

| STUDY MODULE DESCRIPTION FORM | | |
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| Name of the module/subject Diploma seminar | | Code 1010322331010320081 |
| Field of study Electrical Engineering | Profile of study (general academic, practical) general academic | Year /Semester 2 / 3 |
| Elective path/specialty Lighting Engineering | Subject offered in: Polish | Course (compulsory, elective) obligatory |
| Cycle of study: Second-cycle studies | Form of study (full-time, part-time) full-time | |
| No. of hours Lecture: - Classes: - Laboratory: - Project/seminars: 30 | | No. of credits 15 |
| 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 %) 15 100% 15 100% |
| Responsible for subject / lecturer: dr hab. inż. Krzysztof Wandachowicz 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 | | |

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| <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> | |
| <p>Course description</p> | |
| <p>Content related directly to the topic of work. Review and analysis of scientific literature. Formal and substantive aspects of preparation of thesis.</p> <p>Update 2017: Papers and presentations related to thesis topics and current research topics at the Institute.</p> <p>Students carry out research projects related to scientific research.</p> <p>Applied methods of education: project - presentations of progress in research, analysis and discussion of various aspects of solving problems, including: economic, environmental, energy efficiency, analysis and discussion of various problem solving methods.</p> | |
| <p>Basic bibliography:</p> <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 oświetlenia. 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 11. Zalesińska M.: Atrakcyjność reklam LED, a ich zagrożenie dla bezpieczeństwa ruchu drogowego i uciążliwość dla mieszkańców. Miesięcznik INPE SEP. Informacje o normach i przepisach elektrycznych. Nr 191-192, sierpień ? wrzesień 2015 r. s. 17-25, ISSN 1234-0081. 12. Górczewska M.: Oświetlenie przejść dla pieszych, VII Konferencja Naukowo-Techniczna z cyklu ?Energoozczędność w oświetleniu? n.t. Technika Świetlna 2016, Poznań 10 maja 2016r. str. 69-74 13. Wandachowicz k., Michałowska N., Taisner M.: Zalety stosowania diod świecących w lampach do użytku domowego oraz w oprawach oświetleniowych. Poznan University of Technology Academic Journals. Electrical Engineering , Poznan 2015, Issue 83, pp. 203-2011. 14. Zalesińska M., Wandachowicz K. Working conditions for the low location lighting system on passenger ships. (Zeszyty Naukowe Akademii Morskiej w Szczecinie) Scientific Journals of the Maritime University of Szczecin, no. 43 (115), 2015, pp 125-130, ISSN 1733-8670 (Printed), ISSN 2392-0378 (online) (http://repository.am.szczecin.pl/handle/123456789/769) 15. Zalesińska M.: Laboratory test of the impact of the area of an LED billboard on driver's; visual performance. Przegląd Elektrotechniczny, R. 91 NR 4/2015, s. 197 ? 200, ISSN 0033-2097 16. Zalesińska M., Wandachowicz K.: Badanie systemu oświetlenia ewakuacyjnego na statkach i promach pasażerskich, IAPGOS 2015; 5(1): 14-19, p-ISSN 2083-0157, e-ISSN 2391-6761 (dostępne: http://e-iapgos.pl/abstracted.php?level=4&#38;#38;id_issue=877971&#38;#38;dz=s6), DOI.6504/20830157.1148041 17. Górczewska M, Mroczkowska S.: Illumination of the contemporary architectural facilities and buildings, Computer Applications in Electrical Engineering Poznan 2014, vol. 12, pp. 531-540 | |
| <p>Additional bibliography:</p> <ol style="list-style-type: none"> 1. Technika Świetlna' 09. Tom 2 i 3 Poradnik - Informator. Wyd. PKOś, Warszawa 2013 2. Lighting Handbook, Reference ;Application. I ES of Nofth America, New York 2010 3. Normy przedmiotowe 4. Publikacje dostępne na stronie www.licht.de | |
| <p>Result of average student's workload</p> | |
| <p>Activity</p> | <p>Time (working hours)</p> |
| 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 | 15 |
| Contact hours | 60 | 5 |
| Practical activities | 60 | 6 |