



COURSE DESCRIPTION

1. Program description

1.1	University	Technical University of Cluj-Napoca
1.2	Faculty	Constructions
1.3	Department	Civil Constructions and Management
1.4	Domain of studies	Civil Engineering
1.5	Cycle of Studies	Bachelor of Science
1.6	Undergraduate Study	Civil Engineering (CE)
1.7	Type of Studies	Full-time
1.8	Code	44.00

2. Course Information

2.1	Course Name	Timber Structures									
2.2	Subject Area	Civil Engineering									
2.3	Course Instructor	Lecturer Eng. Ruxandra Dârmon									
2.4	Course Tenure	Lecturer Eng. Ruxandra Dârmon									
2.5	Year of Study	III	2.6	Semester	II	2.7	Grading	Colloquy	2.8	Course system/practice	DS/DOB

3. Estimated Timing

Year / Sem	Course Name	No. Of weeks	Course Applications			Course Applications			Individual Study	TOTAL	Number of Credits
			[hours/week]			[hours/sem.]					
			S	L	P	S	L	P			
II	Timber Constructions	14	2	1		28	14		62	104	4

3.1	No. of Weekly Hours		3.2	course		3.3	applications	
3.4	Total No. of Hours		3.5	course		3.6	applications	
Individual Study								Hours
Study with text books, course, bibliography, notes								28
Additional research in library, computers(internet) and on site								10
Assignments preparation, themes, referrals, portfolios, essays								20
Supervision								2
Exams								2
Other activities								-
3.7	Total Hours of Individual Study			62				
3.8	Total Hours per Semester			104				
3.9	Number of Credits			4				

4. Pre-requisite (where applicable)

4.1	Curricula	Courses to pass: Mechanics (I, II), Strength of Materials (I,II), Statics (I, II), Buildings (I)
4.2	Competence	Not applicable

5. Conditions (where applicable)

5.1	Course development	Not applicable
5.2	Application development	Not applicable

6 Gained Specific Competences

Professional competences	Theoretical Knowledge (must know)	Quality Evaluation of Wood in Construction Must know the advantages and disadvantages of featuring wood in constructions Must know trial equipments and methods on wood and to interpret/explain results Must know the technology of wood to wood and wood to metal connections Must know the typical sections used in wood constructions
	Gained Knowledge (know what to do)	At the end of the course the students will be capable of: Evaluating specified loads (permanent, temporary: long, medium, short term, instantaneous) that act upon wood constructions Designing and calculating (dimensioning) of elements and assemblies of wood in bending (in one or two directions), tension, compression with no eccentricity and bending with compression Designing and calculating (dimensioning) of wood connections
	Abilities (know what to use)	At the end of the course the students will be capable of: Applying current Building Codes in designing some elements and assemblies of wood construction and wood structure connections design, as well, Checking if wood connections were correctly or incorrectly done; Presenting/writing a technical report including calculations and material quantities
Transversal competences	Team work skills when participating in complex projects, following the technical and scientific requirements of the activity, problem solving of specific issues of wood structures and distribution/delegation of tasks to personnel working under supervision.	

7 Course Goal/Target (as a result of gained specific competences)

7.1	Overall goal of the course	The development of competences considering safety requirements and life time expectancy of wood constructions
7.2	Specific goals of the course	Gaining theoretical knowledge regarding wood elements design and specific wood connection design as well.

8. Course description

8.1. Curs (programa analitica)		Methods	Observations
1	1. BASICS. Introduction in economics of forestry. Advantages and disadvantages of wood construction. Classification of wood constructions. Physical and mechanical properties. Classification of wooden materials. Wood defects and strength classes. Pest control, fungus control and fire control of elements for wood construction	Presentation	Video-projector
2	THE MECHANICAL PROPRIETIES OF WOOD FOR CONSTRUCTION AT DIFFERENT LOADS AND THE FACTORS THAT INFLUENCE THEESE PROPRIETIES.		
3	STRUCTURAL WOOD ELEMENTS WITH SIMPLE CROSS SECTION. Building roof framing	Presentation	Video-projector
4	DESIGN OF ELEMENTS WITH SIMPLE CROSS SECTION	Presentation	Blackboard

