Level: bachelor

Course title: Fundamentals of energetic

Status: obligatory/elective

ECTS: 6

Requirements: Electrodynamics

Learning objectives

Introduction to the physical basis of the process of transformation of energy and to modern methods of transformation of different forms of energy.

Learning outcomes

Upon completion of the course, students should possess:

- General abilities: understanding of modern developments in energetics in the world.
- Subject specific abilities: understanding and knowledge of the general principles of transformation of different forms of energy; following modern trends in conventional and alternative energetics; following modern trends in the research of new energy sources (fission).

Syllabus

Theoretical instruction

Energy transformation - general remarks. (Energetics as a global problem. Basic laws. Energy transformation analysis methods.) Solar energy. Wind energy, Tide energy and Geothermal energy. MHD generators. Thermoelectric and Thermoionic generators. Fuel cells. Nuclear fission as an energy source. (Fission reactions. Fission reactor. Basic scheme of nuclear fission power plant.) Nuclear fusion as an energy source. (Fusion reactions. Fusion reactor. Basic scheme of nuclear fusion power plant.) Energetics and environmental problems.

Practical instruction

Exercises based on theoretical part would be done in the energetics facilities in the city and the vicinity of Novi Sad. Seminar.

Weekly teaching load				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 1	Student research:	