

Course unit title:	PASSIVE CLIMATIC DESIGN III		
Course unit code:	APXE 31		
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):	Nicos G. Georgiou		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. To understand the most common construction system in Cyprus, Greece and generally over the Eastern Mediterranean area is the so called " Concrete Structures". This construction system uses reinforced concrete leaning components, brick wall construction and plaster finishing. 2. To realise that today the planet earth is experiencing unprecedented development for mankind's overpopulation, global warming and climate change, limiting the available sources of energy and valuable materials and financial crisis. Already the European Union requires testing, improving and changing the way we conduct quality of both existing and new constructions. 3. To provide further knowledge: <ol style="list-style-type: none"> a) on the development and dissemination of concepts on Bioclimatic Architecture b) on benign and renewable energy sources c) on the search and investigation on the design and building design which features from the beginning of the building concept natural ventilation and lighting, shading and insulation sufficient to meet current local climate demands with the minimum expenditure of energy. 4. To provide the necessary relevant knowledge by a small residential design exercise that meets the above objectives. 5. To impress the importance of appropriate choice, both in terms of construction methods and the available building materials, which will strengthen and better reflect the architectural concept and idea, the course seeks a deepening in the manufacturing methods used in the construction process focusing on concrete structures. 6. To deepen in the area of architectural technology. More specifically the course will address ways in which structures become not only able to withstand external loads, to meet the essential requirements imposed by the immediate natural environment, to bear loads and to withstand stress, but also to acquire high quality architecture through the appropriate design decisions. 		
Mode of delivery:	Face-to-face		
Prerequisites:	APXE 331, APXE 333	Co-requisites:	None
Recommended optional program components:	None		

Course contents:	<p>Technology and Design of the reinforced concrete structure and its components with emphasis on bioclimatic design:</p> <ul style="list-style-type: none"> • Framework • Walls (Internal- External) • Thermal Insulation • Coatings and Finishes • Openings and Frames
Recommended and/or required reading:	<p>J. Gordon, Structures of why things don't fall down, Da Capo Press, 1978</p> <p>N. Hawkes, MACmillan P.G., Structures the way things are built, Oxford, 1993</p>
Textbooks:	Hristos Athanasopoulos, Building construction, design and technology , Hristos Athanasopoulos Edition, 2003.
References:	<ul style="list-style-type: none"> • N.Kalogeras, Ch.Kirpotin, G.Makris, I.Papaioannou, S.Rautopoulos, M.Tzitzas, P.Touliatos, Architectural Technology, Symmetria Editions, Athens, 1999. • Mario Salvadori, Why Buildings stand up- The strength of Architecture, Norton and Co, 1990. • W.Huntington-R. Mickadelt, Building Construction Materials and Types of Construction, J. Viley and Sons, 1981. • Mario Salvadori, The bearing structure in architecture, Themeli Editions, Athens, 1981. • Energy Planning, Introduction to Architects, Malliaris Education for the European Commission • Guide of Thermal Insulation of Buildings, second edition, 2010, September, Energy Service, Ministry of Commerce, Industry and Tourism • Energy Design Guide, 2011, Thessaloniki, Building Publishing Ltd. • Guide of Thermal Insulation & Waterproofing, 2011, Thessaloniki, Building Publishing Ltd. • Andreadaki - Chronaki E., Passive Bioclimatic Architecture – Solar Energy Systems, 1985, Thessaloniki, University Studio Press
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 demanding light structure such as bridge etc. 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 80% • Final Presentation 20%
Language of instruction:	Greek English offered for Erasmus Students
Work placement(s):	

