
SUSTAINABLE ELECTRIC ENERGETICS

specialisation



Responsible department:

Dept. of lectures:

Responsible lecturer:

Dept. of Electric Power Engineering

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SUBJECTS

Innovative Technologies in Electrotechnics

BMEVIVEAC17

In the 21st century, one of humanity's greatest challenges is ensuring sustainable growth in the face of growing energy demand. Conventional technologies in the field of electricity are slowly reaching their limits, and the use of innovative technologies in the generation, distribution, storage and use of electricity is essential to ensure sustainability. This course presents innovative technologies and solutions in electrical engineering and electricity. Particular attention will be paid to technologies based on dielectric and electrostatic fundamental phenomena, both on the generation and the user side. Technological solutions to extend the lifetime of existing network equipment will be discussed in detail. The physiological effects of electric and magnetic fields and electromagnetic fields related to power engineering are also discussed.



Electrical Equipment and Insulations

BMEVIVEAC11

The aim is to provide knowledge about the components of the electric power network, construction of the equipment, their role and requirements, and the most important physical phenomena. The calculations consist of practical cases of the above.



Innovative Elettotechnics Laboratory

BMEVIVEAC14

The goal of the subject is to improve knowledge obtained from the theoretical subjects of the specialisation by the help of laboratory measurements made with different test systems.



Electrical Machines and Drives

BMEVIVEAC10

The purpose of the course is to teach the essential professional knowledge related to the topic of electric rotating machines and drives. Through the study of operating conditions, the course presents the modelling and calculation methods used in practice, and also conveys comprehensive professional knowledge related to the operation of electric rotary machine systems. It discusses typical and modern applications as well as future ones. It provides a theoretical and practical foundation for those who continue their studies in this field in MSc courses. Its purpose is to learn the basic principles of electromechanical energy conversion, the construction and operation of the most important types of electric rotary machines, their equivalent circuits, and their electrical and mechanical characteristic curves; examination of the steady-state operation of three-phase machines in the case of symmetrical and asymmetrical power supply; presentation of the basics of space vector methods and the basics and typical applications of electric drive technology.

