

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Elektrical Engineering		Code 1010601131010320426
Field of study Mechanical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 3
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 1 Classes: - Laboratory: 1 Project/seminars: -		No. of credits 4
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 %) 4 100% 4 100%
Responsible for subject / lecturer: Dr inż. Grzegorz Twardosz email: grzegorz.twardosz@put.poznan.pl tel. +4861 665-2768 Wydział Elektryczny ul. Piotrowo 3A, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	basic knowledge of physics, chemistry and mathematics at the high school level
2	Skills	logical thinking, the use of information obtained from the literature and the Internet
3	Social competencies	understanding the need for learning and acquiring new knowledge
Assumptions and objectives of the course: Understanding the basics of operation and practical use of equipment, electrical machinery and electronic components and systems		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Attitudes theoretical and practical electrical circuits DC and AC - [K1A-W02] 2. Theoretical basis and practical measures for electrical equipment, transformers and electrical machines and power system - [K1A-W15]		
Skills:		
1. Able to obtain information from the literature, the Internet, databases and other sources - [K1A-U03] 2. Be able to choose the type of electrical device to the needs of the functions of the proposed installation - [K1A-U09]		
Social competencies:		
1. Understands the need and knows the possibilities of continuous improvement - [K1A-K01] 2. Aware of the responsibility for collaborative tasks in teamwork, therefore, be able to work with a group - [K1A-K04] 3. He is aware of the validity of the behavior in a professional manner and comply with the principles of professional ethics - [K1A-K05]		
Assessment methods of study outcomes		

<p>Lecture: Colloquium in the field of fundamental rights and electrical troubleshooting electrical circuits, DC and AC, and the construction and operation of selected electrical equipment ..</p> <p>Laboratory: Assessment based on the response of oral and / or written in the field of exercise and the reports of the exercises (indicated by the teacher). To complete the exercises are necessary positive evaluation of all answers and statements? negative evaluation should be improved.</p>		
Course description		
<p>Lecture: The course program includes the following topics: Circuits DC and AC single-phase and three-phase. Power and energy consumption. Methods for solving electrical circuits DC and AC. Measurement and electrical measurements. Transformers and electrical machines. Power system. Methods of protection against electric shock.</p> <p>laboratory:</p> <p>1 Research DC circuits containing elements of linear and non-linear. The test circuits second sinusoidal elements R, L and C. 3 Measurements of power and energy in a single and three-phase circuits. 4 The study of single-phase transformer. 5 study phase induction motor. 6 The study of semiconductor diodes and rectifiers and filtration systems.</p>		
Basic bibliography:		
<p>1. Władysław Opydo: Elektrotechnika i elektronika dla studentów wydziałów nieelektrycznych, Wydawnictwo Politechniki Poznańskiej, Poznań, 2005.</p> <p>2. Władysław Opydo, Kurt Kulesza, Grzegorz Twardosz: Urządzenia elektryczne i elektroniczne. Przewodnik do ćwiczeń laboratoryjnych, Opydo W., Kulesza K., Twardosz G, Wydawnictwo Politechniki Poznańskiej, Poznań, 2004.</p>		
Additional bibliography:		
<p>1. Bogdan Miedziński: Elektrotechnika. Podstawy i instalacje elektryczne, Wydawnictwo Naukowe PWN, Warszawa 1997.</p> <p>2. Praca zbiorowa: Vademecum elektryka. COSiW.SEP.Warszawa.2005</p>		
Result of average student's workload		
Activity	Time (working hours)	
Student's workload		
Source of workload	hours	ECTS
Total workload	100	4
Contact hours	35	0
Practical activities	15	0