



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Computer aided design

### Course

Field of study

Electrical Engineering

Area of study (specialization)

Lighting Engineering

Level of study

Second-cycle studies

Form of study

part-time

Year/Semester

2/4

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

10

### Number of credit points

1

### Lecturers

Responsible for the course/lecturer:

Przemysław Skrzypczak, Ph. D., Eng.

Responsible for the course/lecturer:

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### Prerequisites

The student starting this subject should have a basic knowledge of lighting technology, in particular lighting design and lighting equipment. Student should also be able to obtain information from specified sources and be willing to cooperate as part of a team.

### Course objective

Knowledge how to create LDT photometric files from real photometric data

Knowledge of ways of creating complex irregular spatial objects using photogrammetry - based on the photograph of the object



Knowledge of environment, basic tools and possibilities of 3ds MAX program. Ability to create computer visualizations of illuminations.

### Course-related learning outcomes

#### Knowledge

Depth knowledge of lighting technology in the field of photometric file format, file types, spatial objects, lighting design

Depth knowledge of lighting technology in the selection of lighting equipment used in the illumination of architectural objects

#### Skills

Has the ability to formulate conclusions related to engineering problems during designing illumination lighting. Can interpret the results of design work and draw conclusions based on them. Has the ability to create computer visualizations of object illumination

#### Social competences

Understands that knowledge and skills in the field of computer visualization are becoming very fast outdated

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The skills acquired as part of the course are verified on the basis of the following projects:

Create a photometric file based on real data

Create a spatial object on the basis of photographs with the use of photogrammetry

Creating a computer visualization of the illumination of a selected architectural object. The project takes into account the ability to model the body of the object, assigning specific materials in the scene, and the selection and appropriate placement of lighting equipment.

### Programme content

Getting to know the structure of the LDT file and the use of the program for creating photometric files

Getting to know the basic functions of the program for generating a 3D object based on photography

Getting to know the basic functions of the 3ds MAX program

Performing the visualization of the illumination of the selected object.

The use of modern LED luminaires in the design of illumination

### Teaching methods

A multimedia presentation enabling the analysis of the applied methods of illumination and the obtained effects of visualization



## Bibliography

### Basic

1. Żagan W.: Iluminacja obiektów. Ofic. Wyd. Pol. Warszawskiej, Warszawa 2003.
2. Kelly L.Murdock 3ds MAX 2012 Helion 2012

### Additional

1. Lighting Handbook, Reference Application. IES of North America, New York 2010
2. Górczewska M., Mroczkowska S., Iluminacja kościoła p.w. Św. Józefa w Poznaniu. Poznan University of Technology, Academic Journals, Electrical Engineering, Issue 83, Poznań 2015, s.229-236, ISSN 1897-0737
3. Górczewska M., Mroczkowska S., Skrzypczak P., Oświetlenie rzeźb i pomników, Przegląd Elektrotechniczny, 2/2018 R.94, s.124-127
4. Górczewska M., Mroczkowska S., Iluminacja rzeźb i pomników. Poznan University of Technology, Academic Journals, Electrical Engineering, Issue 92, Poznań 2017, s.133-142, ISSN 1897-0737

## Breakdown of average student's workload

	Hours	ECTS
Total workload	28	1
Classes requiring direct contact with the teacher	12	0,5
Student's own work (literature studies, project preparation) <sup>1</sup>	16	0,5

<sup>1</sup> delete or add other activities as appropriate