GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Wiring Systems and Lighting Technology, PG_00053185		
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	Part-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	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	20.0	0.0	0.0	10.0	0.0	30

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	30	7.0	63.0	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 [Niestacjonarne][2023/24] - Moodle ID: 30008 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30008

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^2 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^2

Work placement

Not applicable