



## **RENEWABLE ENERGY**

**3 ECTS (ELECTIVE)**

**AGH University of Science and Technology**

**Course responsible: dr. hab. Mariusz Filipowicz**

### **Course overview**

The aim of the course is to introduce students to subject of renewable energy and provide students with a package of practical information and abilities of working with renewable energy installations (solar, biomass, etc.). The content of the course is: Review of technologies applied in RES (solar thermal, solar electricity, wind, water, biomass, introduction to energy systems working with RES). General knowledge based on physics and mathematical models will be given. The course introduces to subject of renewable energy, shows how energy can be harvest from solar radiation, wind, water, biomass, geothermal and other renewable sources. The examples of the existing systems will be presented. New and emerging technologies devoted to future renewable energy systems efficiency will be presented. The laboratory exercises are devoted to solving problems connected with practical measurements of the examined model installations.

The course consists of lectures and laboratory.

### **Outcome of the course**

After this course the student should:

- Understand physical processes of harvesting renewable energy and have general knowledge as a basis for further study of particular installation technologies.
- understand the contemporary development of research and application of renewable energy resources and sources, the physical and technical aspects of the renewable energy systems, including its efficiency, controlling and available potentials and have basic knowledge about possibility of integration of renewable and classical energy systems.
- be able to perform measurements and tests for renewable energy installations, determine

### **Course coordinator & teachers**

dr. habil. Mariusz Filipowicz, Faculty of Energy and Fuels, AGH, E-mail: [filipow@agh.edu.pl](mailto:filipow@agh.edu.pl)