



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Light in architecture and outdoor space [S2Eltech1E-TŚ>ŚwAPZ1]

Course

Field of study Electrical Engineering	Year/Semester 1/2
Area of study (specialization) Lighting Engineering	Profile of study general academic
Level of study second-cycle	Course offered in English
Form of study full-time	Requirements compulsory

Number of hours

Lecture 15	Laboratory classes 15	Other 0
Tutorials 0	Projects/seminars 0	

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

A student starting this course should have a basic knowledge of lighting engineering. Basic skills in measuring electrical and photometric quantities also in lighting design. The ability to effectively self- study in a field related to the chosen field of study.

Course objective

Providing students with detailed information on how to illuminate various rooms and facilities.

Course-related learning outcomes

Knowledge:

1. Has ordered and theoretically founded knowledge in the field of lighting design.
2. Has in-depth knowledge of lighting technology in the field of lighting various objects; knows the processes taking place during the operation of lighting devices.
3. Has extended knowledge of computer-aided design in lighting technology.

Skills:

1. Can perform lighting design project and analyze the obtained effects according to physiological, economic and aesthetic criteria.
2. Can design lighting for various objects.

Social competences:

1. Recognizes the importance of knowledge in solving cognitive and practical problems, and understands that knowledge and skills quickly become obsolete in lighting engineering and therefore require constant replenishment.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge obtained in the lecture will be verified by a colloquium passed in the 7th lecture. The exam consists of 15-25 questions (test and open), variously scored. Pass threshold: 51% of the points.

The final topics on which the questions are based will be placed on the eKursy platform.

The skills acquired during the laboratory classes are verified on the basis of the test report containing the analysis of the obtained results, conclusions from the measurements and a discussion of the obtained results. Passing threshold: positive assessment of the report and/or presentation.

The skills acquired during the design exercises are verified on the basis of the lighting design of the facility indicated by the teacher and the discussion of the results obtained. Passing threshold: positive evaluation of the completed project.

Programme content

Lecture: Outdoor lighting. Architectural lighting. Lighting of museum buildings. Stage lighting. Illumination of architectural objects.

Luminance measurements in road lighting. The impact of electronic billboardson the risk of road safety.

Laboratory: Practical exercises in the field of lighting different objects.

Measurements of road lighting parameters with a matrix luminance meter. Luminance measurements of electronic billboards.

Course topics

Lecture: Visibility level criterion in road lighting, national and international requirements and recommendations for pedestrian crossing lighting, analysis of the quality of pedestrian crossing lighting based on different technical solutions. Principles of tunnel lighting. Architectural lighting, master plan for the illumination of urban spaces. Greenery lighting. Lighting of museum objects. Effects of optical radiation on the degradation of museum objects. Stage lighting.

Laboratory: Practical exercises on assessing the quality of lighting of sports facilities, assessing the quality of lighting of pedestrian crossings. Discussion and analysis of the results obtained.

Teaching methods

Lecture: multimedia presentation (drawings, photos, charts) supplemented with examples given on the board.

Laboratory and project: Performing practical tasks under the supervision of the lecturer.

Bibliography

Basic:

1. Żagan W.: Podstawy technik świetlnej. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2005.
2. Pracki P.: Projektowanie oświetlenia wnętrz, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2011.
3. Bąk J.: Technika oświetlania : wybrane zagadnienia oświetlania wnętrz Stowarzyszenie Elektryków Polskich. Centralny Ośrodek Szkolenia i Wydawnictw, Wrszawa 2014.
4. Żagan W. Iluminacja obiektów. Oficyna Wydawnicza Politechniki Warszawskiej (2003).
5. Żagan W., Krupiński R.: Teoria i praktyka iluminacji obiektów. Oficyna Wydawnicza Politechniki Warszawskiej (2016).

6. Catalog cards and subject standards.

Additional:

1. Literature available on the website: www.licht.de
2. Teaching materials available on the website: <http://lumen.iee.put.poznan.pl>.
3. Lighting Handbook, Reference & Application. IES of North America, New York 2010.

Breakdown of average student's workload

	Hours	ECTS
Total workload	55	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	25	1,00