Card of Course

Description of course	
Code of course	-
Name of course	Chosen problems of the light techniques in the transport - laboratory
Version of course	2024/2025
A. Place of the course in system of studies	
Level of education	basic
Form and mode of studies	Erasmus+ Program
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 Information and Mechatronic Systems in Transport
Coordinator of course	*Piotr Tomczuk PhD., Eng, prof. PW, Faculty of Transport, Division of Information and Mechatronic Systems in Transport*
B. General characteristic of the course	
Block of courses	Main field
Group of courses	General
Level of course	Intermediate
Status of course	Faculty with limited choice
Language of course	English
Nominal semester	----------
Academic year	2024/2025
Preliminary requirements	Electrotechnics
Limit of students	12
C. Effects of education and manner of teaching	
Purpose of course	The aim of the course is to present the issues of lighting technology and the characteristics and diagnostic components of the lighting in the means of transport and transport infrastructure
Effects of education	See Table 1.
Form of didactic studies and number of hours	
Lecture	-
Exercise type of course	-
Laboratory	15 hours
Project type of course	-
Contents of education	The basic idea of the individual and the size of the lighting technology. Lighting problems in transport. Photometric requirements, standards. The processes of vision and perception on the road. Stationary street lighting, roads and tunnels. Automotive lighting devices. The light source. The rules for defining color. Measuring devices in lighting technology. Testing of the headlamp of the vehicle. Diagnosis of optical components-light. Photometric measurements and tests. Development trends in the lighting of vehicles and roads. Industrial lighting. Exercise programme: 1. Introduction to the course, lesson regulations, 2 hours. 2. Measurement of motor vehicle headlamps, 2 hours

	3. Signal light measurements, 2 hours 4. Light output measurements, 2 hours 5. Room illumination measurements, 2 hours 6. Light colour measurements, 2 hours 7. Radiation spectrum measurements, 2 hours 8. Discussion of the contents of the final report and pass mark of 1 hour.
Methods of evaluation	Final research report
Methods of verification of effects of education	See Table 1.
Exam	No
Literature	[1] W J M van Bommel, Road lighting : fundamentals, technology and application 2015 [2] Lumen V4 : IIIrd Conference of the Visegrad Countries on Lighting : Czech Republic, Brno, hotel Santon, 23-25 June 2010 [3] Application meets technology in lighting : Lux Europa Kraków 2013 : 12th European Lighting Conference, 17-19 September 2013 [4] Kevin Van den Wymelenberg Christopher Meek, Daylighting and integrated lighting design 2015 [5] D A Schreuder; Adriana Morris, Road lighting for safety 1998 [6] R Boyce Human factors in lighting Peter 2014 [7] Lighting for driving : roads, vehicles, signs and signals Peter R Boyce 2009 [8] Andreas Sumper; Angelo B Baggini Electrical energy efficiency : technologies and applications 2012
Website of the course	www.knest.pw.edu.pl/tomczuk > strefa studenta
D. Student's activity	
Number of credits ECTS	3
Number of hours of student's job for achievement of education's effect (description):	Laboratory practical tests 15; Study with the literature 10; Preparation for classes in the laboratory 8; Development of laboratory test results 10; Preparing a final research report 12; Consultation 5; Total 60 hrs. <-> 3 points. ECTS
Number of credits ECTS on the course with direct participation of academic teacher	Laboratory tests 15; Consultation 5, Total 20 hours. <-> 1 point. ECTS
Number of credits ECTS on practical activities on the course	0 pkt. ECTS
E. Additional information	
Notes	Subject of the rules adopted by the Department Elective of the list of additional subjects or Erasmus students for the academic year 2024/2025.
Date of last edition	2024.11.19

Table 1. General academic profile

Course's effects	Field effects	Area effect

Knowledge			
Effect:	He has expertise in the operation of the lighting in transport	Tr1A_W12	T1A_W02
Code of effect:	W_01		
Verification:	The written research report		
Skills			
Effect:	Able to identify and define the lighting requirements for the operation of the lighting in the transport	Tr1A_U20	T1A_U01
Code of effect:	U_01		
Verification:	The written research report		
Social competences			
Effect:	Able to set priorities and identify and resolve dilemmas related to the set by yourself or other tasks	Tr1A_K04	T1A_K02 T1P_K02
Code of effect:	KS_01		
Verification:	Part in the discussion in the classroom - conversation		

Approved by

Regulations of classes

1. Attendance at classes is obligatory.
2. During the first classes there is a training in occupational health and safety. Only students who are familiar with the regulations may take part in laboratory exercises.
3. The person conducting the classes prepares and launches exercises at the position. The task of the students is to correctly read the results and carry out the measurement.
4. The student does not make any connections of electrical equipment.
5. During each class, research is conducted and each student prepares an individual report.
6. The report is assessed on the assessment, each exercise separately.
7. Each exercise must be passed for a positive assessment
8. The grade from the report is the arithmetic mean of the grades received from the individual classes.
9. Participation in each class is required, as well as a positive assessment of the report.
10. Only students officially enrolled in a group take part in the classes.