

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Exploitation of power plants and of heat and power plants</b>		Code <b>1010311271010311548</b>
Field of study <b>Electrical Engineering</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>4 / 7</b>
Elective path/specialty <b>Electric Power Systems</b>	Subject offered in: <b>polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>1</b> Classes: <b>-</b> Laboratory: <b>1</b> Project/seminars: <b>1</b>		No. of credits <b>5</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b>		ECTS distribution (number and %) <b>5 100%</b>
<b>Responsible for subject / lecturer:</b>  Krzysztof Sroka email: krzysztof.sroka@put.poznan.pl tel. 61 665 22 75 Elektryczny ul. Piotrowo 3A, 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Basic knowledge of energy technology and equipment used in the power industry, mechanics, fluid mechanics, basic metrology.
2	<b>Skills</b>	Understand the basic principles of operation of the machines and know the basic structure conventional energy devices: steam boilers, gas and steam turbines, heat recovery units and heat regenerators, compressors and fans.
3	<b>Social competencies</b>	Is aware of the need to broaden their competence, willingness to work together as a team.
<b>Assumptions and objectives of the course:</b> Getting acquainted with the operation of power equipment and power plants in various operating states.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 1. Basic knowledge in the use of power equipment in a variety of operating conditions. - [K_W09+++K_W08++] 2. He knows the basic principles of cogeneration heat and power. - [K_W24+]		
<b>Skills:</b> 1. Able to formulate the correct operation of the basic principles of energy equipment. - [K_U12++] 2. Distinguish states power plant, able to select and justify the procedure in a particular state. - [K_U20++]		
<b>Social competencies:</b> 1. Is aware of the impact of energy technology and equipment on the environment and understand the need to counteract these phenomena - [K_K02++]		
<b>Assessment methods of study outcomes</b>		

<p>Lectures:</p> <ul style="list-style-type: none"> <li>- evaluate the knowledge and skills demonstrated on a written test,</li> <li>- continuous evaluation skills and expertise for each class by conducting discussions on current issues related to the rational methods of operation of power plants.</li> </ul> <p>Laboratory:</p> <ul style="list-style-type: none"> <li>- tests to check the knowledge necessary for the accomplishment of the problems in the area of ??laboratory tasks,</li> <li>- evaluation knowledge and skills related to the implementation of the tasks, the assessment report of performed exercise,</li> <li>- obtaining additional points for the ability to work within a team practice performing the task detailed in the laboratory and developed aesthetic diligence reports</li> </ul> <p>Project / seminar:</p> <ul style="list-style-type: none"> <li>- evaluation of the project made ??and presented in the framework of the project activities</li> </ul>		
<b>Course description</b>		
<p>Basic concepts of operating. Principles of operation of the equipment. Using of the power unit in steady states. Working generating equipment in transient conditions due to failures and disruptions or in planned transient states. Load changes, stopping and starting of the power unit. Content of the laboratory exercise is consistent with the theme of the lecture and includes the use of power equipment in a variety of operating conditions.</p>		
<b>Basic bibliography:</b>		
<p>1. R.Janiczek ? Eksploatacja elektrowni parowych, WNT W-wa 1990</p>		
<b>Additional bibliography:</b>		
<p>1. Gładys H., Matla R.: Praca elektrowni w systemie elektroenergetycznym. WNT. W-wa 1995                  2. D.Laudyn, M.Pawlik, F.Strzelczyk ? Elektrownie, WNT W-wa 2000                  3. M.Pawlik, J.Skierski ? Układy i urzadzenia potrzeb własnych. WNT W-wa 1986</p>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. participation in the lectures	15	
2. participation in the laboratory exercises	15	
3. participation in the project/seminar	15	
4. preparation to the laboratory exercises	15	
5. preparation of practical exercises reports	15	
6. participation in the consulting on the laboratory exercises and project	10	
7. preparation of project report	15	
8. preparation for the test on the lectures	10	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	110	5
Contact hours	55	3
Practical activities	85	3