COURSE DESCRIPTION CARD

Faculty of Electrical Engineering									
Field of study	**Electrical and Electronic Engineering**							**Degree level and programme type**	bachelor's degree, full time programme
Specialization/ diploma path	-							**Study profile**	-
Course name	**Basics of lighting technology**							**Course code**	**IS-FEE-10002W**
								Course type	elective
Forms and number of hours of tuition	**L**	**C**	**LC**	**P**	**SW**	**FW**	**S**	**Semester**	winter
	30		**15**					**No. of ECTS credits**	**5**
Entry requirements	-								
Course objectives	Familiarizing students with basic light quantities, units and electric light sources. Using luxmeter and luminance meter. Teaching the methodology of main photometric measurements. Familiarizing with current problems in illuminating engineering. .								
Course content	Vision and light. Basic light quantities and units (luminous flux, luminous intensity, illuminance, luminance). Spectral distribution of light quantities. Lambert law. Correlation between illuminance and distance from the source. Types and parameters of light sources. Spatial distribution of light intensity. Basic measurements in light technology. Procedures of chosen light measurements. Using chosen light meters (luxmeter, luminance meter). Standarization in lighting technology - introduction to lighting design. Light - human interaction. Energy efficiency in lighting.								
Teaching methods	laboratory experiments, lecture/consultations, self-work, discussion.								
Assessment method	lecture: written exam; laboratory class: verification of preparation for classes, evaluation of the reports.								
Symbol of learning outcome	**Learning outcomes**								**Reference to the learning outcomes for the field of study**
LO1	lists and explains light quantities;								
LO2	shortly characterizes electrical and optoelectronic light sources;								
LO3	can use the lightmeter and luminance meter;								
LO4	performs measurements of chosen light quantities;								
LO5	can provide simple calculations connected with lighting.								
Symbol of learning	**Methods of assessing the learning outcomes**								**Type of tuition during which the outcome is**

outcome		assessed
LO1	**exam, evaluation of the report on exercise, a discussion during the laboratory classes**	**L,LC**
LO2	**exam, evaluation of the report on exercise, a discussion during the laboratory classes**	**L,LC**
LO3	**observation during the laboratory classes, reports**	**LC**
LO4	**observation during the laboratory classes, reports**	**LC**
LO5	**observation during the laboratory classes, reports, evaluation of case studies**	**L,LC**

Student workload (in hours)		**No. of hours**
Calculation	**participation in the laboratory**	15
	preparation for the laboratory	15
	description of laboratory reports	10
	participation in lecture / student - teacher consultations	30
	preparing to pass the exam	20
	case studies/homeworks	40
	TOTAL:	**130**

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	**45**	**2**
Student workload – practical activities	**85**	**4**

Basic references	1. Standard CIE S 017/E:2011: International Lighting Vocabulary, 2011. 2. IESNA Lighting Handbook, New York, 2000. 3. Winchip S.: Fundamentals of lighting. Fairchild Books, 2011. 4. Lighting fundamentals handbook (technical report). Electric Power Research Institute, 1992. 5. Ryer A.: Light measurement handbook. International Light, 1998. 6. Ganslandt R., Hoffmann H.: Handbook of lighting design. 1992. 7. Khan T.Q. LED Lighting - Technology and Perception, Wiley 2015
Supplementary references	1. Taylor A.: Illumination fundamentals. Lighting Research Center, 2000. 2. Csele M.: Fundamentals of light sources and lasers. Wiley Interscience, 2004.
Organisational unit conducting the course	**Department of Photonics, Electronics and Light Technique**	**Date of issuing the programme**
Author of the programme	**Urszula Błaszczak, Ph.D. Eng.**	**30.01.2020**

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,

S – seminar