

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Fundamentals of lighting engineering</b>		Code <b>1010321361010320832</b>
Field of study <b>Electrical Engineering</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>3 / 6</b>
Elective path/specialty <b>Lighting Engineering</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>30</b> Classes: <b>-</b> Laboratory: <b>15</b> Project/seminars: <b>-</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>3 100%</b> <b>3 100%</b>
<b>Responsible for subject / lecturer:</b>  Małgorzata Zalesińska Ph.D. email: Malgorzata.Zalesinska@put.poznan.pl tel. 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment.
2	<b>Skills</b>	The ability to use knowledge in lighting engineering 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	<b>Social competencies</b>	Is aware of the need to broaden their competence, willingness to work together as a team.
<b>Assumptions and objectives of the course:</b> Grounding knowledge of the physiology of vision, and the relationship between the basic lighting parameters.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 1. . Describe the process of vision. List and describe the functions of the eye. Characterize the photometric properties of materials. Indicate the relationship between the parameters of light. - [[K_W05 ++, K_W14 +, K_W15 +++]]		
<b>Skills:</b> 1. Assess the impact of lighting on the quality parameters of view. Analyze the results. - [[K_U02 +++, K_U14 +++]]		
<b>Social competencies:</b> 1. Able to share and coordinate the work between team members. - [[K_K03 +]]		
<b>Assessment methods of study outcomes</b>		

<p>Lecture:          assess the knowledge and skills listed on the written exam, student activity is taken into account when giving a final grade</p> <p>Laboratory exercises:          assess the knowledge and skills associated with the implementation of the tasks your practice,          the assessment report performed exercise.</p> <p>Get extra points for the activity in the classroom, especially for the following:          ability to work within a team performing a task specific practice in the laboratory;          developed aesthetic diligence reports and tasks, the self-study.</p>		
<b>Course description</b>		
<p>The basic relationship between the photometric parameters, the spatial distributions of the photometric parameters. Vision system - structure and basic operations of the eye, visual way, the types of visual sensations. Photometric properties of materials. Glare in lighting.</p> <p>Update 2017: Extension of the classical Stiles-Holladay equation, Photobiological hazards to the skin and eyes, Visibility Level, Human Biological System</p> <p>Applied methods of education:          Multimedia presentation (including drawings, photographs, videos) supplemented by examples on the board, theory presented in close connection with practice.</p>		
<b>Basic bibliography:</b>		
<ol style="list-style-type: none"> <li>Bąk J., Pabiańczyk W.: Podstawy techniki świetlnej. Wyd. Pol. Łódzkiej, Łódź 1994.</li> <li>Żagan W.: Podstawy techniki świetlnej. Ofic. Wyd. Pol. Warszawskiej, Warszawa 2005</li> <li>Laboratorium z techniki świetlnej. Praca zbiorowa. Wyd. Pol. Pozn. nr 1792, Poznań 1989.</li> <li>Lighting Handbook, Reference &amp; Application. IES of Nofth America, New York 2010</li> <li>Publication CIE 146:2002 &amp; CIE 147:2002: CIE Collection on Glare 2000</li> <li>Publication CIE 203:2012 A Computerized Approach to Transmission and Absorption Characteristics of the Human Eye</li> </ol>		
<b>Additional bibliography:</b>		
<ol style="list-style-type: none"> <li>Hauser J.: Elektrotechnika.Podstawy elektrotermii i techniki świetlnej, Wyd. PP, Poznań, 2006</li> <li>Publication CIE 186:2010: UV-A PROTECTION AND SUNSCREENS</li> <li>Publication CIE 187:2010: UV-C Photocarcinogenesis Risks from Germicidal Lamps</li> <li>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: <a href="http://e-iapgoss.pl/abstracted.php?level=4&amp;id_issue=877971&amp;dz=s6">http://e-iapgoss.pl/abstracted.php?level=4&amp;id_issue=877971&amp;dz=s6</a>), DOI.6504/20830157.1148041</li> <li>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) (<a href="http://repository.am.szczecin.pl/handle/123456789/769">http://repository.am.szczecin.pl/handle/123456789/769</a>)</li> </ol>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. Participation in lecture classes	30	
2. Participation in laboratory activities	15	
3. Participation in consultation	10	
4. Homework	20	
5. Participation for an exam	15	
6. Exam	2	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	92	3
Contact hours	37	2
Practical activities	35	1