

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Electrical Power Engineering		Code 1010321341010312426
Field of study Electrical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 4
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: 15 Classes: 15 Laboratory: 15 Project/seminars: -		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% 3 100%
Responsible for subject / lecturer: dr inż. Krzysztof Sroka email: krzysztof.sroka@put.poznan.pl tel. 61 665 22 75 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		Responsible for subject / lecturer: dr hab. inż. Ryszard Frackowiak email: ryszard.frackowiak@put.poznan.pl tel. 6652294 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of mathematics, physics and electrical engineering.
2	Skills	Programming principles of general. Ability to effective self education related to the chosen field of study.
3	Social competencies	Asense of the need to broaden the competence and willingness to work together in a team.
Assumptions and objectives of the course: Acquiring knowledge of structure and characteristics of electric power system. Knowledge of physical fundamentals of electric energy generation in various types of power plants. Methods and rules for electrical power networks calculations		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. General knowledge about the structure of the power system and the understanding of the processes of generation, transmission and distribution of electricity - [K_W24+++]		
2. Basic knowledge of energy conversion in various types of power plants, in particular, conventional and nuclear power plants - [K_W18++K_W08+]		
3. Knowledge and use of alternative patterns of power system components - [K_W08+]		
Skills:		
1. Able to evaluate the power generation technologies in terms of efficiency and environmental impact - [K_U12+]		
2. Able to perform basic calculations of currents and voltages in power system - [K_U11+]		
3. Able to test and diagnose simple energy systems and equipment - [K_U15+]		
Social competencies:		
1. Able to work in a group in the performance of laboratory tests and present the results of the work - [K_K06+]		
Assessment methods of study outcomes		

<p>Classes: - credit on the basis of the current check messages and two written tests of the accounting tasks</p> <p>Laboratory: - tests verifying needed knowledge to realisation indicated problems in some field of laboratory tasks, - grade of knowledge and skills related to realisation of laboratory tasks, grade of report, - collection of extra points of collaboration in frame of team realising laboratory tasks.</p>		
Course description		
<p>Characterization of the electric power system. Characterization of the process of electric energy generation in various types of power plants. Intermediate processes of energy conversion in conventional power plants. Energy conversion in nuclear power plants. Power system equivalent schemes. Calculation rules for power flow and voltage/power losses in simple networks.</p>		
Basic bibliography:		
<p>1. Pawlik M., Strzelczyk F.: Elektrownie, WNT W-wa 2012, 2017. 2. Kujarczyk Sz. (pod red.): Elektroenergetyczne sieci rozdzielcze, tom 1 i 2, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2004 r. Warszawa, 2004 r. 3. Kujarczyk Sz. (pod red.): Elektroenergetyczne układy przesyłowe, WNT, Warszawa, 1997</p>		
Additional bibliography:		
<p>1. Chmielniak T.: Technologie energetyczne, WNT W-wa 2014 2. Marecki J.: Podstawy przemian energetycznych, WNT W-wa 2014 3. Lewandowski W. M.: Proekologiczne źródła energii odnawialnej, WNT, W-wa 2012 4. Kacejko P., Machowski J.: Zwarcia w systemach elektroenergetycznych. WNT, Warszawa 2002</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. participation in the lectures	15	
2. participation in the laboratory exercises	15	
3. participation in the auditorium exercises	15	
4. preparation to the laboratory exercises	14	
5. preparation to the auditorium exercises	14	
6. preparation of practical exercises report	14	
7. participation in the consulting on the auditorium exercises and laboratory exercises	5	
Student's workload		
Source of workload	hours	ECTS
Total workload	92	3
Contact hours	50	2
Practical activities	42	1