

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Basic of light engineering and optical radiation</b>		Code <b>1010324351010324776</b>
Field of study <b>Electrical Engineering</b>	Profile of study (general academic, practical) <b>general academic</b>	Year /Semester <b>3 / 5</b>
Elective path/specialty <b>-</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>14</b> Classes: <b>-</b> Laboratory: <b>13</b> Project/seminars: <b>-</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>basic</b>		(university-wide, from another field) <b>from field</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>  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>	Basic knowledge of visible light, infrared and ultraviolet
2	<b>Skills</b>	The ability to acquire knowledge of the phenomena associated with optical radiation. Basic skills in measuring non-electrical quantities. Ability to effectively self-education in a field related to the chosen field of study
3	<b>Social competencies</b>	Awareness of the need to broaden their competence, willingness to work together as a team
<b>Assumptions and objectives of the course:</b> Become familiar with the basic values of light, lighting elements and principles of assessment and the basics of lighting design. Understanding the nature of optical radiation (thermal, visible and ultraviolet), methods of generation, propagation and detection, the impact of organic and inorganic matter and its applications.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. The student should define the basic concepts of lighting technology, explain rules for the calculation and the measurement of the size of the light; know the parameters of lighting equipment, describe the requirements required for lighting design, formulate laws of optical radiation - [K_W09 ++, K_W15 +++, K_W17 +++]		
2. . As a result of completion of this course the student should be able to describe the construction of solar energy conversion devices including IR and UV and explain their actions - [K_W014 + ]		
<b>Skills:</b>		
1. The student will be able to apply his knowledge of lighting technology to carry out computations, measurement and evaluation of performance lighting - [K_U02 +, K_U14 ++ ]		
2. The student will be able to analyze and evaluate the requirements and make the selection of individual pieces of equipment indoor lighting and outdoor lighting - [K_U23 ++, K_U14 ++ ]		
3. The student will be able to recognize the applicability of optical radiation devices in a variety of industrial processes - [K_U23 ++ ]		
<b>Social competencies:</b>		
1. Ma świadomość ważności pracy własnej oraz gotowość podporządkowania się zasadom pracy w zespole i ponoszenia odpowiedzialności za wspólnie realizowane zadania - [K_K03 +++]		
2. Ma świadomość potrzeby konsekwentnego dokończania się - [K_K01 ++ ]		

<b>Assessment methods of study outcomes</b>		
<p>Lecture</p> <ul style="list-style-type: none"> <li>- assess the knowledge and skills listed on the written test,</li> </ul> <p>Laboratory:</p> <ul style="list-style-type: none"> <li>- assessment of knowledge and skills related to the implementation of the tasks your practice,</li> <li>- assessment report performed exercise.</li> </ul> <p>Get extra points for the activity in the classroom, and in particular for:</p> <ul style="list-style-type: none"> <li>- ability to work within a team practice performing the task detailed in the laboratory;</li> <li>- subsequent to the improvement of teaching materials;</li> <li>- developed aesthetic diligence reports and jobs - in the self-study.</li> </ul>		
<b>Course description</b>		
<p>Psychophysiology of view (structure and function of the eye). The basic size of the light - definitions, calculation, measurement. Fundamentals of colorimetry. Construction, principle of operation, operating systems, parameters and characteristics of electric lamps: incandescent, HID and LED. Lighting fixtures: design, performance, characteristics, application. Fundamentals of lighting design</p> <p>Law and Characteristics of electromagnetic radiation and the optical radiation. Methods for generation of thermal radiation, visible light and UV, propagation and detection. Technical applications of optical radiation.</p>		
<b>Basic bibliography:</b>		
<ol style="list-style-type: none"> <li>1. Żagan W.: Podstawy techniki świetlnej. Ofic. Wyd. Pol. Warszawskiej, Warszawa 2005</li> <li>2. Laboratorium z techniki świetlnej. Praca zbiorowa. Wyd. Pol. Pozn. nr 1792, Poznań 1989</li> </ol>		
<b>Additional bibliography:</b>		
<ol style="list-style-type: none"> <li>1. Technika Świetlna ?09. Poradnik ? Informator. Wyd. PKOś, Warszawa 2009</li> <li>2. Lighting Standards</li> </ol>		
<b>Result of average student's workload</b>		
Activity	Time (working hours)	
1. participation in class lectures	14	
2. participation in laboratory exercises	13	
3. participate in the consultations with lecture	10	
4. preparation to laboratory exercises and preparation of the reports	14	
5. preparation to the exam	15	
6. participation in the exam	3	
<b>Student's workload</b>		
Source of workload	hours	ECTS
Total workload	69	3
Contact hours	40	2
Practical activities	27	1