

**Subject card**

<b>Subject name and code</b>	Transport systems and processes , PG_00199001						
<b>Field of study</b>	Economics						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2028/2029		
<b>Education level</b>	Bachelor's studies	<b>Subject group</b>			Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	3	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	6	<b>ECTS credits</b>			5.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			exam		
<b>Conducting unit</b>							
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr hab. Ryszard Rolbiecki				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	30.0	15.0	0.0	15.0	0.0	60
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	60		0.0		65.0	125
<b>Subject objectives</b>	The subject aims to familiarize students with the basic industry terminology, essence, systematics, principles of development of transport systems as a whole, taking into account the integration of individual transport subsystems and the role of transport infrastructure as a basic, next to means of transport, factor of production of transport services. The subject also aims to present mechanisms related to the functioning of the transport market, including costs of providing services, price formation, transport exchanges. In addition, the subject aims to identify transport processes, their specificity and importance in supply chains in the light of growing needs (demand for transport) and requirements of cargo operators.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[EKONL3_W02] has an advanced knowledge of the different types of existing business entities and organisations and public institutions	The student has advanced knowledge of entities and institutions responsible for shaping the development and functioning of the transport system, as well as entities operating in the TSL sector	[SW4] test/exam - oral or written
	[EKONL3_W07] has an advanced knowledge of the economic and financial principles of the functioning and management of economic entities and organisations as well as the legal, organisational, moral and ethical norms and rules governing the functioning of public institutions	The student has advanced knowledge of the principles of development and mechanisms of operation of transport systems.	[SW4] test/exam - oral or written
	[EKONL3_U01] can correctly interpret economic and social phenomena and apply knowledge of economics, finance and management sciences to explain economic phenomena	The student is able to correctly interpret the processes and phenomena occurring in the transport system and use the acquired knowledge in practical applications.	[SU4] test/exam - oral or written
	[EKONL3_U03] is able to analyse the causes and course of specific economic and social processes and phenomena, and accurately analyse these phenomena using adequate methods and tools economic and social	The student is able to explain the causes and course of transport processes and phenomena using adequate research tools and methods.	[SU4] test/exam - oral or written
	[EKONL3_K04] is willing to think and act in an entrepreneurial manner; adapts to new situations and conditions, takes on the challenges of creative thinking, is resilient in the face of failure, is able to identify risks and assess the risks of failure	The student has the competence to creatively propose solutions to identified problems related to the development of the transport system and the course of transport processes	[SK4] test/exam - oral or written
[EKONL3_W04] knows the types of economic and social ties and the regularities governing them	The student has knowledge about the processes and phenomena occurring in the transport system and market and is able to identify the relationships and regularities between them.	[SW4] test/exam - oral or written	
Subject contents	<ol style="list-style-type: none"> <li>1. The essence and systematics of transport systems</li> <li>2. Integration of transport subsystems</li> <li>3. Transport infrastructure management,</li> <li>4. Mobility management</li> <li>5. Functioning of transport exchanges</li> <li>6. The essence of transport processes</li> <li>7. Market processes in transport</li> <li>8. Demand and supply in the transport market</li> <li>9. Transport costs and price formation</li> <li>10. Innovative processes in transport</li> </ol> <p>Any doubts regarding the issues discussed during classes can be discussed during consultations.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Correctness of answers given to test questions or oral examination questions	51.0%	100.0%

Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Rustamov K., Rustamova N., Nazarov A., Abdukodyrova M., (2024), The State of the Transport Services Market and Development Trends, RESEARCH ARTICLE, <a href="https://www.researchgate.net/profile/Nodira-Rustamova/publication/378892505_The_state_of_the_transport_services_market_and_dev_links/66003e2fd3a08551424536c4/The-state-of-the-transport-services-market-and-development-trends.pdf">https://www.researchgate.net/profile/Nodira-Rustamova/publication/378892505_The_state_of_the_transport_services_market_and_dev_links/66003e2fd3a08551424536c4/The-state-of-the-transport-services-market-and-development-trends.pdf</a></li> <li>2. Van Wee B., Annema J.A., Banister D., Pudāne B., (2023), The transport system and transport policy: an introduction, Published by Edward Elgar Publishing Limited, USA, <a href="https://books.google.pl/books?hl=pl&amp;lr=&amp;id=k_DREAAAQBAJ&amp;oi=fnd&amp;pg=PR1&amp;dq=transport+sys+scientific+articles&amp;ots=SHsZFAPR_p&amp;sig=K8bT-4ciJZZBx7I69-JyQRlsees&amp;redir_esc=y#v=onepage&amp;q=transport%20systems%20-%20scientific%20articles&amp;f=false">https://books.google.pl/books?hl=pl&amp;lr=&amp;id=k_DREAAAQBAJ&amp;oi=fnd&amp;pg=PR1&amp;dq=transport+sys+scientific+articles&amp;ots=SHsZFAPR_p&amp;sig=K8bT-4ciJZZBx7I69-JyQRlsees&amp;redir_esc=y#v=onepage&amp;q=transport%20systems%20-%20scientific%20articles&amp;f=false</a></li> <li>3. Dai J. Alvarado R., Ali S., Ahmed Z., Saeed M. S. Meo (2023), Transport infrastructure, economic growth, and transport CO<sub>2</sub> emissions nexus: Does green energy consumption in the transport sector matter? Environmental Science and Pollution Research 30:4009440106, <a href="https://link.springer.com/article/10.1007/s11356-022-25100-3">https://link.springer.com/article/10.1007/s11356-022-25100-3</a></li> <li>4. Kadyraliev A., Supaeva G., Bakas B., et.al. (2022), Investments in transport infrastructure as a factor of stimulation of economic development, Transportation Research Procedia, Volume 63, 2022, Pages 1359-1369, <a href="https://www.sciencedirect.com/science/article/pii/S235214652200401X">https://www.sciencedirect.com/science/article/pii/S235214652200401X</a></li> </ol>
	Supplementary literature	<ol style="list-style-type: none"> <li>1. Matile S., Jentzsch A.V., Montenegro J., Fina A., (2011), Recent synthetic transport systems, Chemical Society Reviews, vol. 40, n° 5, p. 24532474</li> <li>2. Sokolov Y., Efimova O., Lavrov I., Pokrovskaya O., (2019), Investigation of the market potential of transport and logistics services in the 1520 space, IOP Conference Series: Earth and Environmental Science <a href="https://iopscience.iop.org/article/10.1088/1755-1315/403/1/012213/pdf">https://iopscience.iop.org/article/10.1088/1755-1315/403/1/012213/pdf</a></li> <li>3. Skorobogatova O., Kuzmina-Merlino I., (2017), Transport Infrastructure Development Performance, Procedia Engineering 178 ( 2017 ) 319 329</li> </ol>
	eResources addresses	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Explain the essence and structure of the transport system</li> <li>2. How can we assess the level of infrastructure development in individual transport sectors in Poland compared to other EU countries?</li> <li>3. What are the trends in the development of the transport market in individual transport sectors?</li> <li>4. Discuss the course of the transport process using a selected transport sector as an example</li> <li>5. What is the significance of transport exchanges in the functioning of supply chains?</li> <li>6. The significance and directions of innovation in the development of means of transport</li> </ol>	
Work placement	Not applicable	

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