



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Basics of electric devices operation

Course

Field of study

Safety Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

Ph.D., Eng. Arkadiusz Dobrzycki

Responsible for the course/lecturer:

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Engineering

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Prerequisites



The student has basic knowledge of mathematics and physics. The student is able to describe the basic dependencies and physical processes related to electricity and is aware of the importance of maintaining the principles of occupational health and safety in relation to machines and devices.

Course objective

Transfer of knowledge related to the use of electrical devices and the impact of these devices on the principles of safe work organization. Clarification of the need to update knowledge (renewed qualifications certificates) for people who operate electrical devices.

Course-related learning outcomes

Knowledge

1. The student knows the construction and operation of electrical installations and devices. [K1_W01]
2. The student knows the impact of electric current on the human body and knows the rules of safe operation of electrical devices [K1_W01]
3. The student knows the processes occurring in electrical devices that affect the safety of their use. [K1_W06]

Skills

1. The student is able to properly select the sources and information derived from them, on their basis to analyze, synthesize and evaluate problems related to the safe operation of electrical devices [K1_U01]
2. The student is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks, also with the use of information and communication methods and tools for the purpose of assessing the use of electrical devices [K1_U04]
3. The student is able to make a critical analysis of the functioning method and assess, in connection with Safety Engineering, the existing technical solutions, in particular machines, devices, facilities, systems, processes and services related to the use of electrical devices. [K1_U06]

Social competences

1. The student is able to see the cause-effect relationships in the implementation of the set goals and use the ranks in relation to the importance of alternative or competitive tasks, bearing in mind the principles of using electrical devices [K1_K01].
2. The student is aware of the importance of knowledge in solving problems in the field of safety engineering and continuous improvement also in the area of electricity use. [K1_K02]
3. The student is aware of the responsibility for their own work and readiness to submit to the rules of teamwork and responsibility for jointly performed tasks related to the operation of electrical devices [K1_K07].



Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

formative assessment:

Lecture: knowledge is verified by short tests after the third and sixth didactic units (test questions).

Passing threshold: 50% +1 points.

summary assessment:

Lecture: knowledge is verified through a written test on the basic concepts and problems of operating electrical devices. Passing threshold: 50% +1 points.

Programme content

Lecture: Basics of functioning of selected electrical machines and devices. Principles of exploitation of electrical machines and devices. Performing exploitation tests of electrical machines and devices and their interpretation. Requirements for people dealing with the operation of machines and devices. The impact of electric current on the human body. Legal and organizational conditions in the field of electrical engineering.

Teaching methods

Lecture: multimedia presentation illustrated with examples, informative lecture, seminar lecture.

Bibliography

Basic

1. Markiewicz H.: Instalacje elektryczne, WNT, Warszawa 2018.
2. Lejdy B.: Instalacje elektryczne w obiektach budowlanych, WNT, Warszawa 2019.
3. Niestępski S., Parol M., Pasternakiewicz J., Wiśniewski T.: Instalacje elektryczne. Budowa projektowanie i eksploatacja, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2019.
4. Markiewicz H.: Bezpieczeństwo w Elektroenergetyce, WNT, Warszawa 2021.
5. Normy i rozporządzenia związane z ochroną przeciwporażeniową.

Additional

1. Tytyk E., Bezpieczeństwo i higiena pracy, ergonomia i ochrona własności intelektualnych; Wydawnictwo Politechniki Poznańskiej, Poznań, 2017
3. Horst W., Ryzyko zawodowe na stanowisku pracy, Część I. Wyd. Politechniki Poznańskiej, Poznań, 2004
5. Orlik W.: Egzamin kwalifikacyjny elektryka w pytaniach i odpowiedziach, KaBe S. C., Krosno 2011.



Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	15	1,0
Student's own work (literature studies, preparation for tests) ¹	35	1,0

¹ delete or add other activities as appropriate