COURSE DESCRIPTION CARD - SYLLABUS

Course name
Electricity transmission [S1Energ1>PEE]

Course

Field of study
Power Engineering

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
30

Laboratory classes
15

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

4,00

Coordinators

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Lecturers

Prerequisites

Knowledge: Has basic knowledge of the theory of electric circuits, electromagnetic field, electric machines, high voltage techniques, power engineering and electricity generation Skills: Has the ability to effectively self-study in a field related to the chosen field of study, combining knowledge acquired in the course of previously completed subjects. Competences: Is aware of the need to expand their knowledge and competences, readiness to cooperate and cooperate in a group

Course objective

Acquaintance with the parameters and tasks of modern power systems, electricity transmission and distribution subsystems. Construction of AC transmission systems. Impact of alternating current lines on the environment. Transmission of electricity by alternating current over long and short distances. The role of direct current transmission systems.

Course-related learning outcomes

Knowledge:
is able to explain the basic parameters and tasks of modern power systems.
is able to characterize the basic principles of transmission of electricity over short and long distances,

construction and construction of transmission lines, and possibilities of controlling energy transmission.

Skills:
explains the basic principles of functioning of modern power systems.
is able to apply knowledge of the theory of electrical circuits and electrical machines to explain the basic phenomena associated with the transmission of electricity over short and long distances, make basic calculations related to the transmission of electricity.

Social competences:
he understands the need and knows the possibilities of continuous training (second and third degree studies, postgraduate studies, courses), raising professional, personal and social competences.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Lectures: assessment of knowledge and skills demonstrated in the written and oral exam, continuous assessment in class (rewarding activity and quality of perception).
Laboratory: assessment of knowledge and skills related to the exercise task at each class, evaluation of the report of the exercise.

Programme content

Lectures: Tasks and parameters of the power system. Electricity transmission and distribution subsystems. Hierarchical structure of the power network. Construction of AC transmission systems, contemporary development trends. Theoretical basis of AC transmission - wave phenomena, natural power. Measures to increase LV transmission capacity. Control of power flow in the transmission network. Direct current electricity transmission. Basics of designing AC transmission systems.
Laboratory: includes exercises in the field of analyzing phenomena occurring in transmission and distribution networks under normal and interference conditions using physical models.

Teaching methods

Lecture: multimedia presentation supplemented with examples given on the board
Laboratories: performing tests on physical or digital models

Bibliography

Basic
Kujszczyk Sz. (pod red.): Elektroenergetyczne układy przesyłowe, WNT, Warszawa 1997.
Kordus A. (pod red.): Sieci elektroenergetyczne - przykłady wybranych zagadnień, WPP, Poznań 1990 r.
Poradnik Inżyniera Elektryka . t.3. WNT, Warszawa 2011
Additional
Żmuda K.: Elektroenergetyczne układy przesyłowe i rozdzielcze. Wybrane zagadnienia z przykładami. Wydawnictwo Politechniki Śląskiej, Gliwice 2016
Popczyk J.: Elektroenergetyczne układy przesyłowe, WPŚ, Gliwice 1984
Kończykowski S.: Obliczanie sieci elektroenergetycznych, t.II, PWN, Warszawa 1958

Breakdown of average student's workload

	Hours	ECTS
Total workload	110	4,00
Classes requiring direct contact with the teacher	60	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	50	2,00