

Course unit title:	Architectural Technology IX		
Course unit code:	APXE35		
Type of course unit:	Elective		
Level of course unit:	Diploma Degree of Architect - Engineer		
Year of study:	4		
Semester when the unit is delivered:	From 7 semester		
Number of ECTS credits allocated :	3		
Name of lecturer(s):	Marios Pelekanos		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. Review digital design and theory of design computing, digital fabrication, new construction techniques. 2. Review new material technologies like nanotechnology (“Self Cleaning”, “Air Purifying”, “Easy to Clean”, “Anti- Graffiti”, “Anti- Reflective” properties etc.) or textile manufacture for tensile structures. 3. Analyze prototyping tools and methods, for CAD/CAM machinery at full-scale component manufacturing. 4. Review the development of timber and steel structures and the production of new materials. Recognize membrane and tensile structures. Compare the natural material of wood and the industrially produced steel. 5. Use material protection specifications based on new technologies. 6. Analyze contemporary case studies in terms of use of the available technology of materials. 		
Mode of delivery:	Face-to-face		
Prerequisites:	APX233	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	<ul style="list-style-type: none"> • Digital design: Theory of design computing, digital fabrication and innovative construction techniques. • CAD/CAM Manufacturing: Theory and implementation on prototyping tools and methods, for CAD/CAM machinery at full-scale component manufacturing. • Contemporary structural materials and innovative design: Development of timber and steel structures in the ancient and modern times. Properties and production of new materials. Membrane and tensile structures. • New Technologies: Application of new technologies like nanotechnology (“Self Cleaning”, “Air Purifying”, “Easy to Clean”, “Anti- Graffiti”, “Anti- Reflective” properties etc.) or textile manufacture for tensile structures. Analysis of contemporary case studies in terms of use of the available technology of materials. Material specifications and methods of use. 		
Recommended and/or required reading:	<p>Gyula Sebestyen, New Architecture and Technology, Architectural Press, 2003, ISBN 0-7506-5164-4.</p> <p>“A Green Vitruvius, Principles and practice of sustainable architectural design”, 1999, ISBN 978-1-873936-94-8.</p>		

	<p>Sylvia Leydecker, “Nano Materials in Architecture, Interior Architecture and Design”, 2008, ISBN 978-3-7643-7994-0.</p> <p>Klaus- Michael Koch, “Membrane Structures”, 2004, ISBN 3-7913-3049-7.</p> <p>J. Gordon, Structures of why things don't fall down, Da Capo Press, 1978</p>
Textbooks:	<p>Hristos Athanasopoulos, Building construction, design and technology, Hristos Athanasopoulos Edition, 2003.</p> <p>N.Kalogeras, Ch.Kirpotin, G.Makris, I.Papaioannou, S.Rautopoulos, M.Tzitzas, P.Touliatos, Architectural Technology, Symmetria Editions, Athens, 1999.</p>
References:	<p>W.Huntington-R. Mickadelt, Building Construction Materials and Types of Construction, J. Viley and Sons, 1981.</p>
Planned learning activities and teaching methods:	<p>The taught part of the course is delivered to the students by means of lectures and computer-aided presentations. Lecture notes and presentations are available through the web for students to use in combination with the relevant textbooks.</p> <p>Lectures are supplemented with project work carried out on an individual basis. Students are requested to design and produce construction details and specifications for a small structure. During the semester, course instructors are making comments and corrections on the students' proposals, at every stage of the process.</p>
Assessment methods and criteria:	<ul style="list-style-type: none"> • Project 100%
Language of instruction:	<p>Greek English offered for Erasmus Students</p>
Work placement(s):	