

Course unit title:	Structures in Architecture I		
Course unit code:	APX132		
Type of course unit:	Compulsory		
Level of course unit:	Diploma Degree of Architect - Engineer		
Year of study:	1		
Semester when the unit is delivered:	1 (Fall)		
Number of ECTS credits allocated :	3		
Name of lecturer(s):	Professor Dr. Milton Demosthenous		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. To recognize and to be able to understand the role of the structural system of building structures and for various materials (Reinforcement concrete, Masonry structures, Timber structures and Metallic structures). 2. To distinguish and understand the role of each structural element (plate, beam, truss, joint, column, foundation) and the type of loads supported by each of them. 3. To understand the way transferring the external loads from the superstructure to the foundation. 4. To be able to recognize the different boundary and support conditions of structural elements (fixed, pin, rolling) and the reaction loads developed at each support. 5. To be able to use the equations of equilibrium in order to estimate the support loads. 6. To understand the stress – strain scheme of a material and to estimate the modulus of elasticity (E) and the tension and compression strength from this scheme. 7. To understand the different stressing developed on a beam section by axial force, shear force and bending moment. 8. To understand the different role of the cross area, the moment of inertia and the length of a beam to the deflection of a beam under external loading. 		
Mode of delivery:	Face-to-face		
Prerequisites:	None	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	<p>This course focus on the issues related to the structural behavior of the structures. The synthesis of the structural system and the role of each structural member (plate, beam, joint, column, foundation e.t.c.). on the hole structural behavior and the stability of the structure is examined. Also the cases of loading and the conditions of tension, compression, bending, buckling, shear and torsion of the structural members are studied. Indeed, the role of the boundary support conditions, the geometrical configuration of the structural members and the modulus of elasticity is examined on the developing of stressing and deformation under loading of simple structural members is examined.</p>		
Recommended and/or required reading:	M. Demosthenous “Static and Architecture I”		
Textbooks:	1. Beton Kalender 1984, Vol. 1		

	<ol style="list-style-type: none"> 2. Beton Kalender 1984, Vol. 2 3. Beton Kalender 1984, Vol. 3 4. Beton Kalender 1984, Vol. 4
References:	
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 class for students to use in combination with the relevant textbooks and other notes.</p> <p>Lectures are supplemented with two project works (assignments) carried out on an individual basis. In the first project, students are requested to describe various building structural systems, with different materials and to give simple structural solutions for specific problems. At the second project the students have to do many calculations to estimate and correlate the deflection of various beams with different boundary conditions (supports).</p>
Assessment methods and criteria:	<ul style="list-style-type: none"> • Assignment 1 20% • Assignment 2 20% • Final Exam 60%
Language of instruction:	Greek English offered for Erasmus Students
Work placement(s):	