

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Electrical installations		Code 1010325441010321941
Field of study Power Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 4
Elective path/specialty Ecological Source of Electrical Energy	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: 8 Classes: - Laboratory: 8 Project/seminars: 8		No. of credits 3
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 %) 3 100% 2 100%
Responsible for subject / lecturer: Prof. dr hab. inż. Władysław Opydo email: wladyslaw.opydo@put.poznan.pl tel. 616652685 Elektryczny ul. Piotrowo 3A, 60-965 Poznań		Responsible for subject / lecturer: Dr inż. Arkadiusz Dobrzycki email: arkadiusz.dobrzycki@put.poznan.pl tel. 616652685 Elektryczny ul. Piotrowo 3A, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of electrical engineering and power engineering.
2	Skills	Ability to use a spreadsheet. Ability to effectively self-education in a field related to the chosen field of study.
3	Social competencies	Is aware of the need to broaden their competence, willingness to work together as a team.
Assumptions and objectives of the course: Knowledge of the principles of design and construction and operation of the installation and low-voltage distribution networks. Learning the ways of the design documentation for the installation of electrical equipment.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. It has a basic and systematic knowledge of construction, design and operation of electrical systems and networks, and knows the methods and equipment used during the periodic testing of electrical installations. - [K_W04++,K_W05+, K_W09+] 2. He knows the electrical design methodologies used for this purpose software, and versed in modern technology installation - [K_W04++,K_W05+]		
Skills:		
1. It can compare different variants of the power users and consumers due to the higher set of criteria, as well as how to develop project documentation for the installation of electric, this can indicate aspects of occupational health and safety. - [KU_12+] 2. He can choose the method and tools, and perform basic security research and wires used in electrical power systems. - [KU_07++, KU_09+]		
Social competencies:		
1. Is aware of the responsibility of the engineer-energy, in particular the impact of its activities on the safety of electrical installations, and also understands the need to provide information on the state of the installation of its users. - [K_K01+]		
Assessment methods of study outcomes		

<p>Lecture: ? assess the knowledge and skills listed on the written exam, ? continuous evaluation for each course (rewarding activity and quality perception).</p> <p>Laboratory: ? rewarding the knowledge necessary for the accomplishment of problems in the area of laboratory tasks, ? assessment of knowledge and skills related to the implementation of the tasks your practice, including an assessment report on the performed exercise.</p> <p>Accounting classes and design: ? continuous evaluation for each course - rewarding gain skills they met the principles and methods ? assessment of the final design for the electrical system, ? assess the current progress of the project, as well as active participation in class</p> <p>Get extra points for the activity in the classroom, and in particular for: ? propose to discuss further aspects of the subject; ? diligence aesthetic design of the project.</p>	
Course description	
<p>Electrical equipment of low voltage electrical installations, and their characteristics and parameters. Principles of construction, design, operation and testing low-voltage electrical installations providing security protection, shock protection for low-voltage electrical installations Rules rescue of persons affected by electricity. The use of software engineering in the design of electrical installations.</p> <p>Applied methods of teaching: lectures - multimedia presentations (including drawings, photos, animations, sound, films) supplemented by examples given on the whiteboard, interactive lecture with questions to students or specific students, lecture Initiation of discussion, consideration of various aspects of the presented issues, including: economic, ecological, legal, social, etc., presentation of a new topic preceded by a reminder of related content known to students from other subjects; laboratory - demonstration, self-execution; laboratory - demonstration, self-execution; project - analysis of various technical solutions and aspects of solving problems, including: economic, ecological, legal, social, etc., detailed review of the project documentation by the project leader and commentary discussions, case study, teamwork.</p>	
<p>Basic bibliography:</p> <ol style="list-style-type: none"> 1. Markiewicz H.: Instalacje elektryczne, WNT, Warszawa 2012. 2. Lejdy B.: Instalacje elektryczne w obiektach budowlanych, WNT, Warszawa 2003. 3. Niestępski S., Parol M., Pasternakiewicz J., Wiśniewski T.: Instalacje elektryczne. Budowa projektowanie i eksploatacja, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2011. 4. Orlik W.: Egzamin kwalifikacyjny elektryka w pytaniach i odpowiedziach, KaBe S. C., Krosno 2011. 	
<p>Additional bibliography:</p> <ol style="list-style-type: none"> 1. Normy i rozporządzenia związane z instalacjami elektrycznymi. 2. Tematyczne strony internetowe. 3. Katalogi producentów oprzewodowania i aparatów instalacyjnych. 	
Result of average student's workload	
Activity	Time (working hours)
1. participation in lectures	8
2. participation in laboratory classes	8
3. participate in project classes	8
4. participation in consultations related to lectures	3
5. participation in consultations related to laboratory	3
6. participation in consultations related to project	4
7. preparing the project	10
8. preparing to laboratories	10
9. preparing a report s from laboratories	10
10. preparing to exam	10
11. preparation for inclusion laboratories / projects	10
12. participation in the completion of auditory laboratories / projects	4
13. participation in the exam	2
Student's workload	

Source of workload	hours	ECTS
Total workload	90	3
Contact hours	40	2
Practical activities	67	3