

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Construction of electric power equipment		Code 1010314381010316932
Field of study Electrical Engineering	Profile of study (general academic, practical) general academic	Year /Semester 4 / 8
Elective path/specialty High Voltage Engineering	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 18 Classes: - Laboratory: 9 Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 2 100% 2 100%
Responsible for subject / lecturer: dr hab. inż. Zbigniew Nadolny, prof. nadzw. email: zbigniew.nadolny@put.poznan.pl tel. 61-665-2298 Wydział Elektryczny ul. Piotrowo 3A, 61-138 Poznań		Responsible for subject / lecturer: dr hab. inż. Hubert Morańda email: hubert.moranda@put.poznan.pl tel. +48-61-665-2272 Faculty of Electrical Engineering ul. Piotrowo 3A, 61-138 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	He/she has knowledge in frame of electrical engineering material science and knows fundamental principles regarding to theory of electrical circuits. He/she has knowledge in frame of high voltage engineering. He/she has knowledge in frame of overvoltage protection of buildings and electric power lines.
2	Skills	He/she can build simple electrical system. He/she can make measurements of physical properties describing high voltage engineering. He/she can make measurements of high voltage using various methods.
3	Social competencies	He/she can work and cooperate in group.
Assumptions and objectives of the course: To know fundamental principles related to contracture of electric power devices, such as insulators, transformers, capacities, cables, and GIS substations.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. He/she has knowledge in design, build principle of work of electric power devices. - [K_W08+++]		
2. He/she has knowledge related to contracture and principles of work of transformers and electrical machines. - [K_W13++]		
3. He/she has knowledge related to properties and applications of materials used in electric power devices. - [K_W23++]		
Skills:		
1. He/she can choose elements of electric power devices. - [K_U17++]		
2. He/she can build simple electric power devices. - [K_U19++]		
Social competencies:		
1. He/she understands various aspects and effect of activity of electrical engineers, considering the influence on environment, and responsibility of made decisions. - [K_K02++]		
Assessment methods of study outcomes		

<p>Lectures ? Assessment of knowledge and skills proved on tests, Laboratories: - Tests and preemie of knowledge which is necessary to realize fundamental tasks in some fields of laboratory, - Continuous assessment on each laboratory ? preemie of knowledge increase, - Assessment of knowledge and skills connected to realization of laboratory tasks, assessment of report.</p>		
Course description		
<p>Lecture consists of definitions related to design, choice of materials, build of devices such as insulators, power transformers, high voltage cables, capacitors, GIS substations. There are presented general information related to role of the devices. Laboratory consists of tasks related to contracture of mentioned electric power devices.</p> <p>Update 2017: - high voltage switches, - highj voltage fuses.</p>		
<p>Basic bibliography: 1. Glinka T., Maszyny Elektryczne i transformatory. Podstawy teoretyczne, eksploatacja i diagnostyka, Instytut Napędów i Maszyn Elektrycznych KOMEL, 2015. 2. Rakowska A., Linie kablowe prądu stałego, Wydawnictwo Politechniki Poznańskiej, Poznań, 2011. 3. Układy izolacyjne urządzeń elektroenergetycznych, praca zbiorowa, Wydawnictwa Naukowo-Techniczne, Warszawa, 1978. 4. Knotce S., Rozdzielnice wysokonapięciowe izolowane, Wydawnictwa Naukowo-Techniczne, Warszawa, 1976. 5. Szczepaniak Cz., Kondensatory prądu przemiennego, Wydawnictwa Naukowo-Techniczne, Warszawa, 1976. 6. Jezierski E., Transformatory. Podstawy teoretyczne, Wydawnictwa Naukowo-Techniczne, Warszawa, 1965.</p>		
<p>Additional bibliography: 1. Nadolny Z., Wpływ parametrów izolacji transformatora na skuteczność układu chłodzenia, Wydawnictwo Politechniki Poznańskiej, 2016.</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. Udział w zajęciach wykładowych	18	
2. Udział w zajęciach laboratoryjnych	9	
3. Udział w egzaminie	2	
4. Przygotowanie do egzaminu	12	
5. Konsultacje	2	
6. Przygotowanie do laboratorium	2	
7. Przygotowanie sprawozdań	5	
Student's workload		
Source of workload	hours	ECTS
Total workload	50	2
Contact hours	31	1
Practical activities	16	1