

8.19 CE0851 – Masonry Structures

(1) GENERAL

SCHOOL	ENGINEERING SCHOOL		
ACADEMIC UNIT	CIVIL ENGINEERING DEPARTMENT		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	CE0851	SEMESTER	8
COURSE TITLE	Masonry Structures		
INDEPENDENT TEACHING ACTIVITIES <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>	WEEKLY TEACHING HOURS	CREDITS	
	3	4	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Specialisation Course		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes, in English		
COURSE WEBSITE (URL)	https://eclass.uniwa.gr/courses/CIV235/		

(2) LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>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.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i>
<p>Upon successful completion of the course, students will have:</p> <ol style="list-style-type: none"> 1. Knowledge of the main properties of the materials that constitute masonry, as well as of the composite material "masonry", whether it belongs to a modern or an existing construction of load-bearing masonry. 2. Knowledge and understanding of the theory of the mechanical behaviour and of simple structural models for calculation and design of masonry building parts and detailing against static and accidental actions. 3. Adequate comprehension of construction detailing. 4. Knowledge to apply current regulations for the design of modern masonry structures made of unreinforced, confined and reinforced masonry. 5. Basic knowledge for assessment of existing masonry buildings.
<p>General Competences</p> <p><i>Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and</i></p>

<p>appear below), at which of the following does the course aim?;</p> <p>Search for, analysis and synthesis of data and information, with the use of the necessary technology</p> <p>Adapting to new situations</p> <p>Decision-making</p> <p>Working independently</p> <p>Team work</p> <p>Working in an international environment</p> <p>Working in an interdisciplinary environment</p> <p>Production of new research ideas</p>	<p>Project planning and management</p> <p>Respect for difference and multiculturalism</p> <p>Respect for the natural environment</p> <p>Showing social, professional and ethical responsibility and sensitivity to gender issues</p> <p>Criticism and self-criticism</p> <p>Production of free, creative and inductive thinking</p> <p>.....</p> <p>Others...</p>
<p>Specifically, students will be able to perform:</p> <ul style="list-style-type: none"> • Search, analysis and synthesis of data and information, using the necessary technologies. • Decision Making. • Autonomous work. • Promoting free, creative and inductive thinking. 	

(3) SYLLABUS

The course refers to historical and modern constructions made of load-bearing masonry. In the framework of the course, the "Mechanics of Masonry" at a material level is described, whereas simply structural models analyzing the mechanical behavior of the composite material "masonry" against basic loads (e.g. compression, shear, in and out of plane bending) are presented. The current regulatory framework for modern load-bearing masonry structures, in accordance with Eurocodes 6 and 8, is also presented. Finally, the principles for the evaluation and the restoration/strengthening of existing masonry buildings are introduced in accordance with the draft regulation for valuation and structural masonry interventions (KADET).

(4) TEACHING and LEARNING METHODS - EVALUATION

<p>DELIVERY</p> <p><i>Face-to-face, Distance learning, etc.</i></p>	Face-to-face														
<p>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</p> <p><i>Use of ICT in teaching, laboratory education, communication with students</i></p>	Teaching using ICT. Communication via e-mail. Announcements and educational material through the electronic platform e-Class. Use of specialized software for the simulation and analysis of structures made of load-bearing masonry.														
<p>TEACHING METHODS</p> <p><i>The manner and methods of teaching are described in detail.</i></p> <p><i>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.</i></p> <p><i>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></p>	<table border="1"> <thead> <tr> <th>Activity</th> <th>Semester workload</th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>39</td> </tr> <tr> <td>Personal Study</td> <td>46</td> </tr> <tr> <td>Preparation for assignments and project</td> <td>25</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td>Course total</td> <td>110</td> </tr> </tbody> </table>	Activity	Semester workload	Lectures	39	Personal Study	46	Preparation for assignments and project	25					Course total	110
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<p>STUDENT PERFORMANCE EVALUATION</p> <p><i>Description of the evaluation procedure</i></p> <p><i>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</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Language of evaluation: Greek</p> <p>Final written examination: 70%</p> <p>Preparation for the assignments and project: 30%</p> <p>The student's final grade equals to either the grade of the written final examination or the weighted average of the grade of the written final examination and the grades of the assignments. The grade of the assignments is taken into account only in case the grade of the written final exams exceeds a minimum limit.</p>														

(5) ATTACHED BIBLIOGRAPHY

Greek Bibliography:

1. Masonry Constructions, F. Karantoni, Papatotiriou Publications 2012 (in Greek).
2. Masonry Constructions. Assessment and retrofitting for seismic actions, K. Spyrakos Ergonomos IKE 2019 (in Greek).
3. Mechanics of masonry, T.P. Tassios, Symmetria Publications (in Greek).
4. Aseismic design of masonry buildings, M. Tomasevic and F. Karantoni, Kleidarithmos Publications 2004 (in Greek).
5. Design of masonry structures according to Eurocode 6, Foundas Publications (in Greek).
6. Eurocode 6 - Design of masonry structures - Part 1-1: General rules for reinforced and unreinforced masonry structures.
7. Eurocode 6 - Design of masonry structures - Part 1-2: General rules - Structural fire design.
8. Eurocode 8: Design of structures for earthquake resistance -Part 1 : General rules, seismic actions and rules for buildings.
9. Regulations for the assessment and structural interventions for masonry structures, KADET, OASP, 2019 (in Greek).