

Engineering Tripos Part IIA Project, GD2: Structural Modelling, 2019-20

Leader

[Prof A McRobie](#) [1]

Timing and Structure

Group

Prerequisites

3D4 essential

Aims

The aims of the course are to:

- To study successful real structural designs of tall buildings
- To learn how to design tension structures

Content

This project runs in conjunction with Constructionarium. The project timing is subject to change, but will be such that students will be able to attend Constructionarium in Norfolk during this design project. It is also possible to undertake this project in conjunction with any of the language projects, whose timetables are equally flexible.

The project is the complement of Constructionarium. It places central focus on design, as may be undertaken in a consultant structural engineering practice. There are two components to the project, the first focussing on the design of tall buildings and the second involving the design of some form of tension structure. There will also be a day-trip to London where students, in groups of 8, will visit and study a number of the important buildings there.

FORMAT

The project consists of two parts. The first part concerns tall building design, and the second the design of tension structures.

For the first part of the course, prior to Constructionarium, students - working in pairs - will analyse in detail the structural design of one of London's iconic tall buildings. Students will be shown how to do this by international experts. This part of the project will also include a day trip to London to look at the building designs first-hand.

On returning from Constructionarium, students will undertake the design of a tension structure. Again, instruction on how to do this will be given by world-leading experts. Working in groups of four, students will create physical, mathematical and computational models of their proposals to present to the client and his team at a final "crit".

ACTIVITIES

- Thursday 7 May to Wed 13 May: Analyse a tall building in London, including a one-day London study trip as a group of 8 (which can be any one of the days Friday 8th, Sat 9th or Sunday 10th May)
- Thursday 28 May to Friday 5 June: Design a tension structure. This will include building physical, mathematical and computational models of the design, and a presentation of the design to the client.

MINI LECTURES

- How to design a tall building
- How to design a tension structure

Coursework

Coursework
Group report on the buildings of London (as a result of the study trip)
Report, in pairs, on the analysis of the chosen tall building
Report on tension structure design (and a final presentation to the client on Thurs 4 June 2020)

Examination Guidelines

Please refer to [Form & conduct of the examinations](#) [2].

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Links

[1] <mailto:fam20@cam.ac.uk>

[2] <https://teaching22-23.eng.cam.ac.uk/content/form-conduct-examinations>