	ACCORDING TO SR EN 1995-1-1		presentation, colored chalk
5	CONNECTIONS USED IN WOOD CONSTRUCTIONS. Connection/jointures binding rules. Design and calculation of carved connections	Presentation	Video-projector
6	CONNECTIONS USED IN WOOD CONSTRUCTIONS. Design and calculation of connections with splines. Design and calculation of connections with rods.		
7	CONNECTIONS USED IN WOOD CONSTRUCTIONS. Design and calculation of glued connections.		
8	DESIGN OF ELEMENTS WITH BUILT-UP SECTION. Connectors and metallic elements used in jointures.		
9	CONSTRUCTIONS FROM PLANE ELEMENTS. BEAMS – design and calculation		
10	CONSTRUCTIONS FROM PLANE ELEMENTS. TRUSSES – design and calculation		
11	CONSTRUCTIONS FROM PLANE ELEMENTS. FRAMES – design and calculation		
12	CONSTRUCTIONS FROM PLANE ELEMENTS. ARCHES – design and calculation		
13	BRACING OF STRUCTURES OF PLANE ELEMENTS		
14	TRIDIMENSIONAL CONSTRUCTIONS. FOLDED SURFACES. DOMES. CUPOLAS - design and calculation		
8.2. Applications		Methods	Modeling
1	Structural design of a wood roof framing plan - assignment	Presentation	Machete
2	Assignment 1: Roof Framing Snow Load Evaluation	Presentation, applications	SR EN 1991-1-3
3	Roof Framing Wind Load Evaluation	Presentation, applications	SR EN 1991-1-4
4	Assignment 2: Design of framing elements – LATHS Ultimate Limit States Design and Serviceability Limit States	Presentation, applications	SR EN 1995-1-1
5	Assignment 3: Design of framing elements – RAFTERS Ultimate Limit States Design and Serviceability Limit States	Presentation, applications	
6	Assignment 4: Design of framing elements – PURLINS Ultimate Limit States Design and Serviceability Limit States	Presentation, applications	
7	Assignment 5: Design of framing elements – POSTS Ultimate Limit States Design and Serviceability Limit States	Presentation, applications	
Bibliography: 1. Andreica H.-A., Berindean A.-D., Darmon R. M. – STRUCTURI DIN LEMN, Ed. U.T.PRESS 2. Marusciac D., Andreica H.-A. – CONSTRUCȚII DIN LEMN, U.T. C.-N. 3. Marusciac D – CONSTRUCȚII MODERNE DIN LEMN, Ed. Tehnică, București 4. Natterer, J., ș.a. – CONSTRUCTION EN BOIS, Laussane, Elveția 5. Furdui, C., - CONSTRUCȚII DIN LEMN, Ed. Politehnica, Timișoara 6. Standards, Norms, Specific Technical Regulations (SR EN 1995-1-1-2005, SR EN 338-2004, SR EN 1990-2004, SR EN 1991-1-1-2004, SR EN 1991-1-3-2005, SR EN 1991-1-4-2006)			

9. Corroboration of course content with the expectations of epistemic community's representatives, of professional associations and of employers adjacent to the program

The achieved competences will be a requirement for the employees working for consulting companies and contractors (site and supplying)

10. Evaluation

Type of activity	10.1	Evaluation measures	10.2	Evaluation methods	10.3	Grading Distribution
Coure		Responding to 5 questions within the course content (theory)		Writing (1 hour exam)		44.44%
Applications		Solving 2 problems (design)		Writing		22.22%

Applications		Evaluation of the 5 assignments		(1 hour exam) Presentation		33.33%
10.4 Minimum standard of performance						
Evaluation of 5 assignments (5 minimum grade), Evaluation of 2 design problems (5 minimum grade), responding to minimum 3 out of 5 questions (5 minimum grade)						

Date of completion
september 2016

Course Tenure
Lecturer ,
Dr Eng_MSc Ruxandra Dârmon

Course Instructor
Lecturer,
Dr Eng_MSc Ruxandra Dârmon

Date of approval within department
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Department Manager
Senior Lecturer,
Dr Eng_Claudiu Aciu