Design and Analysis of Structural Systems (CEGE0062)

**Description**

The course aims to give a systematic overview of the main structural systems available and approaches each of them from three different angles: (1) Approximate analytical modelling; (2) Qualitative Behaviour; (3) Design.

The course will equip you with skills and knowledge necessary to deliver feasible scheme/conceptual designs for a range of structural systems. The course is technical and builds on a solid foundation in structural engineering. Finite element modelling of structures is not the focus of the course. Instead, what you will learn here is useful before a detailed finite element model exists (initial design stages) or after a finite element model has been created, to check the numerical output is correct (model validation). In terms of design the course focuses on identifying possible alternative structural systems that can meet the design brief, understand the structural hierarchy in the system so that a sensible preliminary sizing for the key structural components can be provided.

Indicative list of structural systems covered:

- Cable and arch systems
- Trusses
- Moment Resisting Frames
- Tall Buildings
- Shell roofs

**Learning outcomes**

By the end of the course,

- You will have a systematic awareness of existing standard structural systems
- You will appreciate how existing structures works (case studies)
- You will understand how they work qualitatively.
- You will gain practice in the qualitative analysis of simple plane frames

**Key information**

- **Year**: 2020/21
- **Credit value**: 15 (150 study hours)
- **Delivery**: PGT L7, Campus-based
- **Reading List**: View on UCL website
- **Tutor**: Dr Philippe Duffour
- **Term**: Term 2
- **Timetable**: View on UCL website

**Assessment**

- **Coursework**: 30.0%
- **Written examination (main exam period)**: 50.0%
- **Group coursework**: 20.0%

**Find out more**

For more information about the department, programmes, relevant open days and to browse other modules, visit [ucl.ac.uk](http://ucl.ac.uk)
- You will be able to do some relatively simple calculations on a range of structural systems to assess the feasibility of a proposed design or check the output of a finite element model.

- You will be able to size simple structural systems for the key expected loads.
Design and Analysis of Structural Systems (CEGE0062)

Description
The course aims to give a systematic overview of the main structural systems available and approaches each of them from three different angles: (1) Approximate analytical modelling; (2) Qualitative Behaviour; (3) Design.

The course will equip you with skills and knowledge necessary to deliver feasible scheme/conceptual designs for a range of structural systems. The course is technical and builds on a solid foundation in structural engineering. Finite element modelling of structures is not the focus of the course. Instead, what you will learn here is useful before a detailed finite element model exists (initial design stages) or after a finite element model has been created, to check the numerical output is correct (model validation). In terms of design the course focuses on identifying possible alternative structural systems that can meet the design brief, understand the structural hierarchy in the system so that a sensible preliminary sizing for the key structural components can be provided.

Indicative list of structural systems covered:
- Cable and arch systems
- Trusses
- Moment Resisting Frames
- Tall Buildings
- Shell roofs

Learning outcomes
By the end of the course,
- You will have a systematic awareness of existing standard structural systems
- You will appreciate how existing structures work (case studies)
- You will understand how they work qualitatively.
- You will gain practice in the qualitative analysis of simple plane frames

Key information
- Year: 2020/21
- Credit value: 15 (150 study hours)
- Delivery: UGM L7, Campus-based
- Reading List: View on UCL website
- Tutor: Dr Philippe Duffour
- Term: Term 2
- Timetable: View on UCL website

Assessment
- Oral Presentation: 30.0%
- Written examination (main exam period): 50.0%
- Individual project: 20.0%

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 March 2020. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
You will be able to do some relatively simple calculations on a range of structural systems to assess the feasibility of a proposed design or check the output of a finite element model.

You will be able to size simple structural systems for the key expected loads.