

Card of Course

Description of course	
Code of course	-
Name of course	Basics of Telecommunication
Version of course	2024/2025
A. Place of the course in system of studies	
Level of education	Pre - Intermediate
Form and mode of studies	Full-time studies
Field of studies	Transport
Profile of studies	General academic profile
Specialisation	Main field
Place of teaching of course	Faculty of Transport
Place of realization of course	Department of Telecommunication in Transport
Coordinator of course	PhD. Eng. Karolina Krzykowska-Piotrowska
B. General characteristic of the course	
Block of courses	Main field
Group of courses	General
Level of course	Pre - Intermediate
Status of course	Faculty with limited choice
Language of course	English
Nominal semester	
Academic year	2024/2025
Preliminary requirements	Basic knowledge of information and communication technologies and transport system engineering.
Limit of students	24
C. Effects of education and manner of teaching	
Purpose of course	This course will cover fundamentals of digital communications and networking. We will study the basics of information theory, sampling and quantization, coding, modulation, signal detection and system performance in the presence of noise. The concepts taught in class will be discussed in the context of aerospace communication systems: aircraft communications, satellite communications, and deep space communications.
Effects of education	See Table 1.
Form of didactic studies and number of hours per week	
Lecture	-
Exercise type of course	-
Laboratory	-
Project type of course	1
Contents of education	This course focuses on the modern systems in telecommunication, time - frequency representation of telecommunication signals as continuous signals and digital signals. It consist also subjects such as: channel coding, block codes and convolutional codes. Selected topics of information theory: bit rate, the entropy of information, Shannon's theorem, the error rate are mentioned during the course. Classification modulation and Code modulation - PCM Pulse modulation are practiced too. Understanding the basic concepts of identifying sources, processing, transmission in telecommunication systems.

	Understanding the chosen alternative for the processing and transmission of information.
Methods of evaluation	Presentation, discussion, practical classes (laboratories)
Methods of verification of effects of education	See Table 1.
Exam	No
Literature	<p>[1] Telecommuniactions basics, www.wndw.net, pdf.</p> <p>[2] M.K. Khan, Telecommunication Systems. Modelling, Analysis, Design and Management. ISSN: 1018 – 4864.</p> <p>[3] E. Bohlin, Telecommunications Policy. Elsevier 2014.</p> <p>[4] J. G. Proakis, Fundamentals of Telecommunications, Roger L. Freeman. Published by John Wiley & Sons, Inc. 1999.</p> <p>[5] U.S. Department of Transportation Federal Highway Administration, Telecommunications Handbook for Transportation Professionals. The Basics of Telecommunications Final Report September, 2004.</p> <p>[6] J. N. Pelton, S. Madry, S. Camacho-Lara, Handbook of satellite applications, Springer, 2012.</p>
Website of the course	http://www.wt.pw.edu.pl/Studenci/International-Office-Erasmus-Programme/Incoming-students
D. Student's activity	
Number of credits ECTS	5
Number of hours of student's job for achievement of education's effect (description):	20 hours – project 5 hours - academic teacher consulting 30 hours – students work
Number of credits ECTS on the course with direct participation of academic teacher	2
Number of credits ECTS on practical activities on the course	3
E. Additional information	
Notes	
Date of last edition	2024/11/20

Table 1. General academic profile

Course's effects		Field effects	Area effect
Knowledge			
Effect:	Has knowledge of mathematics, physics, and other areas concerning of major, useful for wording and resolving simple problems of major range.	Tr1A_W01	T1A_W01, T1A_W07
Code of effect:	W_01		
Verification:	Resolving mathematical tasks on the subject, discussion.		

Effect:	Has basic knowledge about recent and relevant requirements relating to designing simple transport telematics services.	Tr1A_W02	T1A_W01
Code of effect:	W_02		
Verification:	Resolving mathematical tasks on the subject, discussion.		
Skills			
Effect:	Has the ability to demonstrate the process of transport telematics project management.	Tr1A_U01	T1A_U01
Code of effect:	U_01		
Verification:	Mathematical tasks, discussion.		
Effect:	Acquire knowledge to show the possible application of learned elements.	Tr1A_U03	T1A_U02 T1A_U03 T1A_U04
Code of effect:	U_03		
Verification:	Presentation.		
Social competences			
Effect:	Are conscious of significant impact of telecommunication in transport telematics. Is aware of advantages and risks of using modern technologies in transport.	Tr1A_K06	T1A_K07
Code of effect:	Tr1A_K06		
Verification:	Discussion.		