

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Electrical Power Engineering</b>		Code <b>1010321351010312426</b>
Field of study <b>Electrical Engineering</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>3 / 5</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>15</b> Classes: <b>-</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>1</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>1 100%</b> <b>1 100%</b>
<b>Responsible for subject / lecturer:</b> dr inż. Krzysztof Sroka email: krzysztof.sroka@put.poznan.pl tel. 61 665 22 75 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		<b>Responsible for subject / lecturer:</b> dr hab. inż. Ryszard Frackowiak email: ryszard.frackowiak@put.poznan.pl tel. 61-665-229 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Basic knowledge of the mathematics, physics and theoretical electrotechnics and of the basic knowledge of electrical power engineering in the previous semester
2	<b>Skills</b>	Ability to effectively self-education in a field related to the chosen field of study
3	<b>Social competencies</b>	Is aware of the need to broaden their competence, willingness to work together as a team
<b>Assumptions and objectives of the course:</b> 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		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. It has a general knowledge of issues relating to distributed and non-conventional energy sources - [K_W24+++ K_W18++]		
2. It has basic information on the analysis of steady-state and short-circuit electric power systems - [K_W24+++]		
3. It has a basic knowledge of analysis of stability transmission and of quality of electricity supplied to - [K_W24+++]		
<b>Skills:</b>		
1. It can classify the electricity generation technologies and to analyze the efficiency of energy conversion occurring in different types of generation sources - [K_U20++K_U12++]		
2. Able to explain the basic principles of regulatory processes in the power system and to explain the functioning of the power protection automation - [K_W22++]		
<b>Social competencies:</b>		
1. Understand the need to promote energy efficiency and reducing harmful effects on the environment of the electricity sector - [K_K02++]		
<b>Assessment methods of study outcomes</b>		
- assess the knowledge and skills listed on the written exam, - continuous grading knowledge and skills on each lecture by discussion regarding actual problems in the electric power engineering.		

<b>Course description</b>		
Gas and gas-steam power plants Combined heat and power plants. Power plants using renewable energy sources. Essential requirements stood networks, reliability. Short-circuit analysis and standard based short-circuit calculations. Basics of power system stability.		
<b>Basic bibliography:</b>		
1. Pawlik M., Strzelczyk F.: Elektrownie, WNT W-wa 2012, 2017		
2. Kacejko P., Machowski J.: Zwarcia w systemach elektroenergetycznych. WNT, Warszawa 2002		
<b>Additional bibliography:</b>		
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. Kujszczyk Sz. (pod red.): Elektroenergetyczne sieci rozdzielcze, tom 1 i 2, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2004 r.		
5. Kujszczyk Sz. (pod red.): Elektroenergetyczne układy przesyłowe, WNT, Warszawa, 1997		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. participation in the lectures	15	
2. participation in consultations on the lecture	3	
3. preparation for the exam	12	
4. participation in the exam	3	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	33	1
Contact hours	21	1
Practical activities	0	0