



Course Code CVEE-457	Course Title Timber Structures	ECTS Credits 6
Department Engineering	Semester Fall, Spring	Prerequisites CVEE-320, CVEE-352
Type of Course Elective	Field Civil and Environmental Engineering	Language of Instruction English
Level of Course 1 st Cycle	Year of Study 4 th	Lecturer(s) Dr Loizos Papaloizou
Mode of Delivery Face-to-face	Work Placement N/A	Co-requisites None

Objectives of the Course:

The main objectives of the course are to:

- Introduce the nature and inherent characteristics of timber and its reconstituted and engineered products
- Understand the basic structural behavior of timber structures under the common loading conditions
- Provide a step-by-step approach to the design of the most commonly used timber elements and connections using solid timber, glued laminated timber or wood based structural products

Learning Outcomes:

After completion of the course students are expected to:

- Apprehend the most important timber construction methods.
- Understand the mechanical properties and deformation properties of timber.
- Learn how to calculate the loads for a given simple timber structure and perform a static and dynamic analysis.
- Be able to understand and apply the basic design principals for timber structures according to the latest design codes.
- Learn how to design timber joints.
- Understand the effects of seismic loads on timber structures and recognize the major factors that are related to the severity of these effects.

Course Contents:

- Types of timber and production process.
- The structure of timber. Defects in wood.
- Engineered wood products
- Strength grading of timber and strength classes
- Effects of moisture.
- Physical and mechanical properties. Common tests.
- Durability issues and preservation techniques.

- Introduction to Eurocode 5 requirements. Safety factors and design values.
- Classification of actions on timber structures. Design Limit states.
- Design of Members Subjected to Flexure. Bending. Shear. Torsion.
- Design of Members and Walls Subjected to Axial or Combined Axial and Flexural Actions
- Design of stability bracing, floor and wall diaphragms
- Design of Glued-Laminated Members
- Design of Joints. Types of connectors. Metal Dowel-type Connections.

Learning Activities and Teaching Methods:

Lectures, projects, exams, discussion

Assessment Methods:

Homework, Project, Mid-Term(s), Final Exam.

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Jack Porteous, Abdy Kermani	Structural Timber Design to Eurocode 5 (e-book)	Wiley- Blackwell	2013	978-1-118- 59729-3

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
H.J. Larsen; V. Enjily	Practical Design of Timber Structures to Eurocode 5 (e-book)	ICE Publishing	2009	978-0- 7277- 4043-4
William M.C. McKenzie, Binsheng Zhang	Design of Structural Timber to EC5 (e- book)	Palgrave Macmillan	2007	97811370 78001