2E09 - ENGINEERING DESIGN III [5 credits]

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Module organisation
Engineering Design III runs throughout the first semester comprising a design and build exercise. The module has a weekly three-hour design workshop where students work in existing laboratory groups. The module utilises engineering and environmental theory covered in modules 2E04 Solids and Structures and 2E08 Materials.

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 implement design solutions in practice
- To develop team building skills

Learning outcomes
Upon completion of this module, students will be able to:
1. Keep a design journal.
2. Apply simple theories of structure to solve mechanical problems.
3. Construct simple full-scale engineering models.
4. Interpret a design brief that meets the needs of a well-defined specification.
5. Define a design problem and carry out the necessary analysis and calculations.
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 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 textbook
Further to the references on the 2E04 Solids and Structures and 2E08 Materials modules, please refer to the following text:
• Tony Hunts Second Sketch Book
• Tony Hunts Structures Notebook
http://www.4shared.com/office/kZD2ToDP/Tony_Hunts_Structures_Notebook.html

Further information
https://www.tcd.ie/Engineering/undergraduate/baiyear2/