MODULE OUTLINE EPK61

1. GENERAL INFORMATION

SCHOOL	OF APPLIED ARTS AND SUSTAINABLE DESIGN		
PROGRAM COURSE	SUSTAINABLE INTERIOR DESIGN OF BUILDINGS (EPK)		
LEVEL OF STUDY	POSTGRADUATE		
MODULE CODE	EPK61	**SEMESTER OF STUDY**	3rd
MODULE TITLE	**Measurements, analysis and interpretation in Building Lighting**		

INDEPENDENT TEACHING ACTIVITIES *in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits*	**HOURS**	**CREDIS**
Weekly teaching hours 21-23 hours x 13 weeks	**280-300**	**10 ECTS**

COURSE TYPE Compulsory, Optional, Optional mandatory	Elective
PREREQUISITE MODULES:	None
LANGUAGE OF INSTRUCTION AND EXAMS	Greek
THE MODULE IS OFFERED TO ERASMUS STUDENTS	No (due to annual duration of the module)
MODULE WEBSITE (URL)	https://www.eap.gr/en/viosimos-shediasmos/topics/#EPK61 Each module has its own space in the Learning Management System of EAP (https://courses.eap.gr/login/index.php), with controlled access (use of code) for students and teaching staff.

2. LEARNING OUTCOMES

Learning Outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:

Upon successful completion of the Thematic Laboratory Unit, students will be able to:

- Identify the photometric quantities required in the interior lighting of buildings and the corresponding requirements dictated by the standards and regulations of the measurement process
- Recognize the corresponding lighting quantities in a lighting study in order to be inspected through the measurement process
- Document the lighting needs of interior spaces and compare them with those mandated by current standards and existing lighting systems,
- Prepare light measurement and standard compliance procedures,
- Analyze lighting measurements, compare them with lighting application studies, and perform evaluations
- Utilize measurements to prepare the appropriate technical solutions and propose the most effective lighting systems or relevant actions
- Promote the principles of sustainable, human-centered lighting.

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?	
Search for, analysis and synthesis of data and information by the use of appropriate technologies, *Adapting to new situations* *Decision-making* *Individual/Independent work* *Group/Team work* *Working in an international environment* *Working in an interdisciplinary environment (Other…….citizenship, spiritual freedom, social awareness, altruism etc.) …….*	*Project planning and management* *Respect for diversity and multiculturalism* *Environmental awareness* *Social, professional and ethical responsibility and sensitivity to gender issues* *Critical thinking* *Development of free, creative and inductive thinking* *……* *Introduction of innovative research*
• Search for, analysis and synthesis of data and information by the use of appropriate technologies • Project planning and management • Environmental awareness • Adapting to new situations • Decision-making • Individual/Independent work • Critical thinking • Group/Team work • Working in an interdisciplinary environment	

3. MODULE CONTENT

The TLU aims to:

- Have students apply their theoretical knowledge of the field of lighting in interior lighting projects which improve quality of life, enhance interior spaces, increase productivity and ensure comfort and safety
- Introduce students to the process of evaluation, through calculations and measurements, of a building's lighting system
- Introduce students to the process of checking compliance of lighting systems with international standards, regulations through a measurement procedure
- Teach students how to upgrade systems according to the principles of sustainable and human-centered lighting.

4. TEACHING METHODS--ASSESSMENT

MODES OF DELIVERY *Face-to-face, in-class lecturing, distance teaching and distance learning etc.*	• Distance education with three Group Counseling Meetings (OSS) during the academic year on weekends. • Personal communication and feedback, where necessary (advisory role of SEP members) • In addition, the Laboratory Thematic Unit EPK 61 is completed with the mandatory participation in person in a workshop lasting at least 3 hours at the HOU facilities in Patras or Athens, or in a laboratory provided to the EAP for this purpose. The objective of the in-person workshop / laboratory is to familiarize the students with

<table>
<tr><td></td><td>the use and operation of laboratory equipment provided by the Lighting Design Laboratory of SET for this purpose</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGY
Use of ICT in teaching, Laboratory Education, Communication with students</td><td>We use :
Remote meetings tools (cisco webex),
Presentation software (e.g. power point),
Use of special equipment for illuminance measurements.
Computer use.

