



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Elective course F: Lighting design in CAD systems

Course

Field of study

Electrical Engineering

Area of study (specialization)

Electronics, measurements and lighting technology

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

4/7

Profile of study

general academic

Course offered in

polish

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

30

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

Krzysztof Wanadchowicz, Ph.D, D. Sc., Eng.

Responsible for the course/lecturer:

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Faculty of Control, Robotics and Electrical
Engineering

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Prerequisites

A student starting this course should have basic knowledge of lighting engineering and the basics of lighting design. The ability to effectively self-educate in a field related to the chosen field of study.

Course objective

Providing students with extended information on the normative requirements in the field of interior lighting design, outdoor lighting and road lighting. Introduction to designing illumination of buildings and creating visualization projects of luminance distributions in a 3D structure. To acquaint students with the practical aspects of interior lighting design, road lighting, lighting in sports and lighting of



buildings. Developing the ability to create multi-criteria lighting concepts and choose the most optimal one in terms of the adopted criterion. Using CAD programs to support the work of a lighting designer.

Course-related learning outcomes

Knowledge

1. Has an ordered and theoretically founded knowledge of key issues concerning the use of lighting design support applications.
2. Knows and understands the principles of lighting design, is aware of the latest development trends.

Skills

1. Can use properly selected IT tools in order to implement a lighting design and simulation that allows to visualize the luminance distribution on the building facade surface.
2. Can use the catalogs of lighting equipment available in printed and electronic versions, compare and evaluate the technical parameters of lamps and lighting fittings in order to apply them to the lighting design.

Social competences

1. Understands the importance of knowledge in solving technical problems. Is aware of the intense technological progress in lighting technology and the related need to systematically expand knowledge and use modern lighting solutions in the design.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired during the lecture will be verified by the final test carried out in the 7th lecture. The test consists of 15-20 questions (test and open-ended), with different scores. Passing threshold: 51% of points. Assessment issues on the basis of which the questions are developed are available on the Department's website and on the eLearning Moodle platform.

The skills acquired during the project classes are verified on the basis of the lighting design made and the discussion on the results obtained. Passing threshold: positive evaluation of the completed project.

Programme content

Lecture: In-depth knowledge of lighting design. Normative requirements in interior lighting, road lighting and lighting in sports. Introduction to the illumination of objects.

Project: Creating multi-criteria lighting projects. Using CAD programs for lighting design and creating project documentation. Creating a lighting design in a 3D structure using, among others 3ds MAX application. Discussion and analysis of the obtained results..

Teaching methods

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



Project: Working with lighting design programs. Using CAD programs and designing in a 3D structure.

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. User manuals of Relux, Dialux, Auto CAD, 3ds MAX.

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
4. Catalog cards and subject standards.

Breakdown of average student's workload

	Hours	ECTS
Total workload	92	4,0
Classes requiring direct contact with the teacher	52	2,0
Student's own work (literature studies, preparation for design classes, preparation for test, preparation of the project) ¹	40	2,0

¹ delete or add other activities as appropriate