Engineering Tripos Part II, 4D13: Architectural Engineering, 2017-18

Module Leader (Engineering)
Dr R Choudhary [1]

Module Leader (Architecture)
Prof C A Short [2]

Lecturers
Dr R Choudhary, Mr F A McRobie, Dr S Smith,

Timing and Structure
Michaelmas term. 8 afternoons. Assessment: 100% coursework

Prerequisites
[3D3, 3D4, 3D8] useful

Objectives
As specific objectives, by the end of the course students should be able to:

- have some appreciation of the principles of architectural engineering, with a strong focus on environmental and structural aspects.
- be aware of the various functional requirements of building services and building envelopes, and of how they can be met by combinations of materials and proper construction techniques.
- be aware of current digital and computational techniques used in design analysis.
- gain an appreciation for design using timber

Content
This module is run in conjunction with the Department of Architecture. CUED students who elect to do this module will work together one full afternoon per week with final year students from the Department of Architecture. The module involves an architectural engineering design exercise, with students working in mixed groups of architects and engineers.

The course focuses on energy-efficient building designs. It also considers structural design -- specifically timber.

This year (Mich 2017) the exercise consists of designing tall timber buildings.

The teaching format will be unconventional. Each afternoon will probably begin with a short talk by one of the lecturers or by an external speaker. For the remaining class time, students will work (in groups) on developing environmental, structural and other strategies for their design project.

On week 5 of the course, each group will make a presentation of its design (including a physical model) to an assembled group of architectural, structural, environmental experts. Weeks 6-8 will be devoted to developing
detailed design of parts of the project.

Coursework

Coursework:

- 5% for week 1 group exercise
- 20% for the group presentation of the design and the model on week 5
- 15% for group report on last day of term
- 60% for an individually authored report on developing an aspect of the design and analysis, to be submitted digitally on Moodle by each student by 4.00pm on the first day of the Lent Term.

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<th>Coursework</th>
<th>Format</th>
<th>Due date &amp; marks</th>
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<tr>
<td>[Coursework activity #1 title / Interim]</td>
<td>Individual/group Report / Presentation [non] anonymously marked</td>
<td>Thu week 3 [xx/60]</td>
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<td>Coursework 1 brief description</td>
<td>Learning objective:</td>
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| [Coursework activity #2 title / Final] | Individual Report [non] anonymously marked | Wed week 9 [xx/60] |
| Coursework 2 brief description | Learning objective: | |
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Booklists

Please see the Booklist for Group D Courses [3] for references for this module.

Examination Guidelines

Please refer to Form & conduct of the examinations [4].

UK-SPEC

The UK Standard for Professional Engineering Competence (UK-SPEC) [5] describes the requirements that have to be met in order to become a Chartered Engineer, and gives examples of ways of doing this.
UK-SPEC is published by the Engineering Council on behalf of the UK engineering profession. The standard has been developed, and is regularly updated, by panels representing professional engineering institutions, employers and engineering educators. Of particular relevance here is the [Accreditation of Higher Education Programmes’ (AHEP) document](http://www.engc.org.uk/standards-guidance/standards/accreditation-of-higher-education-programmes-ahep/) which sets out the standard for degree accreditation.

The [Output Standards Matrices](http://teaching.eng.cam.ac.uk/content/output-standards-matrices) indicate where each of the Output Criteria as specified in the AHEP 3rd edition document is addressed within the Engineering and Manufacturing Engineering Triposes.

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**Links**
[1] mailto:rc488@cam.ac.uk
[2] mailto:cas64@cam.ac.uk
[4] [http://teaching.eng.cam.ac.uk/content/form-conduct-examinations](http://teaching.eng.cam.ac.uk/content/form-conduct-examinations)
[7] [http://teaching.eng.cam.ac.uk/content/output-standards-matrices](http://teaching.eng.cam.ac.uk/content/output-standards-matrices)