STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Diploma seminar**		Code **1010324391010320081**
Field of study **Electrical Engineering**	Profile of study (general academic, practical) **general academic**	Year /Semester **5 / 9**
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) **part-time**	
No. of hours Lecture: **-** Classes: **-** Laboratory: **-** Project/seminars: **18**		No. of credits **13**
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 %) **13 100%** **13 100%**

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

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.

Get extra points for the activity in the classroom, the organizational skills, ability to work within a team developed aesthetic care tasks.

Papers and presentations related to the subject matter of currently conducted research.

Course description

Content directly related to the topic of the paper.

Update 2017: Papers and presentations related to thesis topics and current research topics at the Institute.

Applied methods of education: project - analysis and discussion of various aspects of solving problems, including: economic, environmental, energy efficiency, analysis and discussion of different problem solving methods.

Basic bibliography:

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:

1. Technika Świetlna' 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	30
2. participate in the consultations on the seminar	30
3. preparing material for the thesis	60

Student's workload

Source of workload	hours	ECTS
Total workload	120	13
Contact hours	60	4
Practical activities	60	6