



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 2021	Academic year of realisation of subject			2023/2024		
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	dr inż. Krzysztof Dobrzyński prof. dr hab. inż. Stanisław Czapp					
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_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		
	[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_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_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_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		
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
	Lecture colloquium	60.0%	50.0%
	Ocena z projektu	60.0%	50.0%
Recommended reading	Basic literature	<p>1. H. Markiewicz: Instalacje elektryczne, WNT Warszawa 1996 (i późniejsze).</p> <p>2. Poradnik inżyniera elektryka, WNT Warszawa 2011 (tom 3), 2007 (tom 2).</p> <p>3. Musiał E.: Instalacje i urządzenia elektroenergetyczne. WSiP, Warszawa, 2008.</p> <p>4. Budynek inteligentny Praca pod red. E. Niezabitowskiej WPS Gliwice 2014, Tom I, Tom II</p> <p>5. P. Petykiewicz Nowoczesna instalacja elektryczna w inteligentnym budynku. COSIW Warszawa 2001.</p> <p>6. Krzysztof Duszczyk i inni. Inteligentny budynek Poradnik projektanta, instalatora i użytkownika. PWN Warszawa 2019</p> <p>7. Podstawowe systemy bezpieczeństwa w budynkach inteligentnych. WPS, Gliwice 2005</p> <p>8. N SEP-E-002 Instalacje elektryczne w obiektach budowlanych. Instalacje elektryczne w obiektach mieszkalnych. Warszawa 2006.</p> <p>9. Parol M., Mikro sieci niskiego napięcia, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2013</p>	
	Supplementary literature	<p>1. Teaching materials - Satel Sp. z o.o.</p> <p>2. Instalacje przeciwpożarowe - Edward Skiepmo (Zeszyty dla elektryków nr 5) Medium, 2010</p> <p>3. PN-HD 60364-8-2: Instalacja elektryczna niskiego napięcia, Część 8-2: Niskonapięciowe instalacje elektryczne prosumenta</p>	
	eResources addresses	<p>Adresy na platformie eNauczanie: INTELLIGENTNE INSTALACJE ELEKTRYCZNE [2023/24] - Moodle ID: 36027 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36027</p>	
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		