Structural Analysis and Design (CEGE0009)

Description

The course provides core competence in structural analysis and design for students aiming to gain a BEng/MEng degree in civil engineering. This course builds on the first year modules. It is made of two parts: Part 1 Structural Analysis Introduces some techniques to calculate deflections in standard structures and then moves on to using those to analyse simple statically indeterminate structures using the force method. Part 2 Structural Design introduces some high level concepts in design and then provides methods to design structural reinforced concrete elements.

Learning Outcomes

By the end of Part 1 (Analysis):

- You will be able to calculate the deflection of moment-resisting frames and pin-jointed trusses using standard techniques (revision);
- You will be able to identify the degree of indeterminacy of plane moment-resisting frames and pin-jointed trusses;
- You will understand how thermal effects and geometrical imperfections can cause a build-up of internal forces in statically indeterminate structures;
- You will be able to calculate the internal forces and deflection in indeterminate plane frames and trusses using the force method;
- You will be able to draw qualitatively a consistent deflected shape, bending moment and shear force diagrams for simple plane moment-resisting frames

By the end of Part 2 (Design):

- You will understand the principles of limit state philosophy and how it is applies to reinforced concrete design
- You will understand the stress-strain behaviour of concrete and steel reinforcement and how this is used to analyse the axial load and moment capacity of

Key information

- Year: 2019/20
- Credit value: 15 (150 study hours)
- Delivery: UG L5, Campus-based
- Reading List: View on UCL website
- Tutor: Dr Philippe Duffour
- Term: Term 1
- Timetable: View on UCL website

Assessment

Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit ucl.ac.uk

Disclaimer: All information correct as of August 2019. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
reinforced concrete sections;

- You will able to size simple beams, slabs and non-slender columns and to carry out detailed design of these elements in accordance with the recommendations in Eurocode 2;
- You will have knowledge of certain aspects of reinforcement detailing;
- You will have some understanding of the fire resistance and durability requirements in Eurocode 2.