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| Subject name | Renewable Energy Sources in Rural Areas | |
| Subject code | IS-RES-18 | |
| Department | Rural Building | |
| Faculty | Environmental Engineering and Land Surveying | |
| Subject supervisor/Lecturer | Jan Radoń, Ph.D. | |
| General information | Teaching period | winter or summer semester |
| | ECTS credit | 6 |
| | Lectures total | 15 |
| | Seminars | 30 |
| Objective and general description | <p>The course gives an overview of the use of solar (thermal and photovoltaic), hydroelectric, wind, geothermal energy, as well as energy from biomass. Issues relevant to energy efficiency and energy storage are discussed. The potential of using renewable energy technologies as a complement to, and, to the extent possible, replacement for conventional technologies, are analyzed. Economical, social, environmental and political conditions as well as strategies for enhancing the future use of renewable energy resources are presented.</p> | |
| Lectures 1 x 3 + 7 x 2 hours | <ol style="list-style-type: none"> 1. Solar Thermal Energy (3 hours). 2. Photovoltaics. 3. Wind Energy. 4. Biomass. 5. Hydropower. 6. Wave Energy. 7. Geothermal Energy. | |
| Seminars 10 x 3 hours | <ol style="list-style-type: none"> 1. Design and basic energy and economy calculations of solar system for water heating. 2. Technical and economical analysis of photovoltaic's facility on the basis of exemplary case. 3. Analysis of economical and environmental impact of wind farm based on polish and EU examples. 4. Analysis of substitution of traditional energy sources with biomass for heating of house in rural areas. Applying of "BIOB Calculator" software for calculations. 5. Visit to hydropower plant. 6. Visit to geothermal plant/facility. 7. Review, quiz (3 hours). | |
| Literature | <p>Solway A.: Renewable Energy Sources. Heinemann-Raintree Inc., USA, 2009, pp. 223.</p> <p>Kemp W., H.: The Renewable Energy Handbook. Aztext Press, USA, 2006, pp.321.</p> <p>Craddock D.: Renewable Energy Made Easy. Atlantic Publishing Group, Inc., USA, pp. 287.</p> | |