COURSE DESCRIPTION CARD - SYLLABUS

Course name
Basics of lighting engineering and optical radiation [S1Eltech2>PTSiPO2]

Course

Field of study
Electrical Engineering

Year/Semester
2/4

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
0

Laboratory classes
15

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

1,00

Coordinators

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Lecturers

Prerequisites

When starting this course, students should have basic knowledge of the effects of optical radiation on the human body, living and non-living matter. They should also have the ability to acquire knowledge about phenomena related to optical radiation. Basic skills in measuring electrical and non-electrical quantities. The ability to effectively engage in self-study in a field related to their chosen field of study.

Course objective

To provide students with practical knowledge of the non-illuminating (non-imaging) properties of visible radiation and the hazards associated with optical radiation.

Course-related learning outcomes

Knowledge:
1. Has extensive knowledge of optical radiation.
2. Knows and understands the impact of optical radiation on the human body. Is aware of the hazards

associated with optical radiation.

Skills:
1. Can select equipment for measuring energy quantities.
2. Is able to present the results obtained in numerical and graphical form, as well as interpret them and draw appropriate conclusions.
3. Is able to select and apply basic methods and tools for solving practical engineering tasks typical for the field of electrical engineering.

Social competences:
1. Understands the importance of knowledge in solving technical problems. Is aware of the need to systematically improve professional, personal and social competences; is aware that knowledge and skills in the field of electrical engineering are rapidly evolving.
2. Is prepared to perform professional roles, take responsibility for jointly implemented tasks, adhere to professional ethics, and care for the achievements and traditions of the profession.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The skills acquired during laboratory classes are verified on the basis of at least two reports or presentations prepared on the basis of the results of measurements carried out during laboratory exercises. Pass mark: a positive grade for each report or presentation.

Programme content

Practical implementation of optical radiation risk assessment in the workplace. Assessment of the photobiological safety of lamps and luminaires. Assessment of non-illumination (non-imaging) properties of visible radiation.

Course topics

Measurement and assessment of blue light hazards. Measurement and assessment of the effectiveness of personal protective equipment against UV radiation. Measurement and assessment of UV radiation hazards to the eyes and skin. Assessment of the impact of electric lamps on the regulation of the circadian rhythm and on the efficiency of the photosynthesis process.

Teaching methods

Laboratory exercises: performing practical tasks according to the instructor's instructions. Discussion of the results obtained. Working with lighting design software.

Bibliography

Basic:
1. Exercise instructions posted on eCourses

Additional:
1. Subject standards
2. Wolska A.: Promieniowanie optyczne w środowisku pracy. CIOP PIB, Warszawa 2013.

Breakdown of average student's workload

	Hours	ECTS
Total workload	28	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	13	0,50