Imperial College London

Module Outline

Structural Design

Module Code	CIVE50009	FHEQ Level	Level 5
Pre-requisites	N/A	Co-requisites	N/A
Teaching Term	Autumn and Spring	Available for CPD (MSc only)	No
Primary Department	Civil & Environmental Engineering		
Module Leader	Gardner, Leroy		
Additional Teaching Departments	N/A		
Teaching Staff	Gardner, Leroy; Chao Wu		

Programmes on which the Module is delivered	Core/Elective
MEng Civil Engineering (H201)	Core
MEng Civil Engineering with a Year Abroad (H202)	Core
Civil Engineering (H21E)	Core

Module Overview	The primary aim of this module is to provide an introduction to the behaviour and design of concrete and steel structures. The module comprises two principal elements: • Reinforced concrete design. • Structural steel design. For both, the basis of structural design is first introduced, followed by an analysis of the behaviour of individual structural elements (beams, columns, etc.), and finally consideration of structural assemblages.
Learning Outcomes	Upon successful completion of this module you will be able to: • Analyse the behaviour of reinforced concrete subjected to flexure, shear and axial loading. • Undertake the design of reinforced concrete beams, slabs and columns in accordance to Eurocode 2. • Apply the concept of reinforced concrete design at serviceability and ultimate limit states. • Undertake the design of structural steel members to resist bending, shear, tension and compression, and apply the relevant codes of practice (with emphasis on Eurocode 3). • Undertake the design of connections between elements in simple configurations. • Explain the process of arranging steel members in a structurally efficient way to transfer design loads.

	• Demonstrate the ability to analyse the behaviour of structural steel members and undertake design at both serviceability and ultimate limit states. • Produce design calculations and drawings in appropriate professional formats.
Description of Content	Reinforced Concrete Design Limit-state design and analysis of section One-way slabs and singly-reinforced beams Doubly-reinforced beams Flanged sections Design for shear Serviceability Column design Detailing Structural Steel Design Structural analysis Tension members Local buckling and cross-section classification Compression members Beams Joints Introduction to building design.
Assessment	
Assessment information will be provided separately.	

Learning & Teaching Hours	Independent Study Hours	Placement Hours	Total Hours
30	85	0	125
ECTS Credit	5	CATS Credit	10
Date of introduction	1/10/19	Date of Last Revision	2/9/20

Reading Lists:

Category as defined by Central Library
C = Core, S = Supplementary

