STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Basic of light engineering and optical radiation	**1010324351010324776**

Field of study	Profile of study (general academic, practical)	Year /Semester
Electrical Engineering	**(brak)**	**3 / 5**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**Polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
First-cycle studies	**part-time**

No. of hours	No. of credits
Lecture: **14** Classes: **-** Laboratory: **13** Project/seminars: **-**	**3**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
(brak)	**(brak)**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**3 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledge of visible light, infrared and ultraviolet
2	**Skills**	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	**Social competencies**	Awareness of the need to broaden their competence, willingness to work together as a team

Assumptions and objectives of the course:

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.

Study outcomes and reference to the educational results for a field of study

Knowledge:

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 +]

Skills:

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 ++]

Social competencies:

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 dokształcania się - [K_K01 ++]

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Assessment methods of study outcomes

Lecture

- assess the knowledge and skills listed on the written test,

Laboratory:

- assessment of knowledge and skills related to the implementation of the tasks your practice,
- assessment report performed exercise.

Get extra points for the activity in the classroom, and in particular for:

- ability to work within a team practice performing the task detailed in the laboratory;
- subsequent to the improvement of teaching materials;
- developed aesthetic diligence reports and jobs - in the self-study.

Course description

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

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.

Update 2017:

Applied methods of education:

lectures - with multimedia presentations (drawings, photographs, animations) supplemented by examples given on the board, 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;

laboratories - supplemented with multimedia presentations, demonstrations.

Basic bibliography:

1. Żagan W.: Podstawy techniki świetlnej. Ofic. Wyd. Pol. Warszawskiej, Warszawa 2005
2. Laboratorium z techniki świetlnej. Praca zbiorowa. Wyd. Pol. Pozn. nr 1792, Poznań 1989

Additional bibliography:

1. Technika Świetlna '09. Poradnik ? Informator. Wyd. PKOś, Warszawa 2009
2. Lighting Standards PN_EN

Result of average student's workload

Activity	Time (working hours)
1. participation in class lectures	14
2. participation in laboratory exercises	13
3. participate in the consultations with lecture	4
4. preparation to laboratory exercises and preparation of the reports	14
5. preparation to the exam	15
6. participation in the exam	3

Student's workload

Source of workload	hours	ECTS
Total workload	69	3
Contact hours	34	1
Practical activities	40	2

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