

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Diploma seminar		Code 1010321361010320081
Field of study Electrical Engineering	Profile of study (general academic, practical) general academic	Year /Semester 3 / 6
Elective path/specialty Lighting Engineering	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: - Classes: - Laboratory: - Project/seminars: 15		No. of credits 4
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 4 100% 4 100%
Responsible for subject / lecturer: Krzysztof Wandachowicz DSc email: Krzysztof.Wandachowicz@put.poznan.pl tel. 61 6652397 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		Responsible for subject / lecturer: Małgorzata Zalesińska Ph.D. email: Malgorzata.Zalesinska@put.poznan.pl tel. 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Knowledge of the basics of lighting technology: the calculation and measurement of basic lighting, lighting equipment, general requirements for lighting design. Basic knowledge of computer science. Basic knowledge of physics, electrical engineering, thermometry and termocinetics
2	Skills	The ability to use knowledge in lighting technology to carry out computations, measurement and evaluation of lighting parameters. 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: Preparing for a future independent thesis		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Use knowledge of lighting techniques mainly in the selection of lighting systems, evaluating technical feasibility and operational - [K_W15 +++]		
Skills: 1. Analyze the psychophysiological and technical requirements for the selection and design of interior lighting and outdoor lighting - [K_U23 ++] 2. Develop documentation on lighting design and prepare presentation with a discussion of the results of this task - [K_U23 ++]		
Social competencies: 1. Is aware of and understands the importance and impact of non-technical aspects of electrical engineering activities, including the impact of light and lighting on the environment and the consequent responsibility for decisions - [K_K01 ++] 2. Able to work in a group. Able to share and coordinate the work between team members - [K_K03 ++]		
Assessment methods of study outcomes		

<p>Verification of progress in the development of the thesis topic on the basis of the presentation. Assessment of the knowledge and skills related to the execution of the assignment.</p> <p>Get extra points for the activity in the classroom, the organizational skills, ability to work within a team developed aesthetic care tasks.</p> <p>Papers and presentations related to the subject matter of currently conducted research.</p>		
Course description		
<p>Content directly related to the topic of the paper.</p> <p>Update 2017:</p> <p>Formal and substantive aspects of the preparation of the thesis.</p> <p>Applied methods of education:</p> <p>Project - analysis and discussion of various aspects of solving problems, including: economic, environmental, energy efficiency, analysis and discussion of different problem solving methods.</p>		
Basic bibliography:		
<ol style="list-style-type: none"> 1. Żagan W.: Podstawy techniki świetlnej. Ofic. Wyd. Pol. Warszawskiej, Warszawa 2005 2. Żagan W.: Iluminacja Obiektów, Oficyna Wydawnicza PW, Warszawa 2003 3. Hauser J.: Elektrotechnika . Podstawy elektrotermii i techniki świetlnej, Wyd. PP, Poznań, 2006 4. Dybczyński Wł.: Miernictwo promieniowania optycznego. Wyd. Pol. Białostockiej, Białystok 1996 5. Wiśniewski A.: Elektryczne źródła światła. Oficyna Wydawnicza Politechniki Warszawskiej. Wydanie I , 2010 6. Bąk J. Technika oświetlania. Wybrane zagadnienia oświetlenia wnętrz, COSiW, Warszawa 2014 7. Wandachowicz K. Synteza odbłyśników oświetleniowych metodą promieni odwrotnych, Monografia habilitacyjna, Wydawnictwo Politechniki Poznańskiej, Poznań 2015 8. Pawlak A., Zalesińska M., Comparative study of light sources for household, Management Systems in Production Engineering, 2017, No1 (25), pp 35-41, DOI 10.1515/mspe-2017-0005 9. Zalesińska M, Górczewska M.: Comparative study of lighting quality and energy efficiency for various road lighting situations, VI. IEEE Lighting Conference of the Visegrad Countries LUMEN V4, Karpacz, Poland, September 13 - 16, 2016, LumenV4 pp. 205-209. 10. Krzysztof Wandachowicz, Małgorzata Górczewska, Reflector shape design optimization merit function, VI IEEE Lighting Conference of the Visegrad Countries LUMEN V4, 13-16.09.2016, Karpacz, Poland, pp. 191 ? 194, DOI: 10.1109/LUMENV.2016.7745543 		
Additional bibliography:		
<ol style="list-style-type: none"> 1. Technika Świetlna&#39; 09. Poradnik Informator. Wyd. PKOś, Warszawa 2009 2. Lighting Handbook, Reference ; Application. IES of Nofth America, New York 2010 3. Normy przedmiotowe 4. Publikacje dostępne na stronie www.licht.de 		
Result of average student's workload		
Activity	Time (working hours)	
1. participation in seminar classes	15	
2. participate in the consultations on the seminar	15	
3. preparing material for the thesis	30	
Student's workload		
Source of workload	hours	ECTS
Total workload	60	4
Contact hours	20	2
Practical activities	20	2