# COURSE DESCRIPTION CARD - SYLLABUS

Course name
Electrical installations [S1Elmob1>IE2]

## Course

Field of study
Electromobility

Year/Semester
3/5

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

## Number of hours

Lecture
15

Laboratory classes
0

Other (e.g. online)
0

Tutorials
0

Projects/seminars
15

## Number of credit points

3,00

## Coordinators

dr inż. Arkadiusz Dobrzycki
arkadiusz.dobrzycki@put.poznan.pl

## Lecturers

## Prerequisites

A student starting this course should have basic knowledge in the field of electrical engineering, power engineering, as well as the ability to use a spreadsheet and effective self-education, and be ready to work in a project group.

## Course objective

Acquainting with the design, construction and operation of electrical installations and low voltage distribution networks and with the way of keeping design documentation in the field of electrical installations.

## Course-related learning outcomes

Knowledge:
1. has basic and systematic knowledge in the field of construction, design and operation of power installations and networks
2. knows the methodology of designing electrical installations, the software used for this purpose and is familiar with modern installation technology

Skills:

1. can compare different variants of supplying consumers and receivers with regard to the given criteria
2. is able to develop design documentation for electrical installations with the use of specialized software

Social competences:
1. is aware of the responsibility of the electrical engineer, in particular of the impact of his activity on the safe use of electrical installations

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: assessment of knowledge and skills demonstrated on the written test. Passing threshold: 50% of the total number of points.
Projects: evaluation of the final electrical installation project, evaluation of the current progress on the project, as well as active participation in classes.

## Programme content

Requirements for electrical installations. Construction, design and operation of electrical installations. Protection equipment in electrical installations.

## Course topics

Lecture:
Definition and components of an electrical installation. Requirements for electrical installations. Construction, rules for the selection of cables and wires. Overcurrent and short-circuit protection in electrical installations - construction, principle of operation. Electric shock protection - construction, principle of operation and selection criteria. Surge protection of facilities, users and electricity loads.
Projects:
Principles of designing electrical installations, requirements for design documentation. Rules for the selection of cables and protections (overcurrent, short-circuit). Planning of electric shock, surge and fire protection. Computer aided design of electrical installations

## Teaching methods

Lecture:
Lecture with a multimedia presentation (including: drawings, photos, animations, sound, films) supplemented with examples given on the board, lecture conducted in an interactive way with the formulation of questions to a group of students or to specific students, initiation of discussions during the lecture, taking into account various aspects presented issues, including: economic, ecological, legal, social, etc., presenting a new topic preceded by a reminder of related content, known to students from other subjects.
Projects:
Analysis of various technical solutions and aspects of solved problems, including: economic, ecological, legal, social, etc., detailed review of the project documentation by the project leader and discussions on comments, case study, team work.

## Bibliography

Basic:
1. Markiewicz H.: Instalacje elektryczne, WNT, Warszawa 2017.
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 2019.
4. Orlik W.: Egzamin kwalifikacyjny elektryka w pytaniach i odpowiedziach, KaBe S. C., Krosno 2018.
5. Normy i rozporządzenia związane z instalacjami elektrycznymi.

Additional:
1. Dobrzycki A., Analiza parametrów energii elektryczej w przedsiębiorstwie produkcyjnym branży aluminiowej, Academic Journals Poznan University of Technology, nr 74, 2013, 119-126
2. Tematyczne strony internetowe.

3. Katalogi producentów oprzewodowania i aparatów instalacyjnych.

## Breakdown of average student's workload

| | Hours | ECTS |
|---|---|---|
| Total workload | 80 | 3,00 |
| Classes requiring direct contact with the teacher | 30 | 1,00 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 50 | 2,00 |