



Subject card

Subject name and code	Engineering of Alarm Systems, PG_00038416						
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		
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		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Metrology and Information Systems -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Ariel Dzwonkowski				
	Teachers		dr inż. Ariel Dzwonkowski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	0.0	10.0	0.0	0.0	20
	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	20		2.0		28.0	50
Subject objectives	To familiarize students with issues related to the construction and operation of alarm systems.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_W11		The student explains the principles of operation of the basic devices of burglary and assault signaling systems. The student describes the structure and operation of alarm control panels and selects appropriate devices for use in burglary and assault signaling systems. The student discusses the purpose and principle of operation of monitoring stations. The student configures and programs the devices of the intruder alarm system. The student presents the purpose and lists the types of basic notification systems.		[SW3] Assessment of knowledge contained in written work and projects		
	K6_U04		The student correctly installs, starts, configures and programs simple alarm systems. The student designs an alarm system for a small facility. The student explains the purpose of closed-circuit television systems and describes the principle of operation of CCTV system devices.		[SU4] Assessment of ability to use methods and tools		

Subject contents	LECTURE An overview of alarming systems devices. Detectors - types, principles of operation. Sirens and equipment for notification. Alarm systems - rules for the selection of equipment, levels of security. Access control systems - an overview of devices, principles of selection. Control panels - construction, principle of operation, programming and configuration using external devices. Remote controlling the operations of alarming systems. Notification devices - GSM, Ethernet. Monitoring stations - construction, working principles, transmission channels, the software. Wireless systems - rules for the selection of equipment, systems configuration. Transmission Reliability - distorted and undistorted signals. CCTV systems - an overview of solutions, equipment parameters, configuration and optimization of the system. LABORATORY EXERCISES Programming and running of control panels CA-10, INTEGRA, VERSA series Connection, programming and running of ACCO access control system and wireless system ABAX. Practical verification of the configuration, connection and programming of alarm systems.		
Prerequisites and co-requisites	Knowledge of electronic and electrical devices Ability to connect electrical and electronic circuits.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory - the marks obtained during the course and points of reports	60.0%	40.0%
	Lecture - two tests during the semester, each of 45 minutes	60.0%	60.0%
Recommended reading	Basic literature	1. Mikulik, Jerzy: Podstawowe systemy bezpieczeństwa w budynkach inteligentnych, Wydawnictwo Politechniki Śląskiej, Gliwice 2005. 2. Wójcik, Andrzej: Mechaniczne i elektroniczne systemy zabezpieczeń. Fachowy poradnik dla: projektantów, instalatorów, producentów, inwestorów, agencji ochrony mienia, użytkowników.	
	Supplementary literature	1. SATEL training materials.	
	eResources addresses	Adresy na platformie eNauczanie: INŻYNIERIA SYSTEMÓW ALARMOWYCH [Niestacjonarne][2023/24] - Moodle ID: 32237 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32237	
Example issues/ example questions/ tasks being completed	1. Construction and operation of PIR detectors. 2. Construction and operation of dual motion detectors. 3. Replace the functions performed by the control panel. 4. Introduce types of power reserve for use in alarm systems. 5. Introduce the definition of the alarm system. 6. Describe the class of alarm systems. 7. What are the manipulators in alarm systems? 8. What is the function performs matrix switcher? 9. Introduce access class access control systems. 10. What types of cameras are used in CCTV systems?		
Work placement	Not applicable		