

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Lighting engineering</b>		Code <b>1010324381010321119</b>
Field of study <b>Electrical Engineering</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>4 / 8</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>part-time</b>	
No. of hours Lecture: <b>9</b> Classes: <b>-</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>1</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>		ECTS distribution (number and %) <b>1 100%</b>
<b>Responsible for subject / lecturer:</b>  dr inż. Małgorzata Górczewska email: malgorzata.gorczevska@put.poznan.pl tel. 61 665 23 98 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 technology: the calculation and measurement of basic lighting, lighting equipment, general requirements for lighting design.
2	<b>Skills</b>	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	<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> -Understanding the basic requirements of lighting and lighting design methods.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 1. Able to characterize the basic principles of lighting techniques in the selection of lighting systems, evaluating technical feasibility and operation. - [K_W15 +++ K_W09 ++ ]		
<b>Skills:</b> 1. He can use the knowledge of lighting techniques in the selection of lighting systems, evaluating technical feasibility and operation. - [K_U23 ++ K_U14 ++]		
<b>Social competencies:</b> 1. Understands the need to know the capabilities and continuous training. Is aware of the importance of activity in electrical engineering. - [K_K03 +++ ]		

<b>Assessment methods of study outcomes</b>
Lectures: -assess the knowledge listed on the written test. -extra points for the activity.
<b>Course description</b>

<p>-Quantitative and qualitative parameters of lighting.          -The choice of lighting systems, the selection of sources and luminaires.          -Basic methods of lighting design.          -Regulatory recommendations and requirements.          Update 2017:          Applied methods of education:          lectures - with multimedia presentations (drawings, photographs, animations) supplemented by examples, run in an interactive way, with questions to students or specific students, presenting a new topic preceded by a reminder of related content known to students from other subjects.</p>		
<p><b>Basic bibliography:</b>          1. Philips, Lighting Manual. Wyd.V 1993 r.          2. Technika Świetlna 09. Poradnik Informator. Wyd. PKOś, Warszawa 2009          3. Normy przedmiotowe PN-EN          4. Żagan W.: Iluminacja obiektów. Ofic. Wyd. Pol. Warszawskiej, Warszawa 2003</p>		
<p><b>Additional bibliography:</b>          1. Lighting Handbook, Reference &amp;#38;#38;Application. IES of Nofth America, New York 2010          2. Górczewska M., Szydłowska K., Projektowanie oświetlenia w obiektach handlowych. Poznan University of Technology, Academic Journals, Electrical Engineering, Issue 88, Poznań 2016, s.337-344, ISSN 1897-0737          3. Górczewska M., Nowa norma dotycząca oświetlenia drogowego 13201:2016. SEP INPE, ISSN 1234-0081, Nr 205, październik 2016, s.37-43</p>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. participation in lectures	9	
2. participation in the consultation	4	
3. preparation to the test	8	
4. participation in the exam	3	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	23	1
Contact hours	13	1
Practical activities	0	0