems of multimodal transport.	2	-	-	1	-	1	3	5
<b>13. Intelligent transport management systems.</b> Overview of intelligent transport systems. Areas of use and relevance of intelligent transport systems. <b>An individual work No 3.</b> Analysis of intelligent transport systems	2	-	-	1	-	1	2	4
Preparation for the examination	-	-	3	-	-	3	5	8
<b>Total number of hours</b>	<b>30</b>	<b>9</b>	<b>3</b>	<b>12</b>	<b>6</b>	<b>24</b>	<b>38</b>	<b>80</b>

#### Assessment system of results of the subject studies

<b>Assessment criteria of results of the study subject</b>
A student presents information transport systems, their advantages and development opportunities in various modes of transport.
A student assesses impact of information transport systems on the performance of freight and passenger technological process.
A student selects the latest and the most advanced information transport systems in order to perform technological process of shipment.
A student assesses safety and quality of applied information transport systems in the shipment processes.

#### Procedure of evaluation

A ten-point criterial grading system and cumulated grading are applied.

$$IKV = \sum_i^n x_i \times k_i ,$$

Where:

n – number of interim assessments,

Xi – evaluations for interim assessments and examination,

ki – weighted coefficients of interim assessments and examination.

$$IKV = X_1 \cdot 0.2 + X_2 \cdot 0.2 + X_3 \cdot 0.2 + X_4 \cdot 0.4,$$

Where:

X<sub>1</sub> – grading average (0.2) of 5 practical works;

X<sub>2</sub> – grading average (0.2) of 3 seminars;

X<sub>3</sub> – grading average (0.2) of 3 individual works;

X<sub>4</sub> – evaluation of examination (0.4).

#### Recommended literature and other information sources

Primary literature and information sources			
No	Literature and information sources	Number of copies	
		At the library of the Faculty of Technologies	At other libraries of Klaipeda State University of Applied Sciences
1.	Batarlienė N. (2011). Information transport systems. Vilnius, Technika	8 E-book	2
	Keršys A. (2013). Darni transporto plėtra. Lietuvos edukologijos universiteto leidykla.	E-book	-
2.	Baltoji knyga: Grūstys – netolygaus transporto rūšių pasiskirstymo	-	-

	pasekmė (2000). Briuselis		
3.	Bocij P., Chaffey D., Greasley A., Hickie S. (2003). <i>Business Information Systems. Technology, Development and Management for the e-business</i> . London: Harlow.	1	1

Additional literature and information sources			
No	Literature and information sources		
1.	Jarašiūnienė A. (2008). <i>Intelektualiosios transporto sistemos</i> . Vilnius, Technika		
2.	Ilgalaikė (iki 2025 m.) Lietuvos transporto sistemos plėtros strategija. Susisiekimo Ministerija		
3.	LR Elektroninių ryšių įstatymas. Lietuvos Respublikos seimas		

**Description of the subject was prepared by:**

Lecturer _____ (Position)	_____ (Signature)	Vida Jokubynienė _____ (Academic degree, name and surname)
---------------------------------	----------------------	--