

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Electric power machines and technologies		Code 1010314361010315639
Field of study Power Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 6
Elective path/specialty -	Subject offered in: polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: - Classes: - Laboratory: 15 Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 2 100%
Responsible for subject / lecturer: Krzysztof Sroka email: krzysztof.sroka@put.poznan.pl tel. 61 665 22 75 Elektryczny ul. Piotrowo 3A, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of technology and machinery from semester 5
2	Skills	Ability to effectively self-education in a field related to the chosen field of study
3	Social competencies	Is aware of the need to broaden their competence, willingness to work together as a team
Assumptions and objectives of the course: Acquiring the ability of the testing of machinery and power equipment		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. It has a basic knowledge of machinery and equipment of thermal and renewable energy, as well as ventilation. - [K_W06+++]		
Skills:		
1. Able to analyze basic and complex energy conversion systems. - [K_U07++ K_U18+]		
2. Able to report the progress ??research and formulate conclusions. - [K_U03++]		
3. Able to analyze of heat cycles of different types of power plants. - [K_U19+ K_U22++]		
Social competencies:		
1. Able to work in a group in the performance of laboratory tests and jointly present the effects of the work. - [K_K04+]		
Assessment methods of study outcomes		
- tests the knowledge necessary for the accomplishment of the problems in the area of laboratory tasks, - assessment of knowledge and skills related to the implementation of the tasks your practice, the assessment of report of performed exercise, - obtaining additional points for the ability to work within a team practice performing the task detailed in the laboratory and developed aesthetic diligence reports.		
Course description		

<p>The laboratory activities will be carried out the following exercises:</p> <ol style="list-style-type: none"> 1. Study of centrifugal pumps 2. Testing of fans 3. Testing of heat pump 4. Testing of solar module 5. Testing methods to improve the efficiency of the Rankine cycle 6. Testing methods to improve the efficiency of the Joule cycle 7. Modeling of the technological system of the gas-steam power plant 		
<p>Basic bibliography:</p> <ol style="list-style-type: none"> 1. D. Laudyn, M. Pawlik, F. Strzelczyk ? Elektrownie, WNT W-wa 2000 2. W. M. Lewandowski - Proekologiczne źródła energii odnawialnej, WNT W-wa 2001 		
<p>Additional bibliography:</p> <ol style="list-style-type: none"> 1. W. Szuman ? Maszyny i urządzenia energetyczne, WSiP W-wa 1985 2. M. Pawlik, J. Skierski ? Układy i urządzenia potrzeb własnych. WNT W-wa 1986 3. P. Orłowski, W. Dobrzański, E. Szwarc - Kotły parowe. Konstrukcja i obliczenia, WNT W-wa 1979 		
<p>Result of average student's workload</p>		
<p>Activity</p>		<p>Time (working hours)</p>
1. participation in the laboratory exercises		15
2. preparation to the laboratory exercises		21
3. preparation of practical exercises reports		21
4. . participation in the consulting on the laboratory exercises		5
<p>Student's workload</p>		
<p>Source of workload</p>	<p>hours</p>	<p>ECTS</p>
Total workload	62	2
Contact hours	20	1
Practical activities	62	2