Additionally, the students use office automation tools, web browsers and e-reader for digital books.</td></tr>
<tr><td>MODULE DESIGN
Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc

The study hours for each learning activity as well as the hours of selfdirected study are given following the principles of the ECTS.</td><td>
<table>
<tr><th>Activity</th><th>Annual Workload</th></tr>
<tr><td>3 OSS (x 4 hours)</td><td>12</td></tr>
<tr><td>2 tutorial exercises (2 x 30 hours)</td><td>60</td></tr>
<tr><td>Physical presence at an in-person workshop/ laboratory</td><td>3</td></tr>
<tr><td>Final Examination (Written examination or Final written assignment)</td><td>58</td></tr>
<tr><td>Individual study (12-13 hours x 13 weeks)</td><td>150-170</td></tr>
<tr><td>Total module workload (hours)</td><td>280-300</td></tr>
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<tr><td>STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS
Detailed description of the evaluation procedures.

Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other……etc.

Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students</td><td>Completion of educational activities during the academic semester which constitute a 40 percent of each student’s grade. Participation in the mandatory in-person workshop / laboratory. Final Examination (Written examination or Final written assignment), which constitute a 60 percent of the students’ final laboratory course grade. For further information go to the <u>EAP Study Guide</u>.</td></tr>
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5. SUGGESTED BIBLIOGRAPHY

- *Γενικές Αρχές Φωτισμού, Χρώμα και Φως, ΣΦΠ51 Τόμος Α Εκδόσεις ΕΑΠ*
- *Εργαλεία Γνώσης για τη Σχεδίαση και Προσομοίωση Έργων Φωτισμού,ΣΦΠ60 Τόμος Α ΕΑΠ*
- *Άρης Τσαγκρασούλης. “Φυσικός Φωτισμός”, Κάλλιππος Ανοικτές Ακαδημαϊκές Εκδόσεις, 2015, ISBN 978-960-93-7943-4 (Kallipos: Daylighting).*
- *Fuller, M. Concepts and Practice in Architectural Daylighting. New York, 1991, Van Nostrand Reinhold.*
- *Reinhart, Christoph. Daylighting Handbook I. 2014. ISBN: 9780692203637.*

- *Lee, Eleanor S. "Innovative Glazing Materials." Handbook of Energy Efficiency in Buildings A Life Cycle Approach. Cambridge: Butterworth-Heinemann, Elsevier Inc., 2018. LBNL-2001193. (https://eta-publications.lbl.gov/publications/innovative-glazing-materials)*
- *Robinson, Alastair, and Stephen E Selkowitz. Tips for Daylighting with Windows. 2013. LBNL-6902E. (https://eta-publications.lbl.gov/publications/tips-daylighting-windows)*
- *Jennifer O'Conner, Eleanor S Lee, Francis M Rubinstein, Stephen E Selkowitz. Tips for Daylighting with Windows: The Integrated Approach. 1997. LBNL-39945. (http://eta-publications.lbl.gov/sites/default/files/tips-for-daylighting-1997.pdf).*

ΠΡΟΤΥΠΑ ΚΑΙ ΚΑΝΟΝΙΣΜΟΙ

- *ΤΟΤΕΕ 20701−7/2021. "Τεχνητός και φυσικός φωτισμός κτιρίων".*
- *EN 15193-1: Energy Performance of Buildings. Energy Requirements for Lighting, Specifications, Module M9, 2017.*
- *IESNA, IES LM-83-12: IES Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure (ASE). Illuminating Engineering Society (IES) Lighting Measurements, ISBN: 978-0-87995-272-3.*
- *CEN Daylight Standard (EN 17037:2018 Daylight in buildings).*
- *CIBSE (2002) Code for Lighting, Oxford: Chartered Institution of Building Services Engineers.*