GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Intelligent electrical installations, PG_00059860
Field of study	Automation, Robotics and Control Systems

Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment

Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering
Name and surname of lecturer (lecturers)	Subject supervisor — dr inż. Krzysztof Dobrzyński
	Teachers —

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	15.0	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	10.0	45.0	100

Subject objectives	Mastering selected issues of design electrical installations in which the intelligent building system is used.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W06] knows the structure of computers and microprocessors and the tasks of operating systems, has basic knowledge of the basics of computer software, drivers, microprocessor technology, design of simple algorithms and the operation of information networks	The student is able to define the basic algorithms of operation of intelligent electrical installations.	[SW1] Assessment of factual knowledge
	[K6_W11] knows the hazards arising from devices, installations, systems and technical systems, basic principles of occupational health and safety, taking into account the role of control and security systems in controlling automation and robotics facilities	The student knows the basic principles of safe work with low voltage devices.	[SW1] Assessment of factual knowledge
	[K6_K05] can think and act in an entrepreneurial way	The student is able to identify devices for implementing selected functionalities of intelligent electrical installations.	[SK5] Assessment of ability to solve problems that arise in practice
	[K6_U04] has the ability to self-educate, among other things, in order to improve professional qualifications	The student is able to find information useful in determining the operation of intelligent installations.	[SU1] Assessment of task fulfilment
	[K6_W07] has basic knowledge related to control and automation systems	The student is able to design selected functionalities in an intelligent electrical installation.	[SW1] Assessment of factual knowledge

Subject contents	Functions of building automation systems. Principles of operation of decentralized intelligent building systems on the example of the KNX system. Design and execution of a classic electrical installation in coordination with the KNX installation. PV micro-source installations and electric car charging installations as part of the Smart Grid network in buildings. Principles of designing photovoltaic installations.
Prerequisites and co-requisites	Fundamentals of electrical engineering.

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Ocena z projektu	60.0%	50.0%
	Lecture colloquium	60.0%	50.0%

Recommended reading	Basic literature	1. H. Markiewicz: Instalacje elektryczne, WNT Warszawa 1996 (i późniejsze). 2. Poradnik inżyniera elektryka, WNT Warszawa 2011 (tom 3), 2007 (tom 2). 3. Musiał E.: Instalacje i urządzenia elektroenergetyczne. WSiP, Warszawa, 2008. 4. Budynek inteligentny Praca pod red. E. Niezabitowskiej WPŚ Gliwice 2014, Tom I, Tom II 5. P. Petykiewicz Nowoczesna instalacja elektryczna w inteligentnym budynku. COSIW Warszawa 2001. 6. Krzysztof Duszczyk i inni. Inteligentny budynek Poradnik projektanta, instalatora i użytkownika. PWN Warszawa 2019 7. Podstawowe systemy bezpieczeństwa w budynkach inteligentnych. WPŚ, Gliwice 2005 8. N SEP-E-002 Instalacje elektryczne w obiektach budwlanych. Instalacje elektryczne w obiektach mieszkalnych. Warszawa 2006. 9. Parol M., Mikrosieci niskiego napięcia, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2013
	Supplementary literature	1. Teaching materials - Satel Sp. z o.o. 2. Instalacje przeciwpożarowe - Edward Skiepko (Zeszyty dla elektryków nr 5) Medium, 2010 3. PN-HD 60364-8-2: Instalacja elektryczna niskiego napięcia, Część 8-2: Niskonapięciowe instalacje elektryczne prosumenta
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Selection of wire cross-section and protection for an example lighting circuit in an installation cooperating with an intelligent building system.
Work placement	Not applicable