



## Subject card

Subject name and code	Wiring Systems and Lighting Technology, PG_00053195						
Field of study	Electrical Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
Education level	first-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	3		Language of instruction		Polish -		
Semester of study	5		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Stanisław Czapp				
	Teachers		prof. dr hab. inż. Stanisław Czapp  dr inż. Kornel Borowski  dr inż. Krzysztof Dobrzyński				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	30.0	0.0	60
	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	60		5.0		35.0	100
Subject objectives	Acquiring basic skills in designing electrical installations.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_K02		Student performs calculation of lighting illuminance, also with the use of specialist software. Student performs selection of protective devices and conductors.		[SK2] Assessment of progress of work		
	K6_U10		Individually performs project of electrical installation.		[SU4] Assessment of ability to use methods and tools		
	K6_W11		Student specifies types of electrical lighting sources and describes its construction. Specifies basic photometric quantities. Student specifies types of conductors and protective devices. Analyses costs of installations operation with various types of electrical lighting sources.		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	LECTURE Electrical installation. Low-voltage distribution and equipment. Wiring systems. Cables and cable components. Cables in fire hazard. Overcurrent and earth-leakage protection. Fuses and circuit-breakers applications. Motor control gear, contactors and protective relays, solid state equipment, remote control schemes. Discrimination, back-up protection, series rated system. Protection and control of current-using equipment. Installation planning examples: domestic premises, public buildings, high-rise buildings, hospitals, intelligent building. Electric lighting. Light and vision. Photometric quantities, units and concepts. Colour qualities, colour temperature and colour rendering index. Types of light sources and luminaries. Construction and operation, properties. Distortion of voltage and current. Lighting design technology. Calculations of illumination. Selection luminaries. Economic factors. Maintenance costs.		
	PROJECT Performance of the project of electrical installation in building. The scope of the project is also lighting calculation using DIALux software.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam	50.0%	50.0%
	Project	100.0%	50.0%
Recommended reading	Basic literature	1. Bąk J. Pabjańczyk W.: Podstawy techniki świetlnej. Politechnika Łódzka, Łódź 1994. 2. Markiewicz H.: Instalacje elektryczne. PWN, Warszawa, 2018. 3. Musiał E.: Instalacje i urządzenia elektroenergetyczne. WSiP, Warszawa, 2008. 4. Żagan W.: Podstawy techniki świetlnej. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2005.	
	Supplementary literature	1. Gabryjelski Z., Kowalski Z.: Sieci i urządzenia oświetlniowe. Politechnika Łódzka, Łódź 1997. 2. Żagan W.: Iluminacja obiektów. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2003	
	eResources addresses	Adresy na platformie eNauczanie: INSTALACJE ELEKTRYCZNE I TECHNIKA OŚWIETLENIOWA [2023/24] - Moodle ID: 30006 <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=30006">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=30006</a>	
Example issues/ example questions/ tasks being completed	Test:  1. The mark 36W/960 on the fluorescent lamp informs that:  a) This is the lamp with colour temperature equal to 960 K  b) This is the lamp with colour temperature equal to 9600 K  c) This is the lamp with colour rendering index equal to 96  2. The mark YAKY 5×120 mm <sup>2</sup> informs that:  a) This is one power cable with five conductors  b) These are five power cables (each with one conductor)  c) This is power cable with identical cross-section of phase conductors, and conductor PE has cross-section equal to 120 mm <sup>2</sup>		
Work placement	Not applicable		