



Subject card

Subject name and code	Electric Circuit II, PG_00038390						
Field of study	Electrical Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2021/2022		
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	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Joanna Wołoszyn				
	Teachers		dr inż. Joanna Wołoszyn				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	20.0	0.0	0.0	0.0	40
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie:						
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	40		5.0		80.0	125
Subject objectives	Modeling of electrical systems by electrical circuit. Consolidate knowledge about methods analyze a variety of electrical circuits. Understanding the phenomena in electrical systems on the basis of circuit models.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_U04		can solve tasks from single and three-phase AC circuits.		[SU4] Assessment of ability to use methods and tools		
	K6_W03		knows methods of solving single and three-phase AC circuits.		[SW3] Assessment of knowledge contained in written work and projects		
	K6_K05		can react in emergency situations when using electrical devices		[SK5] Assessment of ability to solve problems that arise in practice		
Subject contents	Single-phase alternating current circuits in steady state: the complex numbers in the analysis of AC circuits, phasor diagrams of voltages and currents, the analysis of two-terminal elements (RLC serial connections, parallel and mixed). Active and reactive power, power factor, power triangle. Analysis of complex AC circuits, calculation of power balance. Resonance in electrical circuits. Magnetic coupling, mutual inductance. Ferromagnetic core transformer - principle of operation and the equivalent circuit. Passive filters - amplitude frequency characteristics. Three-phase AC circuits in steady state: three-phase circuits symmetrical and asymmetrical, three-phase load connected in star and delta. Power in three-phase circuits.						
Prerequisites and co-requisites	Knowledge of the subject Mathematics and knowledge of the subject Electrical circuits I						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Midterm colloquium		50.0%		40.0%		
	The written examination		50.0%		60.0%		

Recommended reading	Basic literature	<p>1. Kurdziel R.: Podstawy Elektrotechniki. WNT, Warszawa 1972</p> <p>2. Bolkowski S.: Teoria obwodów elektrycznych. WNT Warszawa.</p> <p>3. Bolkowski S. i in. : Zbiór zadań z elektrotechniki teoretycznej. WNT Warszawa.</p> <p>4. Horiszny J. i in. : Obwody elektryczne w stanie ustalonym. Zbiór zadań. Wydawnictwo PG. Gdańsk 2005</p>
	Supplementary literature	<p>1. Mikołajuk K., Trzaska Z.: Elektrotechnika teoretyczna - analiza i synteza elektrycznych obwodów liniowych. PWN Warszawa.</p> <p>2. Cichocki A. i in. : Zbiór zadań z elektrotechniki teoretycznej. PWN Warszawa</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	The calculation of the currents in the DC circuit. Calculation of currents in the AC circuit. Calculation of the power of circuit components. The adjustment of the circuit parameters to achieve a specific desired value of the given output parameter of the circuit. The calculation of currents and voltages in a circuit with the loads of the given nominal values. Determination of the resonant frequency of the circuit. Determination of the amplitude characteristics of the passive filter. The calculation of currents and voltages in a circuit with a transformer. Calculate the current in the symmetrical 3-phase circuit.	
Work placement	Not applicable	