



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Exploitation of high voltage equipment

Course

Field of study

Electrical Engineering

Area of study (specialization)

High Voltage Engineering

Level of study

Second-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

0

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

Number of credit points

1

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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Prerequisites

The student has knowledge in construction of electric power equipment, as well as in transmission and distribution network. Has the ability to effectively self-learning in the scope of chosen field of study and is aware of expanding his knowledge, ability, competences, can work and cooperate in group.

Course objective

Extending knowledge about the insulation systems of high voltage devices. Acquainting with factors that affect the work and condition of insulation systems. Learning the methods of diagnosis of electrical insulation systems. Knowledge of exploitation activity and exploitation procedures of equipment working in the system of generation, transmission and distribution of electricity (transformers, cables, capacitors, insulators, switching devices, GIS / GIL).



Course-related learning outcomes

Knowledge

Student has expanded knowledge in the design and operation of high voltage equipment insulation systems.

Skills

Student is able to assess and compare design solutions and processes of the production of electrical components and systems, due to given utility and economic criteria.

Social competences

Student acknowledges the importance of knowledge in solving cognitive and practical problems and understands that in technology knowledge and skills are quickly becoming outdated and therefore require constant replenishment.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Design exercises:

- continuous assessment, during each class - rewarding the increase in the ability to use known principles and methods,
- assessment of knowledge and skills related to the implementation of the project task, assessment of the effects of project work and how it is presented.

Programme content

Construction and operation of high voltage equipment insulation systems. Diagnostics of insulation systems. Operating rules for high voltage electrical equipment and installations. Technical and operational documentation, taking the device into service, operating principles, operation and operating instructions. Operating conditions of generators, power transformers, power stations, transmission and distribution overhead and cable lines, power factor correction capacitors, electric machines, lighting equipment, power generating devices, rectifier, batteries and other. Electric shock protection. Principles of rational and safe operation of power equipment and installations.

Teaching methods

Project classes are supplemented with multimedia presentations, detailed review of reports by the project leader is carried out, detailed discussion of project documentation. The use of tools enabling students to perform tasks at home (e.g. open source software) is foreseen.

Bibliography

Basic

1. Strojny J., Strzałka J., Elektroenergetyka. Obsługa i eksploatacja urządzeń, instalacji i sieci, Europex Kraków, 2003.



2. Lenartowicz R., Zdunek W., Egzamin kwalifikacyjny. Urządzenia instalacje i sieci elektroenergetyczne, Medium Warszawa, 2010.
3. Inżynieria wysokich napięć w elektroenergetyce, pod red. H. Mościckiej-Grzesiak, Wydawnictwo Politechniki Poznańskiej, tom 1 1996, tom 2 1999.
4. Flisowski Z., Technika wysokich napięć, WNT, Warszawa, 2008.
5. Gacek Z., Technika wysokich napięć, Wydawnictwo Politechniki Śląskiej, Gliwice, 1999.

Additional

1. Gacek Z., Kształtowanie wysokonapięciowych układów izolacyjnych stosowanych w elektroenergetyce, Wydawnictwo Politechniki Śląskiej, Gliwice, 2002.
2. Gacek Z., Wysokonapięciowa technika izolacyjna, Wydawnictwo Politechniki Śląskiej, Gliwice, 2006.

Breakdown of average student's workload

	Hours	ECTS
Total workload	38	1,0
Classes requiring direct contact with the teacher	16	1,0
Student's own work (literature studies, project preparation) ¹	22	1,0

¹ delete or add other activities as appropriate