

Course/Subject/Unit Description

1. General Information			
School		School of Design Studies	
Department		INTERIOR ARCHITECTURE	
STUDY LEVEL		Undergraduate	
CODE OF SUBJECT	EA602	STUDY SEMESTER	4
SUBJECT TITLE		Lighting and Space I	
Teaching Content	Weekly (hrs)	Credits	
Lectures, Essays, Design Workshops/Exercises, Design Project – Portfolio of work.	4	4	
Type of Subject	Obligatory		
PREREQUIRED COURSES	No		
Teaching and Exams Language	Greek - English		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)		
Course website (URL)			

2. Aims and Objectives – Methods – Skills
a. Learning Outcomes
<p>General context Understanding the importance of proper lighting of spaces, the combination of natural and artificial lighting in the aesthetic perception, as well as the synthesis of the interiors. Analysis of the basic characteristics of natural and artificial lighting inside buildings. Practice in the design of interior lighting. Practice in the design of artificial outdoor lighting. Compilation and presentation of a complete photometry study of interior architecture.</p> <p>Aims and objectives The main objectives of the course are, the understanding of fundamentals of light concepts and photometric issues together with the analysis and composition of space, the development of creativity, experimentation, exploration and formulation of multiple approaches and ideas of a lighting design strategy and composition, as well as the familiarity with various expressive means and drawing techniques.</p> <p>Method - learning outcomes The course is organized around the interrelation between theory and design application. In the theoretical part, a series of lectures is given by the teachers of the course using visual material, where the presented topics are analyzed and discussed with the active participation of the students. In addition, students prepare theoretical individual work through written essays.</p> <p>Students prepare design (workshop) lighting exercises and then a complete a lighting design architectural study [project], individually. These are discussed analyzed and reviewed weekly while communicated by students through drawing presentations of their work in class periodically. (Interim reviews – Final Pin Up) Finally they present all prepared work as a form of Pin Up Presentation and portfolio of Work final hand in.</p> <p>Program</p>

THE SCIENCE OF LIGHT

Visual Perception

Lighting Fundamentals

Lighting Units. Lighting Design Process. Radiometry/Photometry – Lighting Sources – Luminaires

Calculations and Measurement of Light. (Dialux Evolution)

Photometric Studies (Isolux Diagrams – Illuminance – Luminance and Daylight Factor Calculations)

LIGHTING FOR THE INTERIOR SPACES

Residential Lighting

Retail Lighting

Exhibition and Museum Lighting

Office Lighting

Leisure Spaces Lighting

LIGHTING THE EXTERIOR

Urban Lighting. The Floodlighting of Buildings.

Lighting for Parks, Squares and urban public green spaces.

DAYLIGHTING

Natural light availability. Color, Light and Materials.

Natural light in buildings, Control Systems and design considerations.

Upon successful completion of the course the student will:

- Have knowledge of the fundamentals of light physics and the synthetic principles and possibilities in space.
- Have the ability to perceive, analyze, understand and render the elements of light and space (geometric, symbolic, functional, structural, etc.) and the user - human relationship with it.
- Understand the creativity in the use of light as a design tool the lighting design process and how to develop it.
- Have the ability to express and communicate his lighting ideas, verbally and visually [sketches, models, drawings]
- Has the ability to develop and support his theoretical and lighting design approaches to design.

β. Skills

- Research, analysis and synthesis of data and information, using the necessary technologies
- Decision making
- Autonomous work
- Production of new research ideas
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking.
- Application of knowledge in practice

3. Subject Context

The subject deals with one of the most basic design synthesis tools and quality features of the architectural composition and the built environment, that of Natural and Artificial Light.

Basic principles that govern Natural and Artificial Lighting. Natural light, diffusion inside the buildings, colors and texture of the interior surfaces. Physics of artificial Light and Lighting.

The aim of the course is to acquaint students with the design and construction methodology of lighting installations as well as the preparation of a photometry study. The fundamental principles and characteristics of the physics of artificial lighting are analyzed. Applications are presented and issues of design - installation of lighting - the types of lamps, luminaires and their control are analyzed.

Applications in homes, shops, shop windows, entertainment venues. Compilation of a photometry study of interiors.

4. Teaching and learning methods – Evaluation and assessment

<ul style="list-style-type: none"> - Theory and Design Workshops – Main Project Brief/ Site visits - Group Appraisal /Site Analysis - Theory Essay and Design Exercises - Interim Reviews - Project Final Pin Up - Portfolio Hand In. 	<p>Public presentations in Class and in Public and Visiting Lecturers, of the theoretical work, the laboratory exercises and the development phases of the project (project), with a critical attitude of the public (fellow students / teachers) in the classroom, possibility of improvements.</p>															
<p>Use of Information and Communication Technologies</p>	<p>Learning process support through the electronic platform e-class (information and teaching materials, hyperlinks, academic libraries, etc.)</p>															
<p>Teaching organization</p>	<table border="1"> <thead> <tr> <th>Activity</th> <th>Semester Credits</th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>20</td> </tr> <tr> <td>Theory Essay</td> <td>30</td> </tr> <tr> <td>Design Workshop and Exercises</td> <td>20</td> </tr> <tr> <td>Main Design Project</td> <td>60</td> </tr> <tr> <td>Research and Analysis of Bibliography</td> <td>20</td> </tr> <tr> <td>Total</td> <td>150</td> </tr> </tbody> </table>	Activity	Semester Credits	Lectures	20	Theory Essay	30	Design Workshop and Exercises	20	Main Design Project	60	Research and Analysis of Bibliography	20	Total	150	
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<p>Student assesment</p>	<p>Evaluation on:</p> <p>i. Theoretical Work.</p> <p>Evaluation criterias:</p> <ul style="list-style-type: none"> • Completeness • Critical Thinking • Scientific writing <p>ii.Design Workshop and Excersises</p> <p>Evaluation criteria:</p> <ul style="list-style-type: none"> • Experimentation • Creativity and originality 															

	<ul style="list-style-type: none"> • Personal expression and correctness of the illustration • Quality and completeness of the design • Presentation • Consistency in the implementation of the schedule <p>iii. Design Project Evaluation criteria:</p> <ul style="list-style-type: none"> • Application of the methodology • Depth of research and utilization of its data • Experimentation • Creativity and originality • Personal expression and correctness of the illustration • Quality and completeness of the design • Presentation • Consistency in the implementation of the timetable and schedule.
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5. Recommended Bibliography

- Pritchard D. C., Lighting, Addison 1999
- D. Loe & Peter Tregenza, The Design of Lighting
- Peter Tregenza & Michael Wilson, Daylighting, Architecture and Lighting Design, Routledge, New York, 2011.
- Lighting Interior & Exterior, Elsevier – Architectural Press, Oxford 2004
- Bell J., Burt W., Designing Building for Daylighting, CIBSE, Watford 1995
- Phillips D., Daylighting: Natural Light in Architecture, Elsevier 2004
- Elizabeth Wilhide, Lighting: creative planning for successful lighting solutions, London Ryland Peters & Small, 1998
- Fuller Moore, Concepts and practice of architectural daylighting, Van Nostrand Reinhold, New York 1990
- Gary R. Steffy, Architectural lighting design, New York
- Rudolf Arnheim, Art and Visual Perception, A Psychology of the Creative Eye, University California Press, Berkeley, 1974.
- Jun'ichiro Tanizaki In Praise of Shadows, An essay on Aesthetics, Vintage, 2001

Websites and links

- www.pldplus.com - Professional Lighting Design Magazine.
- <https://www.arc-magazine.com/>
- www.mondoarc.com - Mondo Arc
- <http://www.lightingacademy.org> - Lighting Academy.
- www.iald.org – International Association of Lighting Designers
- www.ies.org/lighting - Illuminating Engineering Society of North America, <http://www.ies.org/lighting>
- <https://smlightarchitecture.com/>
- www.dpalighting.com
- <https://womeninlighting.com/>
- <https://www.lightingdesigninternational.com/>
- <https://www.lighting.co.jp/>