STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Construction of electric power devices	**1010311261010316932**

Field of study	Profile of study (general academic, practical)	Year /Semester
Electrical Engineering	**(brak)**	**3 / 6**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
High Voltage Engineering	**polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
First-cycle studies	**full-time**

No. of hours	No. of credits
Lecture: **2** Classes: **-** Laboratory: **1** Project/seminars: **-**	**3**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
(brak)	**(brak)**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**3 100%**

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 60-965 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

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.

Course description

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.

Basic bibliography:

1. 1. Insulation systems of electric power devices, praca zbiorowa, Wydawnictwa Naukowo-Techniczne, Warszawa 1978.
2. 2. Knotce S., High voltage substations, Wydawnictwa Naukowo-Techniczne, Warszawa 1976.
3. 3. Jezierski E., Transformers. Theoretical fundamends, Wydawnictwa Naukowo-Techniczne, Warszawa 1965
4. 4. Szczepaniak Cz., AC capacitors, Wydawnictwa Naukowo-Techniczne, Warszawa 1976
5. 5. Rakowska A., DC cable lines, Wydawnictwo Politechniki Poznańskiej, Poznań 2011

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
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

Student's workload

Source of workload	hours	ECTS
Total workload	81	3
Contact hours	51	2
Practical activities	25	1