# **Renewable energy sources (ECTS 6)**

Language: the course is offered in Serbian and Hungarian.

Contact person: Dr. Lívia Szedmina (slivia@vts.su.ac.rs)

**Course description:**

The course covers the following topics:

Introduction to renewable energy sources; Solar energy: resources, solar technologies (photo-voltage (PV) technologies, solar heating technologies), solar systems (PV independent and interactive systems; distributed and central receiving system); Wind energy: resources, the use of wind energy, vertical and horizontal wind generators, Wind energy based systems (independent and interactive), technical problems and solutions; Hydro energy: resources, the use of water driving force, estimation of available energy, impulse and reaction turbines, hydro power plant as a part of PES, small hydro plants, the use of tides and waves; Geothermal energy: types of geothermal sources, resources, technologies and systems for their exploitation (direct and indirect use), consequences on the environment; Biomass: characteristics of biomass, technologies and systems for the use of biomass (combustion, gasification, pyrolysis), biofuel (biodiesel, biogas).

**Aims:**

The main goal of the course is to spread knowledge of the types and principles of renewable energy, such as: heat pump systems, wind turbine, solar power, biomass power plants, and the organic waste power plants.

**Learning outcomes:**

Students will acquire knowledge of design and implementation of installations and plants in the field of renewable energy.