STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Computer aided design of equipment and installations**		Code **1010315341010317352**
Field of study **Electrical Engineering**	Profile of study (general academic, practical) **(brak)**	Year /Semester **2 / 4**
Elective path/specialty **Distribution Devices and Electrical**	Subject offered in: **Polish**	Course (compulsory, elective) **elective**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **part-time**	
No. of hours Lecture: **-** Classes: **-** Laboratory: **-** Project/seminars: **9**		No. of credits **1**
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 %) **1 100%** **1 100%**

Responsible for subject / lecturer:

Andrzej Książkiewicz
email: andrzej.ksiazkiewicz@put.poznan.pl
tel. 61 665 2584
Elektryczny
ul. Piotrowo 3A, 60-965 Poznań

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Has basic knowledge of numerical methods for solving simple engineer-type tasks in the electrical engineering area, is familiar with IT tools serving to accomplish numerical computations as well as to the analysis and design of chosen technical systems.
2	**Skills**	Is able to apply the acquired mathematical models and methods as well as computer simulations to analyze and assess operation of the electrical elements and systems.
3	**Social competencies**	Is able to think and act in the creative and enterprising way.

Assumptions and objectives of the course:

Getting knowledge of computer programming to simulate phenomena appearing in the electrical devices and installations in the steady and transient states. Acquisition of skills to model the true electric power devices and systems and to transfer the simulation results onto the true electric power systems.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Has expanded knowledge of the advanced numerical methods applied to solve the complex technical problems in electrical engineering. - [K_W02++]

Skills:

1. Is able to design electrical elements, devices and systems regarding preset application and economical criterions, and, if needed, can adapt the existing design methods or can develop the new design methods or a new computer-aided design tool. - [K_U12++]

Social competencies:

1. Is able to think and act in the creative and enterprising way. - [K_K01+]

Assessment methods of study outcomes

Assessment of the knowledge and skills related to the design task?s accomplishment.
Reaching extra points for activity during class, especially for:
- effectiveness of implementation of the knowledge acquired when solving a given problem;
- Ability to cooperate in the team accomplishing in practice a specific task;
- remarks related to the educational materials? enhancement;
- care and esthetic form of the works carried out individually.

Course description

Technical calculations and the building systems? design cases. Electric power devices operating conditions, finding the thermal capacity of devices under the normal and disturbed operating conditions, designing of the current path of switches and distribution devices, thermal and electro0dynamic calculations of distribution devices.

Basic bibliography:

1. Markiewicz H.: Instalacje elektryczne, WNT, Warszawa, 2001
2. Petykiewicz P.: Nowoczesna instalacja elektryczna w inteligentnym budynku, COSiW SEP Warszawa, 2001
3. Wiatr J., Orzechowski M.: Poradnik projektanta elektryka, Medium, 2008
4. Markiewicz H.: Urządzenia elektroenergetyczne, WNT, Warszawa, 2001
5. Maksymiuk J.: Aparaty elektryczne, PWN, Warszawa, 1995
6. Maksymiuk J., Pochanke Z.: Obliczenia i badania diagnostyczne aparatury rozdzielczej, wyd.1, WNT, 2001
7. Au A., Maksymiuk J., Pochanke Z.: Podstawy obliczeń aparatów elektroenergetycznych, WNT, 1995
8. Ciok Z.: Procesy łączeniowe w układach elektroenergetycznych, WNT, 1983
9. Ciok Z.: Przepięcia łączeniowe w układach elektroenergetycznych, PWN, 1972
10. Kacejko P., Machowski J.: Zwarcia w systemach elektroenergetycznych, WNT, 2002

Additional bibliography:

1. Brozi A.: Scilab w przykładach, Nakom, 2007
2. Janert P. K.: Gnuplot in action, Manning, 2010
3. Periodyki: Elektroinstalator, Elektroinfo
4. Poradnik inżyniera elektryka, WNT, 1997.
5. Katalogi firmowe.
6. Publikacje internetowe.
7. Normy przedmiotowe.

Result of average student's workload

Activity	Time (working hours)
1. Participation in class	9
2. Implementation of the project or sub-projects	8
3. General consultation, design consultation	3

Student’s workload

Source of workload	hours	ECTS
Total workload	20	1
Contact hours	12	1
Practical activities	17	1