-
Ω
α
N
0
Ω
+
٦
Ω
ч.
≥
≥
`
3
2
۵
Ξ
+
\Box
_

Name of the module/subject Fundamentals of lighting engineering Filed of study Electrical Engineering Cycle of study: Electrical Engineering Electrical Engineering Cycle of study: Electrical Engineering Electrical Engineering Electrical Engineering Electrical Engineering Electrical Engineering Form of study (full-time, part-time) Form of study (full-time, part-time) Part-time No. of credits Part-time No. of credits ECTS distribution (number and %) 1 100% ELECTS distribution (number and %) 1 100% Responsible for subject / lecturer: Malgorzata Zalesińska Ph.D. email: Malgorzata Zalesińska Ph.D. Prerequisites in terms of knowledge, skills and social competencies: 1 Knowledge Knowledge for be basics of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. 3 Social competencies Forunding knowledge of fundamentals of lighting parameters [[K_W06++,K_W14+,K_W15+++]] Skills: 1. List and describe the method of calculation of basic lighting parameters [[K_U17++,K_U22+]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17++,K_U22+]]		STUDY MODULE D	ESCRIPTION FORM		
Field of study Electrical Engineering Electrical Engineering Electrical Engineering Subject offered in: Course (computatory, electrice) Subject offered in: Polish Po	•				
Elective path/specialty Lighting Engineering Cycle of study: First-cycle studies Form of study (full-time, part-time) part-time part-time Popplish Popplish	Field of study	Field of study Profile of study (general academic, practical)			
Cycle of study: First-cycle studies Form of study (full-time,part-time) Form of study (full-time,part-time) Part-time		<u>ig</u>	` '		
First-cycle studies No. of hours Lecture: - Classes: - Laboratory: - Project/seminars: 9 Status of the course in the study program (Basic, major, other) (brak) Education areas and fields of science and art technical sciences Technical sciences Technical sciences Technical sciences Technical sciences Technical sciences Technical lagorata Zalesinska Ph.D. email: Malgorzata Zalesinska Pb.D. email: Malgorzata Zalesinska @put.poznan.pl tel. 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznah Prerequisites in terms of knowledge, skills and social competencies: 1 Knowledge Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment. 2 Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. 3 Social competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06++,K_W14+, K_W15+++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17++, K_U22+]]	· · · · ·	nting Engineering		, , ,	
No. of hours Lecture: - Classes: - Laboratory: - Project/seminars: 9 Status of the course in the study program (Basic, major, other) (university-wide, from another field) (brak) Education areas and fields of science and art technical sciences Technical sciences Technical sciences Matgorzata Zalesińska Ph.D. email: Malgorzata	Cycle of study:		Form of study (full-time,part-time)		
Status of the course in the study program (Basic, major, other) (brak) Education areas and fields of science and art technical sciences Techni	First-cy	First-cycle studies part-time			
Status of the course in the study program (Basic, major, other) (brak) (chrak) (chrak) (chrak) (chrak) (chrak) (chrak) Education areas and fields of science and art technical sciences Technical sciences Technical sciences Technical sciences Malgorzata Zalesińska Ph.D. email: Malgorzata Zalesińska @put.poznan.pl tel: 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań Prerequisites in terms of knowledge, skills and social competencies: Knowledge Knowledge Skills The ability to use knowledge in lighting engineering: the calculation and the measurement of light parameters, lighting equipment. Skills Social competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06++,K_W14+, K_W15+++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17++, K_U22+]]	No. of hours			No. of credits	
Education areas and fields of science and art Education areas and fields of science and art Education areas and fields of science and art Edit distribution (number and %) Technical sciences Technical sciences Technical sciences Responsible for subject / lecturer: Malgorzata Zalesińska Ph.D. email: Malgorzata Zalesińska Ph	Lecture: - Classe	es: - Laboratory: -	Project/seminars:	9 1	
Education areas and fields of science and art technical sciences Małgorzata Zalesińska Ph.D. email: Małgorzata. Zalesińska @put.poznan.pl tel. 61 6662398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań Prerequisites in terms of knowledge, skills and social competencies: Knowledge Knowledge frhe basics of lighting engineering: the calculation and the measurement of light parameters. Iighting equipment. Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. Scocial competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	Status of the course in the study	/ program (Basic, major, other)	(university-wide, from another f	ield)	
technical sciences Technical sciences Technical sciences Technical sciences Responsible for subject / lecturer: Malgorzata Zalesińska Ph.D. email: Malgorzata Zalesińska @put.poznan.pl tel. 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań Prerequisites in terms of knowledge, skills and social competencies: 1 Knowledge Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment. 2 Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. 3 Social competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 ++++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]		(brak)		(brak)	
Technical sciences 1 100% Responsible for subject / lecturer: Malgorzata Zalesińska Ph.D. emali: Malgorzata.Zalesinska@put.poznan.pl tel. 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań Prerequisites in terms of knowledge, skills and social competencies: 1 Knowledge Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment. 2 Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. 3 Social competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 ++++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	Education areas and fields of so	cience and art			
