



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Modern technologies for transmission and distribution of electric energy

### Course

Field of study

Year/Semester

Electrotechnics

2/4

Area of study (specialization)

Profile of study

Electric Power Systems

general academic

Level of study

Course offered in

Second-cycle studies

Polish

Form of study

Requirements

part-time

elective

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

0

10

0

Tutorials

Projects/seminars

0

10

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

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Faculty of Environmental Engineering and

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Responsible for the course/lecturer:

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Faculty of Environmental Engineering and

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### Prerequisites

Has structured and theoretically founded knowledge of the design of electrical devices and systems, taking into account their impact on the environment

Is able to - when formulating and solving engineering tasks - integrate knowledge from various sources and related disciplines and apply analytical, simulation and experimental methods

Is able to independently plan and implement their own lifelong learning to improve professional and social competences

### Course objective

Acquainting with phenomena related to the transmission and distribution of electricity as well as methods of transmission and distribution of energy. Learning examples of technologies for the construction of transmission and distribution lines



### Course-related learning outcomes

#### Knowledge

Has knowledge of development trends and the most important new achievements as well as contemporary engineering dilemmas

Has structured and theoretically grounded knowledge in the field of power grid design with regard to their impact on the environment.

#### Skills

Is able to assess the usefulness and possibility of using new technical and technological achievements in the design of power lines networks containing innovative solutions

#### Social competences

Recognizes the importance of knowledge in solving cognitive and practical problems and understands that in the technology knowledge and skills quickly become obsolete, and therefore require constant refilling

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

#### Laboratory

- assessment of knowledge and skills related to the implementation of the exercise task, evaluation of the report of the exercise

#### Project

- assessment of the effectiveness of the application of knowledge in the implementation of the project

### Programme content

#### Laboratory

Modeling of transmission systems in the Matlab / Simulink environment

#### Project

Design rules for transmission and distribution of overhead power lines and cable and gas insulated lines (GIL). Design of AC and DC power lines

### Teaching methods

#### Laboratory

Laboratory exercises performed with the help of engineering programs

#### Project

Independent solution of a design problem in the field of transmission system design

### Bibliography



Basic

1. Wasiaak I., Elektroenergetyka w zarysie, Przesył i rozdział energii elektrycznej, Łódź 2010, dostęp – Internet
2. Hoły A., Wiatr J., Podstawy projektowania elektroenergetycznych linii napowietrznych, Dom Wydawniczy MEDIUM, 2014
3. Wiatr J., Orzechowski M., Lenartowicz R., Podstawy projektowania i budowy elektroenergetycznych linii kablowych SN, Dom Wydawniczy MEDIUM, 2009
4. Jakubowski J., Cichy A., Rakowska A., Wytyczne projektowania linii kablowych 110 kV, Wydawnictwo PTPIREE, Poznań, 2019

Additional

Catalogs and websites of domestic and global producers of overhead line components as well as medium and high voltage cable lines. The conference materials and technical brochures provided by the lecturer

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	53	2
Classes requiring direct contact with the teacher	35	1
Student's own work (literature studies, preparation for laboratory classes, preparation for project classes and project preparation) <sup>1</sup>	18	1

<sup>1</sup> delete or add other activities as appropriate