STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Electrical installations in civil engineering**		Code **1010325341010325681**
Field of study **Power Engineering**	Profile of study (general academic, practical) **(brak)**	Year /Semester **2 / 4**
Elective path/specialty **Ecological Source of Electrical Energy**	Subject offered in: **polish**	Course (compulsory, elective) **obligatory**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **part-time**	
No. of hours Lecture: **12** Classes: **8** Laboratory: **8** Project/seminars: **8**		No. of credits **4**
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 %) **4 100%** **4 100%**

Responsible for subject / lecturer:

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Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledge of electrical engineering and power engineering.
2	**Skills**	Ability to use a spreadsheet. Ability to effectively self-education in a field related to the chosen field of study.
3	**Social competencies**	Is aware of the need to broaden their competence, willingness to work together as a team.

Assumptions and objectives of the course:

Knowledge of the principles of design and construction and operation of the installation and low-voltage distribution networks. Learning the ways of the design documentation for the installation of electrical equipment.

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

Knowledge:

1. It has a basic and systematic knowledge of construction, design and operation of electrical systems and networks, and knows the methods and equipment used during the periodic testing of electrical installations. - [K_W04++,K_W05+, K_W09+]
2. He knows the electrical design methodologies used for this purpose software, and versed in modern technology installation - [K_W04++,K_W05+]

Skills:

1. It can compare different variants of the power users and consumers due to the higher set of criteria, as well as how to develop project documentation for the installation of electric, this can indicate aspects of occupational health and safety. - [KU_12+]
2. He can choose the method and tools, and perform basic security research and wires used in electrical power systems. - [KU_07++, KU_09+]

Social competencies:

1. Is aware of the responsibility of the engineer-energy, in particular the impact of its activities on the safety of electrical installations, and also understands the need to provide information on the state of the installation of its users. - [K_K01+]

Assessment methods of study outcomes

Lecture:

? assess the knowledge and skills listed on the written exam,

? continuous evaluation for each course (rewarding activity and quality perception).

Laboratory:

? rewarding the knowledge necessary for the accomplishment of problems in the area of laboratory tasks,

? assessment of knowledge and skills related to the implementation of the tasks your practice, including an assessment report on the performed exercise.

Accounting classes and design:

? continuous evaluation for each course - rewarding gain skills they met the principles and methods

? assessment of the final design for the electrical system,

? assess the current progress of the project, as well as active participation in class

Get extra points for the activity in the classroom, and in particular for:

? propose to discuss further aspects of the subject;

? diligence aesthetic design of the project.

Course description

Electrical equipment of low voltage electrical installations, and their characteristics and parameters. Principles of construction, design, operation and testing low-voltage electrical installations providing security protection, shock protection for low-voltage electrical installations Rules rescue of persons affected by electricity. The use of software engineering in the design of electrical installations.

Basic bibliography:

1. Markiewicz H.,Instalacje elektryczne, WNT, Warszawa 2000.

2. Lejdy B. ,Instalacje elektryczne w obiektach budowlanych, WNT, Warszawa 2003.

3. Niestępski S., Parol M., Pasternakiewicz J., Wiśniewski T.: ,Instalacje elektryczne. Budowa projektowanie i eksploatacja, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2011.

4. Orlik W., Egzamin kwalifikacyjny elektryka w pytaniach i odpowiedziach, KaBe S. C., Krosno 1999.

Additional bibliography:

1. Normy i rozporządzenia związane z instalacjami elektrycznymi.

2. Internet.

Result of average student's workload

Activity	Time (working hours)
1. participation in lectures	12
2. participation in auditory classes	8
3. participation in laboratory classes	8
4. participate in project classes	8
5. participation in consultations related to lectures	3
6. participation in consultations related to auditory classes	3
7. participation in consultations related to laboratory	3
8. participation in consultations related to project	4
9. preparing the project	10
10. preparing to laboratories	10
11. preparing a report s from laboratories	10
12. preparing to exam	15
13. preparation for inclusion auditory classes / laboratories / projects	15
14. participation in the completion of auditory classes / laboratories / projects	6
15. participation in the exam	2

Student's workload

Source of workload	hours	ECTS
Total workload	177	4
Contact hours	57	2

Practical activities	59	2