Module organisation
Engineering Design III (2E09) runs throughout the first semester and comprises of a research, design and prototype model building exercise. This year, due to Covid-19, 2E09 will temporarily have a slightly different structure and content than previous years. For 2020, the module will have a one hour online lecture coupled with a weekly two-hour design workshop where students work in existing laboratory groups (some of these workshops may also have to be online). The module utilises engineering and environmental theory covered in modules 2E04 Solids and Structures and 2E07 Engineering and environment.

Module description, aims and contribution to programme
The aims of this module are as follows:
• To promote independent inquiry led learning
• To put engineering theory into practice
• To understand and respond in design terms to how people interact through and with their physical environment
• To understand the design process and implement design solutions in practice
• To develop team building skills and understand both face-to-face and online teamwork.

Learning outcomes
Upon completion of this module, students will be able to:
1. Keep a design journal.
2. Apply simple engineering theories to solve design problems.
3. Apply basic thinking around human-environment interaction.
4. Interpret a design brief, define a design problem, carry out a design process, and conduct the necessary analysis and calculations.
5. Construct simple prototype design models.
6. Communicate the design using design statement, engineering drawings, calculation

Assessment
There is no formal end-of-year examination in this module but all students must achieve an overall mark of at least 40% to pass. The marks for this module will be presented at the Court of Examiner’s meeting for approval in the normal way. The overall mark is calculated using the following combination of group and individual assignments. Each group report should clearly show on the inside page a percentage break down about which group members contributed to different chapters of the report.

Group Assignments (70%)
• Group Design Report (40%)
• Group Model Construction (30%)

Individual Assignment (30%)
• Personal Design Journal (30%)

Submission of the design journal is obligatory – students who fail to submit the design journal or who achieve a mark of less than 40% in this individual assignment will fail this module.
For those students who require a re-assessment, the examination format used will be an individual project, which will consist of three parts; analysis, design and construction.
Recommended Reading List

Further to the references on the material covered in 2E04 Solids and Structures and 2E07 Engineering and Environment, the following texts and sources will be useful:

- The Field Guide to Human-Centered Design (IDEO)
  https://www.designkit.org/resources/1
- Eleven lessons: managing design in eleven global brands-A study of the-design process (Design Council)
- Universal Design Handbook (2E) (Wolfgang Preiser and Korydon Smith)
  http://universaldesign.ie/What-is-Universal-Design/
- Tony Hunts Second Sketch Book (Tony Hunt)
- Tony Hunts Structures Notebook (Tony Hunt)
http://www.4shared.com/office/kZD2ToDP/Tony_Hunts_Structures_Notebook.htm