



Course Syllabus

Course Code	Course Title	ECTS Credits
ARCH-312	Construction II - Timber/Steel	4
Prerequisites	Department	Semester
ARCH -311	Architecture	Spring
Type of Course	Field	Language of Instruction
Required	Architecture	English
Level of Course	Lecturer(s)	Year of Study
1 st Cycle	Markella Menikou	3 rd
Mode of Delivery	Work Placement	Corequisites
Face to Face	N/A	ARCH-302

Course Objectives:

The main objectives of the course are to:

- Introduce students to the application of a knowledge base that clearly differentiates architecture from other processes of cultural production.
- Present the basic material characteristics and properties of timber and steel.
- Develop a foundational knowledge of the manufacturing processes and properties of timber and steel as applied in building construction.
- Introduce the principles of timber and steel structures and their behaviour in load carrying.
- Encourage students to appreciate the historic significance of technological development in architecture and how materials, techniques in structure, construction and environmental modification are integrated in the generation and realisation of architectural designs.
- Introduce the principles underlying performance criteria in construction, identify reference texts to build knowledge and understanding and explore contemporary case studies to test analytic capability and develop a 'language of construction'.
- Introduce students to the construction and structural principles of Timber and Steel, both as principal systems of primary structure as well as infill materials.
- Inspire students to engage in experimental/ alternative use of materials through a solid understanding of the basic/ traditional applications
- Introduce students to detail drawing as a tool for studying and devising construction applications.

Learning Outcomes:

After completion of the course students are expected to be able to:

1. Recognise the terminology used in timber and steel construction, and the performance criteria applied to construction.
 2. Comprehend the basic material characteristics and properties of timber and steel.
 3. Interpret the principles, possibilities and limits of these materials as load carrying structures.
 4. Identify how sustainability and principles of environmental modification are applied in timber and steel construction.
 5. Analyse construction drawings in the context of both 'instrumental' and 'experiential' performance.
 6. Demonstrate their ability to undertake research, analysis and develop understanding from directed reading and published precedent that supports the acquisition of technological knowledge.
 7. Assess, apply and integrate appropriate timber and steel construction systems in response to user needs, architectural intentions, building regulations, context and performance criteria.
8. Formulate a mature and personal stance regarding key technical strategies and construction concepts.

Course Content:

- Principles underlying performance criteria in building construction
- Materials and processes
- Structural systems in timber and steel/terminology/ Preliminary sizing
- Timber frame and fire / Steel frame and fire
- Lightweight construction / dematerialisation
- Water Penetration Resistance / Time: weathering / wear
- Dimensional co-ordination: manufacturing tolerances/ precision of fit/ standardisation/ modularisation / repetition
- Handling: component dimensions / manufacture>transportation>assembly
- Prefabrication/ The process of construction and the concept of Buildability
- Rules for detail & degree of conversion
- Cost factors, legislative Framework & Building Regulations

Learning Activities and Teaching Methods:

Lectures, directed readings, case studies analysis, desk-crits, group discussions, student participation, presentations.

Assessment methods:

Case study analysis assignment (Midterm Exam), Final assignment, Attendance + Participation, Final Exams

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
CONSTRUCTING ARCHITECTURE, Materials Processes Structures (2 nd Edition)	Andrea Deplazes	Birkhauser	2008	3764386304
Lecturer's Notes	Markella Menikou			

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Modern Construction Envelopes	Watts Andrew	Ambra	2014	9783990436042
Modern Construction Handbook	Watts Andrew	Ambra	2013	9783990434550
Building with Steel : Details, Principles, Examples	Reichel Alexander	Birkhauser	2012	9783034614788
Detail Practice : Timber Construction : Details, Products, Case Studies	Hugues Theodor	Birkhauser	2012	9783034615747
Mitchell's - Introduction to Building (3rd edition)	Derek Osbourn & Roger Greeno	Longman Group, UK	2002	0582473039