

COURSE DESCRIPTION

Name of the Course:		Masonry and Wooden Structures						
Specialization Code:		U02.07.ICV.IZ.M24.		Course Code:		3.DS.OB11		
Year of study:	2	Semester:	3	Examination form: (E-Exam; Co- Colloquy; P-Project; P/F-Passed/Failed)	E	ECTS credits granted (CR):	E (Co)	6
					P		P (P/F)	
Course Category: (DF- Fundamental; DD- General engineering; DS-Specialty engineering; DC-Complementary; PR-Practical stage)								DS
Course Type: (OB-Compulsory; OP-Elective; FC-Facultative)								OB
Number of hours per semester: Total of hours per week (TH) x Number of weeks per semester								
TOTAL :	112	Individual study (IS):		56	Contact hours (C + S;L;P):			56
Academic staff member in charge: (Full name, Academic position and Department)				<i>Stoica Nicolae Daniel – Associate Professor - CCIUT</i>				

Faculty	Engineering in foreign languages Master study programme	Number of contact hours per semester				
		Total	Course	Seminar	Laboratory	Project
Field	Civil Engineering	56	28			28
Specialization	Structural Engineering					

Course objectives - Description of the main competences:

Knowledge and facilities in masonry and wooden structural systems design.

Content description:

1. COURSE	<p>First part – Masonry Structural Systems 16 hours</p> <ul style="list-style-type: none"> - Materials properties: units, mortar, composite materials; - Types of masonry structural systems, usage, superstructures and infrastructures conformation; - Structural analysis methods by considering both the linear and nonlinear behavior of masonry structures; soil-structure interaction; - Masonry structures ductility; - Structural analysis models for masonry superstructures; - Structural analysis models for soil-structure interaction; - Masonry building structures vulnerabilities: in plane and out of plane masonry walls behavior. <p>Second part – Wooden Structural Systems 12 hours</p> <ul style="list-style-type: none"> - Timber and glulam properties; - Composing principles of wooden houses; - Constructive solutions for structural elements and partitions; - Wooden walls and frames; - Joints composition and behavior; - Modeling, behavior and design of wooden structures for gravitational and horizontal actions; - Wooden structures ductility.
2. Seminar / Laboratory / Project / Practical stage	<p>Masonry Structural Systems Project 16 hours</p> <ul style="list-style-type: none"> - Conformation for a building with masonry structural walls system according with the corresponding site conditions; - Modeling the masonry structure with a 3D program; Structural responses determination: deflection and sectional efforts; - Design strength capacities for masonry structural walls; - Verifications and design in order to ensure the energy dissipation and a ductile behavior.

	<p>Wooden Structural Systems Project 12 hours</p> <ul style="list-style-type: none"> - Conformation for a building with wooden structural system according with the corresponding site conditions; - Modeling the wooden structure with a 3D program; Structural responses determination: deflection and sectional efforts; - Design strength capacities for wooden structural walls; - Joints verifications and design in order to ensure the energy dissipation and a ductile behavior.
<p>3. Bibliography</p>	<ul style="list-style-type: none"> - CR6 - Masonry Structures Design Code - Daniel Stoica - Structural modeling of masonry wall with ETABS program - Daniel Stoica – Soil-structure interaction modeling with ETABS program - Daniel Stoica – Wooden structure modeling with ETABS or SAP2000 program - Daniel Stoica – Courses notes - Ehsan Minaie – Vulnerability of reinforced masonry structures in seismic regions - Miha Tomazevic – Earthquake resistant design of masonry buildings - Narendra Taly – Design of reinforced masonry structures - Frederick Putnam Spalding – Masonry structures -Thomas Paulay, M.J.Nigel Priestley – Seismic design of reinforced concrete and masonry buildings - A.W. Hendry, B.P. Sinha, S.R. Davies – Design of Masonry Structures - Paulo José Brandão Barbosa Lourenço - Computational strategies for masonry structures - Donald E. Breyer, Kenneth J. Fridley, Kelly E. Cobeen, David G. Pollocj Jr. – Design of wood structures - E.C. Ozelton, J.A. Baird – Timber Designers’s Manual - J. Porteous, A. Kermani – Structural Timber Design to Eurocode 5 - A. Kemany – Structural Timber Design - F. Naeim, J.M. Kelly – Design of Seismic Isolated Structures – From Theory to Practice - Morandi, P. (2007). Inconsistencies in Codified Procedures for Seismic Design of Masonry Buildings. Master Degree Dissertation, European School for Advanced Studies in Reduction of Seismic Risk, Rose School, Pavia, Italia. http://www.roseschool.it/downloads/masters-dissertations-individual-studies-2007.html/2 - Newcombe, M. (2008). Seismic design of multistorey post-tensioned timber buildings. Master Degree Dissertation, European School for Advanced Studies in Reduction of Seismic Risk, Rose School, Pavia, Italia http://www.roseschool.it/downloads/masters-dissertations-individual-studies-2008.html - Tokoro, K.T., Anderson, J., Bertero, V. (2004). Seismic performance of masonry buildings and design implications. PEER report 2004/01. http://peer.berkeley.edu/publications/peer_reports/reports_2004/0401.pdf

Criteria to be considered for the final mark	Weight of each criterion in the final mark (%)
1. Exam defence (final examination)	40%
2. Appreciation during the entire semester	
2.1 Seminar activity	
2.1 Laboratory activity	
2.2 Project activity (the project has not a distinct final mark)	50%
3. Periodical examinations	
3.1 Written / oral examination	
3.2 Home works, reports, essays etc.	10%
4. Other criteria (to be specified)	

Short description of the final evaluation procedure:

Estimation of the total number of hours per semester requested for the individual study (IS)

Type of individual activity	No. of hours	Type of individual activity	No. of hours
1. Study of the course notes	12	8. Preparation of the final examination	8
2. Study of the compulsory bibliography	6	9. Advisory class participation	
3. Study of the supplementary bibliography	6	10. Practical documentation on site	
4. Preparation of specific activities	14	11. Additional documentation on library	
5. Preparation of home works	6	12. Internet network documentation	4
6. Preparation of periodical written examinations		13. Others (to be specified)	
7. Preparation of periodical oral examinations		TOTAL number of hours	56

Date:

March 15, 2013

Signature of the Academic Staff member in charge:

Stoica Nicolae Daniel