



Subject card

Subject name and code	CONTROL IN TRANSPORT SYSTEMS, PG_00045917						
Field of study	Transport						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Transportation Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Jacek Oskarbski				
	Teachers		mgr inż. Karol Źarski mgr inż. Patrycja Jerzyło dr inż. Sławomir Grulkowski dr hab. inż. Jacek Oskarbski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	45		5.0		25.0	75
Subject objectives	To acquaint and develop knowledge of the students with the control and management systems of air, water, rail and road transport.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W05] has basic knowledge of control in transport systems		Student acquires knowledge on control and management in transport systems.		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	[K7_U11] able to design elements of transport infrastructure for road, rail, air and water, traction systems for urban transport and long-distance vehicles, apply advanced teleinformatic technologies in transport and logistic systems		The student is able to solve detailed issues concerning transport systems management and transport infrastructure management with the use of control systems.		[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		
Subject contents	Basics of management and control for all areas of transport. Management, supervision and control of transport systems. Control tasks and methods of solving control problems. Traffic control in transport as a control element in large systems. Types of transport process control. Control functions. Methods and tools in the process of controlling air, water, rail and road vehicles. Infrastructure of control systems. Road, rail, air, sea traffic control - common features and differences. Modern technologies in transport control. Information technology in the process of transport control. Control procedures. Legal regulations in the area of transport control.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lectures - exam	60.0%	60.0%
	Laboratory	100.0%	40.0%
Recommended reading	Basic literature	<p>1. Jamroz K. i inni.: Systemy sterowania ruchem ulicznym. WKŁ, 1984 r.</p> <p>2. Krystek R. i inni: Komputerowe systemy sterowania ruchem ulicznym i drogowym. Przykłady zastosowań. WKŁ 1984</p> <p>3. Gaca S., Suchorzewski W., Tracz M.: Inżynieria Ruchu Drogowego WKŁ 2008</p> <p>4. Malarski M.: Inżynieria Ruchu Lotniczego OWPW, 2005</p> <p>5. M. Dąbrowa-Bajon: Podstawy sterowania ruchem kolejowym. Funkcje, wymagania, zarys techniki. OWPW 2007</p> <p>6. S. Gucma: Inżynieria ruchu morskiego. Okrętownictwo i Żegluga Sp. z o.o., Gdańsk 2001</p> <p>7. Jacyna M.: Modele wielokryterialne w zastosowaniu do oceny systemów transportowych. Wyd. Pol. Warszawskiej, Warszawa 2002.</p>	
	Supplementary literature	Periodics: TTransport Miejski i Regionalny, Transport Szynowy Przegląd Transportowy	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<p>1. Air transport control systems (navigation systems, landing systems, rescue systems, etc.) Structure, tasks, responsibilities of air traffic services and airspace and aerodrome control. . Procedures and regulations</p> <p>2. Control-command and signalling in railway transport (basics of railway traffic organisation, organisation of services, control-command and signalling systems, diagnostic systems, information systems for travellers, equipment structure, level crossings, local and regional Train Management Centre). Structure of metro vehicle management and control systems. . Procedures and regulations .</p> <p>3. Water transport control systems (e.g. AIS, VTS). Organisation of water transport services. Procedures and regulations. 4. Traffic control in road transport (examples of selected control systems).</p> <p>5. integration of control systems in different modes of transport.</p>		
Work placement	Not applicable		