Responsible for subject / lecturer: Małgorzata Zalesińska Ph.D. emaii: Malgorzata.Zalesińska @put.poznan.pl tel. 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań Prerequisites in terms of knowledge, skills and social competencies: 1 Knowledge Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment. 2 Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. 3 Social competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 ++++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	technical sciences			1 100%	
Małgorzata Zalesińska Ph.D. email: Malgorzata.Zalesińska @put.poznan.pl tel. 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań Prerequisites in terms of knowledge, skills and social competencies: 1 Knowledge Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment. 2 Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. 3 Social competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 ++++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	Technical sci	ences		1 100%	
Małgorzata Zalesińska Ph.D. email: Malgorzata.Zalesińska @put.poznan.pl tel. 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań Prerequisites in terms of knowledge, skills and social competencies: 1 Knowledge Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment. 2 Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. 3 Social competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 ++++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]					
Małgorzata Zalesińska Ph.D. email: Malgorzata.Zalesińska @put.poznan.pl tel. 61 6652398 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań Prerequisites in terms of knowledge, skills and social competencies: 1 Knowledge Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment. 2 Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. 3 Social competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 ++++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	Responsible for sub	ect / lecturer:			
Knowledge of the basics of lighting engineering: the calculation and the measurement of light parameters, lighting equipment. Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. Social competencies Is aware of the need to broaden their competence, willingness to work together as a team. Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	email: Malgorzata.Zalesi tel. 61 6652398 Faculty of Electrical Engi	nska@put.poznan.pl neering			
Skills The ability to use knowledge in lighting engineering to carry out computations, measurement and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. Social competencies Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 ++++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	Prerequisites in term	ns of knowledge, skills an	d social competencies:		
and evaluation of lighting parameters. Ability to effectively self-education in a field related to the chosen field of study. Social competencies Is aware of the need to broaden their competence, willingness to work together as a team. Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	1 Knowledge				
Assumptions and objectives of the course: Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	2 Skills	and evaluation of lighting parameters. Ability to effectively self-education in a field related to			
Grounding knowledge of fundamentals of lighting engineering. Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	J	· · · · · · · · · · · · · · · · · · ·			
Study outcomes and reference to the educational results for a field of study Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	Assumptions and ob	jectives of the course:			
Knowledge: 1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	Grounding knowledge of fundamentals of lighting engineering.				
1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	Study outco	omes and reference to the	educational results for	a field of study	
1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++]] Skills: 1. Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	Knowledge:				
Perform calculations of basic lighting simplified methods [[K_U17 ++, K_U22 +]]	1. List and describe the method of calculation of basic lighting parameters [[K_W06 ++,K_W14 +, K_W15 +++]]				
	Skills:				
	Perform calculations of be	asic lighting simplified methods.	- [[K_U17 ++, K_U22 +]]		
1 Student understands and knows the need continuous training opportunities, improving professional skills, personal and social. Able to work in a group. Able to share and coordinate the work between team members [[K_K03 +]]	Student understands an	d knows the need continuous train			

Assessment methods of study outcomes

Project:

evaluate the knowledge and skills associated with the implementation of the project.

Get extra points for the activity in the classroom, especially for the following:

ability to work within a team performing a task specific practice in the laboratory,

developed aesthetic diligence reports and tasks, the self-study.

Course description

Calculation of lumines flux. Determination of illuminance by a point. Calculation of luminance.

Basic bibliography:

- 1. Bąk J., Pabiańczyk W.: Podstawy techniki świetlnej. Wyd. Pol. Łódzkiej, Łódź 1994.
- 2. Żagan W.: Podstawy techniki świetlnej. Ofic. Wyd. Pol. Warszawskiej, Warszawa 2005
- 3. Technika Świetlna '09. Poradnik ? Informator. Wyd. PKOś, Warszawa 2009

Additional bibliography:

1. Lighting Handbook, Reference & Application. IES of Nofth America, New York 2010

Result of average student's workload

	*
Activity	Time (working hours)
Participation in project activities	9
2. Participation in consultation.	9
3. Participation for colloquium	7
4. Colloquium	2

Student's workload

Source of workload	hours	ECTS
Total workload	27	1
Contact hours	20	1
Practical activities	16	1