

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Selected issues in electrical engineering		Code 1010315421010326992
Field of study Power Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 2
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: - Classes: - Laboratory: 10 Project/seminars: -		No. of credits 1
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 1 100% 1 100%
Responsible for subject / lecturer: dr hab. inż. Andrzej Tomczewski email: Andrzej.Tomczewski@put.poznan.pl tel. 61 665 2788 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		Responsible for subject / lecturer: dr inż. Jerzy Frackowiak email: jerzy.frackowiak@put.poznan.pl tel. 616652382 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge in the field of fundamentals of electrical engineering and metrology.
2	Skills	Skill in effective application of theoretical knowledge to practice.
3	Social competencies	Consciousness of the need for widening own competences.
Assumptions and objectives of the course: Recognition of practical problems related to fundamentals of electrical engineering. Acquisition of practical skill in choosing the elements making part of an electric circuit, connecting the circuit and its analysis.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Describe operation of three-phase symmetric and asymmetric system. - [K_W03 ++] 2. Perform frequency analysis of LC and RC four-terminal networks and to specify the differences in their operation conditions. - [K_W05 ++, K_W05 ++] 3. Describe the structure and operation principle of non-linear elements, to characterize their current-voltage characteristics, and dynamic and static resistances. - [K_W03 ++]		
Skills:		
1. Make use of the knowledge in the scope of fundamentals of electrical engineering, the methods of choosing the parts of an electric circuit, analysis, and assessment of its operation. - [K_U09+] 2. Work individually and in teams, to formulate a report of the measurement results. - [K_U03+] 3. Analyze operation of an electric circuit. - [K_U07+]		
Social competencies:		
1. Ability in independent thinking and creative activity. - [K_K01 +]		
Assessment methods of study outcomes		

<p>Laboratory exercises: ? checking and promoting the knowledge of the problems necessary for carrying out the exercises in the sphere of definite laboratory tasks, ? assessment of the knowledge and skill related to fulfilling the exercise, assessment of the exercise report.</p> <p>Additional points may be achieved for activity during the classes, particularly for: ? proposal of discussion of additional solutions of the problem; ? ability of cooperation in teams.</p>		
Course description		
<p>Operation of three-phase symmetric, three- and four-conductor systems in delta- or star-connection. Analysis of voltage distribution and current flow in three-phase systems at asymmetric supply and load. Recognition of properties of electric filters of LC and RC types. Properties of the filters used in D.C. power suppliers and their assessment. Studies and analysis of current-voltage characteristics and dynamic and static resistances of various non-linear elements.</p>		
Basic bibliography:		
<p>1. Frąckowiak J. , Nawrowski R., Zielińska M. "Podstawy elektrotechniki. Laboratorium", Wydawnictwo Politechniki Poznańskiej, Poznań 2011 2. Bolkowski S. "Teoria Obwodów elektrycznych", WNT. Warszawa 1998 3. Kurdziel R. "Podstawy Elektrotechniki", WNT, Warszawa, 1973</p>		
Additional bibliography:		
<p>1. Krakowski M. "Elektrotechnika teoretyczna", PWN, Warszawa 1978</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. participation in laboratory classes	10	
2. participation in consultation	5	
3. test/exam	2	
4. preparation for laboratory exercises	5	
5. carrying reports out	5	
6. preparing to test/exam	3	
Student's workload		
Source of workload	hours	ECTS
Total workload	30	1
Contact hours	17	1
Practical activities	20	1