

## SYLLABUS

### 1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Civil Engineering
1.3	Department	Constructii civile si management
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	Civil, Industrial and Agricultural Buildings /Engineer (English language)
1.7	Form of education	Full time
1.8	Subject code	41.0

### 2. Data about the subject

2.1	Subject name				Constructii din lemn						
2.2	Course responsible/lecturer				Sl.Dr.Ing. Darmon Ruxandra - Mihaela-Ruxandra.Darmon@ccm.utcluj.ro						
2.3	Teachers in charge of seminars				Sl.Dr.Ing. Darmon Ruxandra - Mihaela-Ruxandra.Darmon@ccm.utcluj.ro						
2.4	Year of study	3	2.5	Semester	1	2.6	Assessment	C	2.7	Subject category	DID/DI

### 3. Estimated total time

3.1	Number of hours per week	3	3.2	of which, course:	2	3.3	applications:	
3.4	Total hours in the curriculum	42	3.5	of which, course:	28	3.6	applications:	
Individual study								hours
Manual, lecture material and notes, bibliography								14
Supplementary study in the library, online and in the field								7
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								10
Tutoring								0
Exams and tests								2
Other activities								0
3.7	Total hours of individual study	33						
3.8	Total hours per semester	75						
3.9	Number of credit points	3						

### 4. Pre-requisites (where appropriate)

4.1	Curriculum	Curriculum
4.2	Competence	Competence

### 5. Requirements (where appropriate)

5.1	For the course	For the course
5.2	For the applications	For the applications

## 6. Specific competences

Professional competences	<p>C5.1 Identification, selection of the specific terminology, concepts and design methods for timber structures</p> <p>C5.2 The use and application of the specific timber design methods</p> <p>C5.3 Dimensioning and verification of timber structures design elements.</p> <p>C5.4 Application of the design and quality standards for timber structural design.</p> <p>C5.5 The elaboration of the specific documentation and safety assessments for timber design, in line with the modern criteria and code requirements.</p>
Cross competences	<p>CT1 The application of the workplace strategy in agreement with the norms and professional ethics code.</p> <p>CT2 The application of the team working strategy based on the professional hierarchy.</p> <p>CT3 Research of the latest technical advances and Continual personal development.</p>

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

7.1	General objective	General objective
7.2	Specific objectives	Specific objectives

## 8. Contents

8.1. Lecture (syllabus)	Teaching methods	Notes
<p>INTRODUCTION.</p> <p>Advantages and disadvantages of wood construction.</p> <p>Classification of timber structures.</p> <p>Physical and mechanical properties and the factors that influence these properties.</p> <p>Classification of wooden materials.</p> <p>Wood defects and strength classes.</p> <p>Decay control, fungus control and fire control of elements for timber structures</p>	-	-
STRUCTURAL TIMBER ELEMENTS WITH SIMPLE CROSS SECTION.		
Building roof framing elements and calculation		
DESIGN OF ELEMENTS WITH SIMPLE CROSS SECTION ACCORDING TO SR EN 1995-1-1		
CONNECTIONS USED IN TIMBER CONSTRUCTIONS.		
Types of fasteners. Classification of timber connectors		
Design and calculation of carpentry joints		
DESIGN OF ELEMENTS WITH BUILT-UP SECTION.		
Connectors and metallic elements used in jointures.		
CONSTRUCTIONS FROM PLANE ELEMENTS. BEAMS – design and calculation		
CONSTRUCTIONS FROM PLANE ELEMENTS. TRUSSES – design and calculation		
CONSTRUCTIONS FROM PLANE ELEMENTS. FRAMES – design and calculation		
CONSTRUCTIONS FROM PLANE ELEMENTS. ARCHES – design and calculation		
BRACING STRUCTURES FOR PLANE ELEMENTS		
TRIDIMENSIONAL CONSTRUCTIONS. FOLDED SURFACES. DOMES. VAULTS - design and calculation		
WOOD natural degradation _ Preservation methods		

REVIEW – Carpentry joint design		
Bibliography 1. Porteous J., Kermani A. – Structural Timber Design to Eurocode 5, 2nd. Edition, Wiley-Blackwell, 2013. 2. Mc Kenzie W.M.C, Zhang B., - Design of structural timber to Eurocode 5, 2nd. Edition, London, New York: Palgrave Macmillan, 2007 3. Natterer, J., ș.a. – CONSTRUCTION EN BOIS, Laussane, Elveția		
Bibliography 8.2. Applications/Seminars		
8.2. Applications/Seminars	Teaching methods	Notes
Assignment 1: Actions on the structure Evaluation of the Snow and Wind Loads		
Assignment 2: Design of framing elements – BATTENS Ultimate Limit States Design and Serviceability Limit States		
Assignment 3: Design of framing elements – RAFTERS Ultimate Limit States Design and Serviceability Limit States		
Assignment 4: Design of framing elements – PURLINS Ultimate Limit States Design and Serviceability Limit States		
Assignment 5: Design of framing elements – POSTS Ultimate Limit States Design and Serviceability Limit States		
Bibliography 1) Andreica H.-A., Berindean A.-D., Darmon R. M. – STRUCTURI DIN LEMN, Ed. U.T.PRESS 2) 1. Porteous J., Kermani A. – Structural Timber Design to Eurocode 5, 2nd. Edition, Wiley-Blackwell, 2013. 3) 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)		
TRIDIMENSIONAL CONSTRUCTIONS. FOLDED SURFACES. DOMES. VAULTS - design and calculation		
Bibliography		

**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 required 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	Multiple choice test	Written test	Written test
10.5 Applications	Roof design project	Powerpoint presentation	Powerpoint presentation
10.6 Minimum standard of performance			
50% test score and the project assessment passed			

Date of filling in:		Title Surname Name	Signature
	Lecturer	Sl.Dr.Ing. Darmon Ruxandra - Mihaela	
	Teachers in charge of application	Sl.Dr.Ing. Darmon Ruxandra - Mihaela	

Date of approval in the department .....	Head of department conf.dr.ing. Caludiu ACIU
20/06/2025	
Date of approval in the faculty .....	Dean prof.dr.ing Daniela MANEA
25/06/2025	