

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Automatics and Measurements in Electrical Power Engineering		Code 1010311261010314795
Field of study Electrical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 6
Elective path/specialty Electric Power Systems	Subject offered in: polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 2 Classes: - Laboratory: 2 Project/seminars: 1		No. of credits 5
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 %) 5 100%
Responsible for subject / lecturer: dr hab. inż. Kazimierz Musierowicz, prof. nadzw. email: kazimierz.musierowicz@put.poznan.pl tel. 61 665 20 40 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Fundamental electrical engineering knowledge and knowledge about performance of electrical power systems in normal and disturbed states
2	Skills	Ability to understand and interpret passed on knowledge and to self-study in the discipline connected with current major
3	Social competencies	Has a consciousness of necessity to widen competences and willingness to work in a team
Assumptions and objectives of the course: -To acquaint with basic tasks of electric power protection (EAZ) and with the measurement methods and selection of settings of criterion quantities of particular parts of power plant, preventive and restitution automatics		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Has basic knowledge about fundamentals of automatics and automatic control, knows criteria of performance and of selection devices of electric power protection automatics - [K_W22+++]		
Skills: 1. 2. Is able to design simple electrical system assigned for various applications, using proper methods, techniques and tools - [K_U03+]		
Social competencies: 1. Is aware of significance of his own work and willingness to acquiesce to principles of working in group and to be responsible for collectively realized task - [K_K03++]		
Assessment methods of study outcomes		

<p>-Lecture Evaluation of the knowledge on written (test) exam and oral exam control and evaluation of activity and of degree of perception</p> <p>-Laboratory Pre-classes verifying tests Evaluation of reports and discussion about problem matters</p> <p>-Design Design seminar (discussion) Evaluation of realized design</p>		
Course description		
<p>Tasks and functions of measurement-control and protection elements, digital technology. Structure of slotted lines for measurement, inspection and protection of electric power system, current and voltage measurement transformers, digital filters, basic measurement-decision algorithms</p>		
Basic bibliography:		
<p>1. Winkler W., Wiszniewski A.: Automatyka zabezpieczeniowa w systemach elektroener-getycznych. Wydanie I, WNT, Warszawa, 1999. Wydanie II, WNT, Warszawa, 2004.</p>		
Additional bibliography:		
<p>1. Szafran j., Wiszniewski A., Algorytmy pomiarowe i decyzyjne cyfrowej automatyki elektroenergetycznej, WNT Warszawa, 2001.</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	40	
Student's workload		
Source of workload	hours	ECTS
Total workload	143	5
Contact hours	92	4
Practical activities	30	1