

SYLLABUS

1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Constructions
1.3	Department	Civil Constructions and Management
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	Civil Engineering (CCIA-eng)
1.7	Form of education	Full time
1.8	Subject code	39.00

2. Data about the subject

2.1	Subject name	Timber structures						
2.2	Subject area	Civil engineering						
2.3	Course responsible/lecturer	Şef lucr. Dr. ing. MSc Ruxandra M Dârmon ruxandra.darmon@ccm.utcluj.ro						
2.4	Teachers in charge of seminars	Şef lucr. Dr. ing. MSc Ruxandra M Dârmon ruxandra.darmon@ccm.utcluj.ro						
2.5	Year of study	3	2.6 Semester	I	2.7 Assessment	C	2.8 Subject category	DS/DOB

3. Estimated total time

3.1	Number of hours per week	1	3.2 of which, course:	1	3.3 applications:	1
3.4	Total hours in the curriculum	50	3.5 of which, course:	14	3.6 applications:	14
Time distribution						hours
Manual, lecture material and notes, bibliography						18
Supplementary study in the library, online and in the field						10
Preparation for seminars/laboratory works, homework, reports, portfolios, essays						30
Tutoring						-
Exams and tests						4
Other activities						-
3.7	Total hours of individual study	62				
3.8	Total hours per semester	104				
3.9	Number of credit points	4				

4. Pre-requisites (where appropriate)

4.1	Curriculum	Material strength I and II
4.2	Competence	N/A

5. Requirements (where appropriate)

5.1	For the course	N/A
5.2	For the applications	N/A

6. Specific competences

Professional competences	<p>C5.1 The student should be able to identify and to select the appropriate technical methods for design of timber structures</p> <p>C5.2 The student should be able to understand the specific terms and engineering methods for timber structural design.</p> <p>C5.3 The student should be able to apply the dimensioning and verification principles for timber structures</p> <p>C5.4 The student should be able to elaborate the technical documentation for a building, in line with the building code requirements.</p>
Cross competences	<p>CT1 The application a good working strategy, based on efficiency and responsibility.</p> <p>CT2 Responsibility at the working place and good team work strategy.</p> <p>CT3 Continuous personal development and the ability to adopt new technologies and technical specifications.</p>

7. Discipline objectives (as results from the *key competences gained*)

7.1	General objective	<p>Technical design of timber structures.</p> <p>Project management time</p>
7.2	Specific objectives	<p>Constructive and functional design of timber structures according to Eurocode 5.</p>

8. Contents

8.1. Lecture (syllabus)	Teaching methods	Notes
1. Introduction. Classification of timber structures. Wood material properties. Advantages and disadvantages of timber structures. Defects.	Presentation, discussion	Projector
2. Mechanical properties of timber structures.		
3. Roof framing systems.		
4. Design of timber elements with simple cross section		
5. Connections used in timber structures. Design of carpentry joints.		
6. Wood engineered products.		
7. Fire safety strategy according to P118/99		
8. Design of plane elements. Beams – design and calculation		
9. Bracing timber structures – design and calculations		
10. Timber arch structures with 2 and 3 pins		
11. Timber frames – design and calculations		
12. Spatial structures – domes, cupolas		
13. Timber protection against fungi and mold. Fire protection.		
Bibliography		

<ol style="list-style-type: none"> 1. R.Darmon <i>Timber structures</i> – lecture notes. 2. Porteous J.,Kermani A. <i>Structural Timber Design to Eurocode 5</i>, 2 nd. Edition, Wiley-Blackwell, 2013. 3. SR EN 1991 Actions on structures (parts 1-1, 1-3, 1-4) 4. Natterer, J., ş.a. – <i>Construction en bois</i>, Laussane, Elveția 5. SR EN 1995 Design of timber structures. 		
8.2. Applications/Seminars	Teaching methods	Notes
1. Structural design of a timber roof framing - assignment	Presentation, discussion	Blackboard
2. Evaluation of variable loads: wind and snow.		
3. Dimensioning and verification at limit states: BATTENS		
4. Dimensioning and verification at limit states: RAFTERS		
5. Dimensioning and verification at limit states: PURLINS		
6. Dimensioning and verification at limit states: POSTS. Timber material extract.		
Bibliography <ol style="list-style-type: none"> 1. R.Dârmon – Timber structures handbook – notes. 2. 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. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

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

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	Theory (questions and/or multiple-choice test paper) and 1-2 problems	Written exam: 2 hours (1 hr theory + 1 hr problems)	100%
10.5 Applications	Project submission	Oral defence: 10-15 min	100%
10.6 Minimum standard of performance			
Grade 5 for theoretical exam, Grade 5 for problems and the project submission in due time with minimum 5 grade.			

Date of filling in:		Title Surname Name	Signature
18.10.2018	Lecturer	Şef lucr. dr ing MSc Ruxandra DÂRMON	
	Teachers in charge of application	Şef lucr. dr ing MSc Ruxandra DÂRMON	

Date of approval in the department	Head of department Prof.dr.ing. Conf.dr.ing. Claudiu Aciu
Date of approval in the faculty	Dean Prof.dr.ing. Conf.dr.ing. Nicolae Chira
_____20.07.2018_____	