

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	Architecture		
<b>ACADEMIC UNIT</b>	Architecture		
<b>LEVEL OF STUDIES</b>	Diploma		
<b>COURSE CODE</b>	APY 304	<b>SEMESTER</b>	2 <sup>nd</sup>
<b>COURSE TITLE</b>	ARCHITECTURAL TECHNOLOGY I		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
Lectures and technical experimentation	6	6	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	General background, special background, specialised general knowledge and skills development.		
<b>PREREQUISITE COURSES:</b>	N/A		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	Yes (in English)		
<b>COURSE WEBSITE (URL)</b>	-		

### (2) LEARNING OUTCOMES

#### Learning outcomes

*The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.*

*Consult Appendix A*

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course is the introductory course on Architectural Technology with special focus on the understanding and scientific execution of architectural constructions as part of the built work. The students, through the course's curriculum, get introduced to the basic principles of construction technology and on technological matters related to Architectural Design.

By examining the notion and the means of construction technology throughout the human history and by drawing links to complimentary scientific fields, the course's scope envelopes site planning, construction phases, site management as well as the characteristics and application of the building materials towards the understanding and proper use of the them in the construction systems and methods.

Through the analysis of the basic principles of structural engineering, the course seeks to examine the ways that the form and function interact in order to create the final building. In that sense, examples of contemporary buildings are presented and cutting edge construction methods are

examined so as to introduce the students to a combinatory way of thinking and problem solving.

The course's framework is set as a studio and includes presentations and lectures. The main project involves the design and further analysis of an office building with reinforced concrete structure and steel roof. Main focus is set on the interior of the building with construction details of walls, ceilings and floors, as well as main functional aspects such as the building's core, elevators and staircases and an amphitheater. The goal is for the students to further examine technical matters of architectural design such as construction drawings and details and apply them towards the production of construction document.

Specialists from different scientific fields are invited to present lectures following the course's framework. Additionally site visits are organised to instruct students to specific construction matters.

By completing the course, the student should:

- be able to understand the basic and critical characteristics of construction and its connection to the technological and natural aspects affecting it,
- have a basic perception of the tools and techniques required for construction and their use in order to achieve completion of construction,
- be able to distinguish the basic roles during construction and evaluate each one's involvement in the process (engineers, contractors, etc.),
- be able to evaluate the importance of the construction methodology in conjunction to problem-solving,
- be able to perceive some basic construction elements and their connection to time planning,

### General Competences

*Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?*

*Search for, analysis and synthesis of data and information, with the use of the necessary technology*  
*Adapting to new situations*  
*Decision-making*  
*Working independently*  
*Team work*  
*Working in an international environment*  
*Working in an interdisciplinary environment*  
*Production of new research ideas*

*Project planning and management*  
*Respect for difference and multiculturalism*  
*Respect for the natural environment*  
*Showing social, professional and ethical responsibility and sensitivity to gender issues*  
*Criticism and self-criticism*  
*Production of free, creative and inductive thinking*  
 .....  
*Others...*  
 .....

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Decision-making
- Working independently
- Team work
- Production of new research ideas
- Planning and construction of a full-scale structure
- Exercise on reviewing and self-criticism
- Promotion of free, creative and inductive reasoning

### (3) SYLLABUS

- I. The notion of Structure throughout history. Introduction of the Instructors
- II. Elements and Criteria in Design Programming. Presentation of the semester's project
- III. Special design studies: Leed Design, Accesibility, Comfort, Security, Sustainability
- IV. Project Management: Phase 1 – Preparatory Land Works, Foundations
- V. Project Management: Phase 2 – Structural Organisation: Concrete, Steel, Composite

Structures, Prefabrication
VI. Project Management: Phase 3 – Core design: Elevators, staircases and additional functions. Site visit to building Site
VII. Project Design : Amphitheater design: Visual comfort and technical matters. Presentation by Dry Lining System’s Specialist
VIII. Midterm Presentation
IX. Project Management: Phase 4 - Electrical and Mechanical Installations
X. Project Management: Phase 5 – Interior walls and finishes
XI. Project Design: Students’ team reviews
XII. Project Design: Students’ team reviews
XIII. Final Presentation

#### (4) TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	Lectures and technical experimentation	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	YES	
<b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.  The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	15
	Practical exercises on specific methodologies and analysis in smaller groups	45
	Small individual exercises	15
	Group project	20
	Educational visit	10
	Individual study	45
	Course total	<b>150</b>
	<b>STUDENT PERFORMANCE EVALUATION</b> <i>Description of the evaluation procedure  Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other  Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<ol style="list-style-type: none"> <li>Midterm Presentation of group project(60%) comprising of: <ul style="list-style-type: none"> <li>Construction Detail Design</li> <li>Design, organisation and Presentation of functional and structural proposal</li> <li>Comparative implementation of theoretical elements <u>Evaluation Method: Formative evaluation</u></li> </ul> </li> <li>Final Presentation of group project (40%) <u>Evaluation Method: Summative evaluation</u></li> </ol>

#### (5) ATTACHED BIBLIOGRAPHY

- *Basic bibliography:*

- Χρήστος Γ. Αθανασόπουλος ΚΑΤΑΣΚΕΥΗ ΚΤΙΡΙΩΝ ΣΥΝΘΕΣΗ ΚΑΙ ΤΕΧΝΟΛΟΓΙΑ εκδ. Α. Παπασωτηρίου Αθήνα 1991

- Χρήστος Γ. Αθανασόπουλος ΠΡΟΣΤΑΣΙΑ ΚΤΙΡΙΩΝ ΘΕΡΜΟΜΟΝΩΣΗ ΗΧΟΜΟΝΩΣΗ-ΗΧΟΠΡΟΣΤΑΣΙΑ εκδ. Α. Παπασωτηρίου Αθήνα 1991

- HEINRICH SCHMITT ANDREAS HEENE ΚΤΙΡΙΑΚΕΣ ΚΑΤΑΣΚΕΥΕΣ. εκδ.Μ. Γκιούρδας Αθήνα 1994.

- Peter Neufert, Οικοδομική και Αρχιτεκτονική Σύνθεση, Εκδόσεις Γκιούρδας Μ.

- *Suggested bibliography:*

- Meyer-Bohe, Οικοδομικές Λεπτομέρειες, 1000 Τυπικές επιλύσεις κτιριακών κατασκευών, Μ. Γκιούρδας, 1987

- Κουκής, Σ., Δομική Τεχνολογία. Αθήνα 2001

- Watts, Andrew, Modern Construction Handbook. Springer-Verlag Wien New York 2001

- Ching, D. K., Francis, Building Construction Illustrated, J. Wiley & Sons (4th edition) 2008

- Charleson, W. Andrew, Structure as Architecture. Architectural Press – Elsevier, 2001

- Macdonald, J. Angus, Structure and Architecture. Architectural Press – Elsevier, 2001

- Daniels, K., Low Tech, Light Tech, High Tech: Building in the Information Age, Birkhauser, 2000

- Hall, Andrew (Ed). Details in Architecture. Creative Detailing by Leading Architects. Images Publishing, 2009

- Garrison, P. Basic Structures for Engineers and Architects. Blackwell Publications, 2005

- Schulitz, H.C., Sobek W., Habermann, K. Steel Construction Manual, Birkhäuser, 2000

- Herzog, T. Timber Construction Manual, Birkhäuser, 2004

- *Related scientific journals:*

- Detail Magazine, Detail Publishers