COURSE DESCRIPTION CARD - SYLLABUS

Course name
Safety of machine power systems [S1IBiJ1>BUZM]

Course

Field of study
Safety and Quality Engineering

Year/Semester
2/3

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

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 safe use of power supply systems for electrical devices and the impact of these devices on the principles of safe work organization. Clarification of the need to update knowledge (renewal of qualification certificates) for people involved in the operation of electrical equipment as an element of safe use and power systems.

Course-related learning outcomes

Knowledge:
1. The student knows the construction and operation of electrical installations and devices [K1_W01].
2. The student knows at an advanced level issues in the field of quality systems and technical safety, including occupational health and safety rules, and understands how these systems prevent threats and minimize their effects. [K1_W02].

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 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 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].

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

Principles of operation of selected electrical machines and devices, their power supply and principles of exploitation.

Course topics

Lecture: Fundamentals of operation of selected electrical machines and devices and their power supply systems. Principles of exploitation of electric systems. Performing exploitation tests of installations supplying electric machines and their interpretation. Requirements for people dealing with the operation of power systems and machines. The impact of electric current on the human body. Legal and organizational conditions in the area of electric 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	2,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	35	1,50