

Course unit title:	Architectural Technology VIII		
Course unit code:	APXE 34		
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):	Prof. Panayiotis Touliatos, Marios Pelekanos		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> <li>1. Review in depth the analysis of construction techniques in the past and today and the correlation between the laws of Nature and design. Identify the properties of the various structural materials and constructural systems (traditional and contemporary) and the basic principles of design methodology.</li> <li>2. Relate the effects of dynamic loads to the main types of bearing systems. Distinguish between durability and stiffness of structures.</li> <li>3. Analyze decision principles on elements and systems, according to the special needs for resistance to the dynamic loading (earthquakes).</li> <li>4. Compare techniques adopted in traditional structures and historical monuments (built without antiseismic regulations), to the techniques proposed for contemporary structures. Identify the basic rules and principles for design, based on today's complex needs.</li> <li>5. Implement the synthesis process through drafting construction plans, sections, elevations and details of a small building with a mixed load bearing system (traditional and contemporary). Develop architectural representation and construction drawings.</li> </ol>		
Mode of delivery:	Face-to-face		
Prerequisites:	APX233	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	<ul style="list-style-type: none"> <li>• <b>Analysis and Concept Design:</b> Systematic and detailed analysis of construction techniques. Correlation between the laws of Nature and design. Basic principles of design methodology. Relation between dynamic loads and main types of bearing systems: Traditional (Wall Bearing System, Wooden Structures, Domes etc.), Frame, Three-point connected arch or frame, post and beam system.</li> <li>• <b>Final Study:</b> Decision principles on appropriate elements and systems, according to the special needs for resistance to the dynamic loading (mainly earthquakes). Techniques adopted in traditional structures and historical monuments, compared to the techniques proposed for contemporary structures. Detailed Design of bearing members based on function, stiffness, form, bioclimatic behavior and economic limitations.</li> </ul>		

	<ul style="list-style-type: none"> <li>• <b>Implementation Study:</b> Drafting construction plans, sections, elevations, details and 3d representations of a small building with a mixed bearing system (combination of load bearing wall, reinforced concrete and light structures).</li> </ul>
Recommended and/or required reading:	<p>Prof. P. Touliatos, N. Andriellou, <b>Earthquake and contemporary structures</b>, Fire Brigade Academy of Greece, 2009.</p> <p><b>European Timber Constructions</b>, EU Raphael Programme (Management of the European Wooden Building Heritage), A. Soikkeli, P, Touliatos, C.B. Cestari, University of Oulu, University Press 2000, ISBN 951-42-5659-X.</p> <p><b>Venice Chart</b> (1964), ICOMOS, 1994.</p>
Textbooks:	<p>N.Kalogeras, Ch.Kirpotin, G.Makris, I.Papaioannou, S.Rautopoulos, M.Tzitzas, P.Touliatos, <b>Architectural Technology</b>, Symmetria Editions, Athens, 1999.</p> <p>Hristos Athanasopoulos, <b>Building construction, design and technology</b>, Hristos Athanasopoulos Edition, 2003.</p>
References:	<p>Prof. P. Touliatos, <b>Architecture and Earthquakes</b>, National Technical University Athens, 2004.</p> <p>Prof. P.Touliatos, <b>Research on the antiseismic behavior of traditional structures in Greece</b>, National Technical University Athens, Antiseismic Protection Organisation Greece, 2001.</p> <p>Prof. P. Touliatos, <b>Identification and Analysis of Local Historical Constructural Systems</b>, Ministry of Culture, Technical Chamber of Greece.</p> <p>Prof. P. Touliatos, <b>The Holy Monastery of Doheiaris, Mount Athos, Greece</b>, National Technical University Athens, 2008.</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 for a small building or structure, with a mixed load bearing constructural system. 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"> <li>• Project 100%</li> </ul>
Language of instruction:	<p>Greek English offered for Erasmus Students</p>
Work placement(s):	