STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Photometry		**1010321271010320372**
Field of study: **Electrical Engineering**	Profile of study (general academic, practical): **(brak)**	Year /Semester: **4 / 7**
Elective path/specialty: **Light Engineering**	Subject offered in: **polish**	Course (compulsory, elective): **obligatory**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time): **full-time**	
No. of hours: Lecture: **1** Classes: **-** Laboratory: **1** Project/seminars: **1**		No. of credits: **5**
Status of the course in the study program (Basic, major, other): **(brak)**	(university-wide, from another field): **(brak)**	
Education areas and fields of science and art: **technical sciences**		ECTS distribution (number and %): **5 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment.
2	**Skills**	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	**Social competencies**	Is aware of the need to broaden their competence, willingness to work together as a team.

Assumptions and objectives of the course:

Learning basic ways and methods of photometry, spectrophotomety

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

Knowledge:

1. Describe the conditions of photometric measurements. The source of errors arising from photometric measurements. Describe the methods for photometric measurements. Describe the principles of photometers. - [K_W05 ++, K_W14 +, K_W15 +++]

Skills:

1. Use the appropriate method for measuring photometric parameters. Perform photometric measurements of the parameters. Analyze the results. Estimate the errors arising in the course of photometric measurements. - [K_U02 +++, K_U14 +++]

Social competencies:

1. Student understands and knows the need continuous training opportunities, improving professional skills, personal and social. Able to work in a group. Able to share and coordinate the work between team members. - [K_K03 ++]

Assessment methods of study outcomes

Lecture:
assess the knowledge and skills listed on the written exam

laboratory exercises:
assess the knowledge and skills associated with the implementation of the tasks your practice, the assessment report performed exercise.

Project:
evaluate the knowledge and skills associated with the implementation of the project.

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;
comments related to the improvement of teaching materials,
developed aesthetic diligence reports and tasks,the self-study.

Course description

Terms of photometric measurements. Construction and operation photometers. Calibration of the photometers. Photometric calibration patterns. Basic methods and procedures for carrying out the measurement of photometric and spectrophotometric parameters. Source of errors in the photometry. Analysis of errors and irregularities measurement uncertainty. Practical determination of basic photometric diversity.

Basic bibliography:

1. Dybczyński Wł.: Miernictwo promieniowania optycznego. Wyd. Pol. Białostockiej, Białystok 1996.
2. Helbig E: Podstawy fotometrii. WNT, Warszawa 1975.
3. Laboratorium z techniki świetlnej. Praca zbiorowa. Wyd. Pol. Pozn. nr 1792, Poznań 1989.
4. Normy przedmiotowe

Additional bibliography:

1. Felhorski W., Stanioch W.,: Kolorymetria trójchromatyczna. WNT, Warszawa 1973.
2. Żagan W.: Podstawy techniki świetlnej. Ofic. Wyd. Pol. Warszawskiej, Warszawa 2005

Result of average student's workload

Activity	Time (working hours)
1. Participation in lecture classes.	15
2. Participation in laboratory activities.	15
3. Participation in consultation.	45
4. Homework	15
5. Participation in project activities	15
6. Preparation the project	10
7. Preparation for colloquium	15
8. colloquium	2

Student’s workload

Source of workload	hours	ECTS
Total workload	132	5
Contact hours	92	3
Practical activities	68	3