Course unit title:	Lighting and Acoustics		
Course unit code:	APX412		
Type of course unit:	Compulsory		
Level of course unit:	Diploma Degree of Architect - Engineer		
Year of study:	4		
Semester when the unit is delivered:	8 (Spring)		
Number of ECTS credits allocated :	5		
Name of lecturer(s):	Nicos G. Georgiou		
Learning outcomes of the course unit:	1. Acquiring knowledge of simulation techniques as part of the design procedure, which contributes to the quality and sufficiency of the space designed. 2. Gaining the ability to use contemporary technology tools, in addition to the basic foundations of knowledge, in order to simulate and check the technical and functional sufficiency of a building. 3. To perceive the digital simulation as a quality check tool for a building, in matters of static structure, heating, cooling, lighting, sun absorption, sound and energy. 4. To consolidate the fact that a design's structure, form or volume cannot exceed the technical sufficiency of the project designed, in terms of statics, energy behavior and comfort conditions that the project itself ensures. 5. Comprehending the need of embedding any static, comfort condition and energy behavior in the design procedure.		
Mode of delivery:	E-mail		
Prerequisites:	None	Co-requisites:	None
Recommended optional program components:	ReluxPro		
Course contents:	The course aims at making students understand the basic terminology and principles of acoustics and lighting design, as well as investigating the changing of a certain space's ambience due to the different lighting, as well as acoustic conditions. At the same time, it aims at familiarizing students with the possibilities that digital means offer regarding the simulation of these conditions. During this course, the students will have the chance to get familiar with different kinds of light sources and lighting concepts, and how these can be simulated and tested, so they can achieve an upgraded architectural quality of a building. At the same time, they will get to know a variety of design principles and materials of great importance in the acoustics of a space, and they will find out about contemporary means of sound automations and management, in order to acknowledge their importance in architecture.		

	This course will be structured with a number of lectures and presentations of means and techniques. Each one of these will include an exercise, in order for the students to achieve a better perception of what they learn.
Recommended and/or required reading:	
Textbooks:	• Notes from the course's lectures • Architectural Lighting books • Architectural sound and acoustics books • Websites and catalogs from lighting companies (PHILIPS, OSRAM, Fagerhult, etc) and from light and sound automation companies (KNC etc)
References:	• Ν.Τσινίκας, Ακουστικός Σχεδιασμός Χώρων, University Studio Press, Θεσσαλονίκη, 2005 • Α. Σωτηροπούλου, Ακουστικός Σχεδιασμός Αιθουσών Ακροατηρίου, Ελληνικά Ακαδημαϊκά Ηλεκτρονικά Συγγράμματα και Βοηθήματα, Αθήνα, 2015 • F. Alton Everst, Ken C. Pohlmann, Εγχειρίδιο Ακουστικής, Τζιόλα, 20011. • Φωτισμός & Αρχιτεκτονική, Θεσσαλονίκη, Κτίριο – Επιλογή στη Δόμηση Ε.Π.Ε. 2006 • Kress-Adams, Hannelore, *Light Spaces*, Birkhauser, 2002 • Millet, S. Marietta, *Light revealing architecture*, John Wiley & Sons, Canada, 1996 • Philips, Derek, *Daylighting: Natural Light in Architecture*, Architectural Press, Burlington, 2004 • Lam, William N.C., *Perception & Lighting as formgivers for architecture*, Van Nostrand Reinhold, New York, 1992 • Fontoynont, Marc, *Daylight Performance of buildings*, James&James, Lyon, 1999 • Beker, Nick, Steemers, Koen, *Daylight design of buildings*, James&James, London, 2002 • Major M., Speirs J., Tischhauser A., *Made of Light: The art of Light and Architecture*, Birkhauser, Basel, 2005 • ERCO, *Light Perspectives between culture and technology*, ERCO, Ludenscheid, 2001 • Henri Kelly, Eugene, *Architectural Acoustics*, Nabu Press, Charleston SC, 2011 • Meyers, Victoria, *The shape of sound*, Artifice Books on Architecture, London, 2014 • Bahamon, Alejandro, Alvarez, Ana Maria, *Light|Colour|Sound*, Parramon Ediciones SA, Barcelona, 2010 • Hedfors, Per, *Site soundscapes*, VDM Verlag, 2008
Planned learning activities and teaching methods:	Lectures, visits at light and sound automation companies, *sketching light and shadow* assignment in order to understand how light works, assignments that develop ideas about how handle sound in architecture through design and materials, introduction to simulation techniques, tools, software and their applications.
Assessment methods and criteria:	• Class participation 10% • A' Project 30%

	• B’ Project 30% • Final written exams 30%
Language of instruction:	Greek English offered for Erasmus Students
Work placement(s):	No