

<b>Title of Course</b>	<b>Energy systems in industry</b>		
<b>Semester</b>	<b>Spring/Summer</b>		
<b>Teaching Hours per Course:</b>	<b>Total</b>	<b>- Lectures:</b>	<b>- Project:</b>
	45	45	
<b>ECTS Credits</b>	2		
<b>The content of education</b>			
<b>Aims of Course</b>	<p>Basic knowledge on energy systems in the industrial applications.</p> <p>Presentation of process flow diagrams, discussion of the principle of operation and mathematical descriptions of the typical systems.</p> <p>Characteristics of apparatus and devices used in the systems. Methods of reducing the energy consumption of the systems.</p>		
<b>Program</b>	<p>Basic thermodynamic problems in modeling of thermal system.</p> <p>Mass and energy balance.</p> <p>Application of mathematical statistics and data reconciliation in mass and energy balance of the industrial system.</p> <p>Electricity source: steam power plant, gas and steam power plant, nuclear power plant.</p> <p>Heat source: furnace, boiler house, combined heat and power plant.</p> <p>Steam distribution system.</p> <p>Heating and cooling system in the industrial process.</p> <p>Heat recovery system in the industrial process.</p> <p>Pinch point technology.</p> <p>Process control system aimed at minimization of energy consumption in the industrial process.</p>		
<b>Conditions of completion</b>	Passing the final test.		
<b>Teacher</b>	Mariusz Markowski, Sc.D.		