



Course Code ARCH-311	Course Title Construction I (Concrete/Masonry)	ECTS Credits 4
Department Architecture	Semester Fall	Prerequisites ARCH-112/ ARCH -212
Type of Course Required	Field Architecture	Language of Instruction English
Level of Course 1 st Cycle	Year of Study 3rd	Lecturer(s) Markella Menikou
Mode of Delivery face-to-face	Work Placement N/A	Co-requisites ARCH -301

Objectives of the Course:

- To introduce students to the application of a knowledge base that clearly differentiates architecture from other processes of cultural production.
- To introduce the basic material characteristics and properties of concrete and masonry.
- To develop a foundational knowledge of the manufacturing processes and properties of concrete and masonry as applied in building construction.
- To introduce the principles of concrete and masonry structures and their behaviour in load carrying.
- To encourage students to appreciate the significance of technological development in architecture and how materials, techniques in structure, construction and environmental modification are integrated in the generation and realization of architectural designs.
- To introduce principles underlying performance criteria in construction, to identify reference texts and to explore contemporary case studies to test analytic capability.
- To introduce students to the construction and structural principles of masonry and concrete, both as principal systems of primary structure as well as infill materials.
- To present technical and functional aspects of the construction of masonry/concrete through advanced studies.
- To engage students in on-site construction-site observations through specific visits to building sites during different phases of construction, and of different building projects evidencing a range of building-construction methods.
- To inspire students to engage in experimental/ alternative use of materials through a solid understanding of the basic/ traditional applications
- To introduce students to the fundamentals of construction 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:

- Identify the basic material characteristics and properties of concrete and masonry.
- Demonstrate an awareness of the principles, possibilities and limitations in using these materials as load carrying structures.
- Examine sustainability and principles of environmental modification applied in concrete and masonry construction.
- Interpret the terminology used in concrete and masonry construction, and the performance criteria applied to construction.
- Develop the ability to read construction drawings in the context of both 'instrumental' and 'experiential' performance.
- Demonstrate the ability to undertake research and analysis from directed reading and published precedent that supports the acquisition of technological knowledge.
- Discuss construction conditions in relation to both aesthetic and technical requirements.

Course Contents:

- Principles underlying performance criteria in building construction
- Types, properties and terminology of concrete and masonry construction
- Loading and deformation /Preliminary sizing
- In-situ / pre-cast construction/ prestressing- post tensioning
- Water Penetration Resistance / Thermal movement
- Repetition: degree of duplication / economy of production
- Dimensional coordination: manufacturing tolerances, fit precision, standardization, modularization
- Handling: component dimensions / manufacture>transportation>assembly
- Prefabrication / The process of construction and the concept of Buildability
- Rules for detail and degree of conversion
- Legislative Framework / Building Regulations/ Cost factors

Learning activities and Teaching Methods:

Lectures, Directed readings, Case studies analysis, Desk-crits, Group discussions, Presentations

Assessment Methods:

Projects, Models, Sketchbook, Mid-Term exam, Final exam

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Andrea Deplazes	Constructing Architecture, Materials Processes Structures (2 nd Edition)	Birkhauser	2008	3764386304

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Francis Ching	Building Construction Illustrated(4 th edition)	Wiley	2008	0470087811
Edward Allen	Fundamentals of Building Construction: Materials and Methods (5 th edition)	Wiley	2008	047007468X
Derek Osbourn & Roger Greeno	Mitchell's - Introduction to Building (3rd edition),	Longman Group, UK	2002	0582473039

