

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Construction of electric power equipment</b>		Code <b>1010311361010316932</b>
Field of study <b>Electrical Engineering</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>3 / 6</b>
Elective path/specialty <b>High Voltage Engineering</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>30</b> Classes: <b>-</b> Laboratory: <b>15</b> Project/seminars: <b>-</b>		No. of credits <b>3</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>3 100%</b> <b>3 100%</b>
<b>Responsible for subject / lecturer:</b> dr hab. inż. Zbigniew Nadolny, prof. nadzw. email: zbigniew.nadolny@put.poznan.pl tel. +48 61 665 2298 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		<b>Responsible for subject / lecturer:</b> dr hab. inż. Hubert Morańda email: hubert.moranda@put.poznan.pl tel. +48 61 6652035 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	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	<b>Skills</b>	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	<b>Social competencies</b>	He/she can work and cooperate in group.
<b>Assumptions and objectives of the course:</b> To know fundamental principles related to contracture of electric power devices, such as insulators, transformers, capacities, cables, and GIS substations.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
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++]		
<b>Skills:</b>		
1. He/she can choose elements of electric power devices. - [K_U17++]		
2. He/she can build simple electric power devices. - [K_U19++]		
<b>Social competencies:</b>		
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++]		
<b>Assessment methods of study outcomes</b>		

<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>		
<b>Course description</b>		
<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>		
<b>Basic bibliography:</b>		
<p>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>		
<b>Additional bibliography:</b>		
<p>1. Nadolny Z., Wpływ parametrów izolacji transformatora na skuteczność układu chłodzenia, Wydawnictwo Politechniki Poznańskiej, 2016.</p>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. Udział w zajęciach wykładowych	30	
2. Udział w zajęciach laboratoryjnych	15	
3. Udział w egzaminie	1	
4. Przygotowanie do egzaminu	20	
5. Konsultacje	5	
6. Przygotowanie do laboratorium	5	
7. Przygotowanie sprawozdań	5	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	81	3
Contact hours	51	2
Practical activities	25	1