



Subject card

Subject name and code	Circuits and Signals - laboratory, PG_00047566						
Field of study	Automatic Control, Cybernetics and Robotics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2025/2026		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		1.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Marine Electronic Systems -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Piotr Grall				
	Teachers		dr inż. Piotr Grall				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	0.0	0.0	15
	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	15		1.0		9.0	25
Subject objectives	Equipping a student with knowledge and skills acquired in studying the basics of analogue circuits and signals. The knowledge is sought to be useful in further professional studies and practice.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W04] knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices		Student - designs simple systems (dividers, attenuators, filters, inverting and non-inverting amplifiers, etc.), - linearizes non-linear elements, - uses computer programs for circuit analysis and design		[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
	[K6_W05] Knows and understands, to an advanced extent, methods of supporting processes and functions, specific to the field of study		Student - measures parameters of electrical components and circuits, - uses Fourier series to analyze circuits stimulated by periodic waveforms, - uses computer programs to analyze circuits		[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
Subject contents	Periodic signal spectrum. Spectrum modification by passing a periodic signal through a linear and nonlinear circuit. Transmission long delay-line. Attenuator. Resonant circuit. Nonlinear cuircuit. Passive lowpass Butterworth, Chebyshev and Bessell filters, and active filters. Time-domain and frequency domain characteristics.						
Prerequisites and co-requisites	No requirements						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Midterm short tests		51.0%		40.0%		
	Reports		51.0%		60.0%		
Recommended reading	Basic literature		J. Osiowski i J. Szabatin: Podstawy teorii obwodów, tomy I-III. WNT Warszawa 1993 (tom I i tom II) i 1995 (tom III) i wydania kolejne.				
	Supplementary literature		No requirements				
	eResources addresses		Adresy na platformie eNauczanie:				

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable