

Course unit title:	Lighting Engineering		
Course unit code:	AEEE458		
Type of course unit:	Technical Elective		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	4		
Semester when the unit is delivered:	7-8 (Fall/Spring)		
Number of ECTS credits allocated :	6		
Name of lecturer(s):	Dr. Alexis Polycarpou		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. Describe basic units related to lighting engineering and design. 2. Analyse basic principles of lighting energy efficiency and perform assessment of energy efficiency of existing electrical lighting installations based on EN15193 standard. 3. Analyse and assess units related to indoor and outdoor lighting. 4. Perform assessment of lighting quality based on EN1264 standard. 5. Understand application of theoretical parameters on basic operations of lighting simulation software. 		
Mode of delivery:	Face-to-face		
Prerequisites:	Graduate status	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	<ul style="list-style-type: none"> • The physics of light and vision: Properties of light, photometric units and calculations, vision and the human eye, performance of the human visual system and recommended practice. • The geometry of illumination: graphical representation of light source intensity with polar diagrams, directional control of light. • Lighting design: Uniform lighting systems and applications of the Lumen method calculations, aspects of interior lighting design, glare and non-uniform lighting systems. • Lighting Apparatus: Lamp type performance, operation and selection, factors in luminaires selection. • Daylight design: daylighting and windows, average daylight factor for the sky, internal and external reflections. • System controls and energy considerations: Potential advantages of types of lighting controls, building regulations and other energy efficiency considerations. 		
Recommended and/or required reading:	OSRAM indoor and outdoor lighting Philips Electronics, Lighting and operation equipment		
Textbooks:	Lighting Design Basics, by Mark Karlen, Christina Spangler, James R. Benya, Wiley, ISBN:9781119312277, 2017		
References:	Notes provided by the lecturer.		
Planned learning activities and teaching methods:	Students are taught the course through lectures (3 hours per week) in classrooms or lectures theatres, by means of traditional tools or using computer demonstration. Auditory exercises, where examples regarding matter represented at the lectures, are solved and further, questions related to particular open-ended topic issues are compiled by the students and answered, during the lecture or assigned as		

	<p>homework.</p> <p>Topic notes are compiled by students, during the lecture which serve to cover the main issues under consideration. Students are also advised to use the subject's textbook or reference books for further reading and practice in solving related exercises. Tutorial problems are also submitted as homework and these are solved during lectures or privately during lecturer's office hours.</p> <p>Students are prepared for final exam, by revision on the matter taught, problem solving and concept testing and are also trained to be able to deal with time constraints and revision timetable. The final assessment of the students is formative and is assured to comply with the subject's expected learning outcomes and the quality of the course.</p>
Assessment methods and criteria:	<ul style="list-style-type: none"> • Tests: 40% • Final Exam 60%
Language of instruction:	English
Work placement(s):	No