Field of study Profile of study (general academic, practical) (brak) Year /S Electrical Engineering Subject offered in: Polish Course Electrical Engineering Subject offered in: Polish Course Subject offered in: Polish Subject offered in: Polish Course View of study: First-cycle studies Project/seminars: - No. of of tool No. of hours Lecture: 8 Classes: - Laboratory: 8 Project/seminars: - No. of of tool Education areas and fields of science and art (brak) (brak) Education areas and fields of science and art ECTS d and %) Education areas and fields of sciences Technical sciences 1 10 10 Responsible for subject / lecturer: Proj. dr hab. in2. Anna Cysewska-Sobusiak email: anna.cysewska@put.poznan.pl tel. 61 665 2633 Elektryczny ul. Piotrowo 3a, 60-965 Poznań Basic knowledge, skills and social competencies: 1 Knowledge Basic knowledge of semiconductors, optics, electrotechnics, electronics and engineering and willingness to cooperate in a team 2 Skills Ability to realize the efficient self-education in the area related to the chose engineering and willingness to cooperate in a team 3 Social competencies Awareness of the necessity of broadening of the competence in the field of					
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- Knowledge of fundamentals of optoelectronics and photonics and the selected applications of modern o and equipment					
and equipment					
Study outcomes and reference to the educational results for a field or					
Study outcomes and reference to the educational results for a field of study					
Knowledge:					
1. Ability to characterize the importance and scope of the optoelectronics and its current trends to develop	oing - [K_W14 ++]				
2. Knowledge of the principles of selecting the elements to be used in a simple system for the generation detection of optical signals - [K_W18+]	, transmission				
Skills:					
1. Ability to use the basic optoelectronic devices according to their operation manuals - [K_U17 ++]					
2. Ability to plan and accomplish a simple engineering task by the use of the selected basic optoelectronic elements - [K_U21 ++]					
Social competencies:					
1. Awareness of social part of the graduate of the technical university, and especially understanding the r and information of the relating achievements of optoelectronics and photonic engineering and bringing it o use - [K_K05 ++]	leed of formulating clearly into general				

Assessment methods of study outcomes

Lectures:			
- evaluation of the knowledge with a written test related to the content of lectures	(test, computational a	nd problem questions),	
awarding marks in laboratory exercises)			
- continuous estimation in all classes (awarding attendance in lectures, activity a	nd quality of perception	ı).	
Laboratory exercises: - continuous estimating with the tests,			
- awarding the skill increase,			
- the evaluation of knowledge and skills connected with the measuring tasks and	prepared reports		
Getting additional points for the activity during classes, in particular:			
- the efficiency of the use of acquired knowledge to solve a given problem;			
- skill of the co-operation within the team practically realizing a given detailed tas	k in the laboratory;		
- remarks connected with the improvement of didactic materials;			
- the aesthetic qualities of the reports			
Course description			
- Tendency to development in the area of optoelectronics and photonics.			
- Influence of optical radiation on elements of the matter.			
- Selected photoemitters and photodetectors.			
- Basics of laser technique.			
- Fibre-optic cables.			
- Acquisition and transmission of measuring information by optical links.			
- Industrial fiber-optic links.			
- Optoelectronic separation of signals.			
- Accuracy of optoelectronic measurements.			
Basic bibliography:			
1. A. Cysewska-Sobusiak - Podstawy metrologii i inżynierii pomiarowej, Wyd. Po	litechniki Poznańskiej,	Poznań 2010	
2. Z. Bielecki, A. Rogalski - Detekcja sygnałów optycznych, WNT, Warszawa 20	01		
3. K. Booth, S. Hill - Optoelektronika WKŁ, Warszawa 2001			
4. R. Jóźwicki - Podstawy inżynierii fotonicznej, Oficyna Wyd. Politechniki Warsz	-		
5. Z. Kaczmarek - Światłowodowe czujniki i przetworniki pomiarowe, Agenda Wy	dawnicza PAK, Warsz	awa 2006	
Additional bibliography:			
1. A. Cysewska-Sobusiak - Modelowanie i pomiary sygnałów biooptycznych, Wy	d. Politechniki Poznańs	skiej, Poznań 2001	
2. R. Jóźwicki - Technika laserowa i jej zastosowania, Oficyna Wyd. Politechniki	Warszawskiej, Warsza	wa 2009	
3. J. Siudak - Wstęp do współczesnej telekomunikacji światłowodowej, WKŁ, Warszawa 1999			
4. A. Szwedowski, R. Romaniuk - Szkło optyczne i fotoniczne, WNT, Warszawa 2009			
5. W. Żagan - Podstawy techniki świetlnej, Oficyna Wyd. Politechniki Warszawsk	kiej, Warszawa 2007		
6. www.bipm.org			
7. www.gum.gov.pl			
Result of average student's wor	·kload		
		Time (working	
Activity		hours)	
1. Participation in lectures		8	
2. Participation in laboratory exercises		8	
3. Participation in consulting with teachers		4	
4. Preparation to laboratory exercises and preparation of the raports		8	
5. Preparation to a credit of lectures		8	
6. Participation in a credit of lectures		3	
Student's workload			
Source of workload	hours	ECTS	
		2010	
Total workload	39	1	
Contact hours	23	1	

Practical activities 16 1			
	Practical activities	16	1