1A FISA	CU 6.4
Semester 6	4 School ECTS - 3 Company ECTS

CU 6.4: WOOD MECHANICS AND REGULATIONS

Director of studies: Laurent BLERON

General CU objectives:

• Understand and master the models of the mechanics of deformable solid media with a view to pre-sizing and sizing of a timber construction system (linear elastic behaviour and minor disturbances).

• Understand and control the loading and sizing rules of straight structural elements according to the Eurocode (EC0, EC1 and EC5).

• Acquire the basic knowledge necessary to understand the European regulatory system and to bring new products to market.

Consists of:

- Module 1: Wood mechanics
- Module 2: French and European regulations
- Module 3: Not applicable
- Industrial assessment

Hourly volume

In-person		*Self-directed study*
26.25 H	**Lectures**	**20.00 H**
40.00 H	**Tutorials**	
0.00 H	**Practicals**	

Positioning of the CU in the School reference system:

semester 6

Units of skills

In accordance with the RNCP sheet

Updated on 19 March 2025

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Module 1: Wood mechanics	**Coefficient 1**
Session leaders: Laurent BLERON, Frédéric GABRYSIAK, New lecturer	
Teaching assistants:	
Prerequisites: none	
Teaching materials: Course notes – Reading list	
Assessment methods: individual Class assignment– File– Practical examination	

Learning outcomes	**Description**	**Number of student hours (in-person)**		
		Lectures	**Tutorials**	**Practicals**
Describe the mechanical behaviour of timber for different mechanical stresses. Analyse a mechanical system and calculate a state of stresses and deformations in a structure.	Mechanical behaviour of timber.	1.75		
	Constraints and deformations under simple stresses.	5.25		
	Calculations of isostatic and hyperstatic systems according to energy and force methods.	5.25	16.00	
		12.25	**16.00**	**0.00**

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Module 2: French and European regulations	**Coefficient 1**
Session leaders: Eric DIEBLING, Jérôme ROBIN, Rémi SENNEPIN (CRITTBois), New lecturer	
Teaching assistants:	
Prerequisites: Know how to determine the state of stress and deformation in a mechanical system.	
Teaching materials: Course notes – Presentation slides	
Assessment methods: individual Class assignment– Report	

Learning outcomes	**Description**	**Number of student hours (in-person)**		
		Lectures	**Tutorials**	**Practicals**
Describe the French and European regulatory system. Establish a load path, define the loads acting on a building. Be able to size and implement the structure of a timber building, in accordance with national and European regulations.	Structuring of standards, basic standards, DTU (building standards), labels, structuring of civil engineering regulations.	1.75		
	– Normative environment ATE, CEN, DTU, ATEC, ATECS	3.50		
	– Eurocode 0, Eurocode 1	3.50		
	– Introduction to Eurocode 5	5.25	24.00	
		14.00	**24.00**	**0.00**

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Industrial **assessment**	**Coefficient**
Session leaders: Apprenticeship supervisor (in company), Laurent BLERON (CU 6.4 supervisor at ENSTIB)	
Teaching assistants:	
Prerequisites: Module 1	
Teaching materials: Course notes – Company documents, Technical Centre documents, ...	
Assessment methods: Individual Viva - Report	

Learning outcomes	**Description**	**Number of student hours (in-person)**		
		Lectures	**Tutorials**	**Practicals**
Be capable of designing an extension to a timber building in accordance with Eurocodes, as well as national and European regulations.	This project will apply the skills acquired during this course unit to a real-world example. Deliverables will include a structural design report and detailed construction plans. The design report must clearly present all assumptions (e.g., location, altitude, dimensions, load cases), define the relevant load scenarios, and specify the properties of structural elements. The structural analysis will be performed using professional software commonly used in timber construction, such as ACORD, MD-BAT, etc. Additionally, an Excel spreadsheet for the design of one of the structural elements will be included as part of the project deliverables.			
		0.00	**0.00**	**0.00**

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