Module Title: 4E1 Management for Engineers (Mechanical, Biomedical, Electronic/Computer Engineering)

Code: CS4E1 (Section A) and EE4E1 (Section B)

Level: Senior Sophister (Mandatory module)

Credits: 5

Co-Ordinator(s): Associate Professor Gerard Lacey (gerard.lacey@scss.tcd.ie) – (Overall Coordinator)

This module is taught in the first semester and is divided into two sections. **Section A** runs for the first six weeks and is common to all engineering students. **Section B** runs for the last five weeks and is specifically for Mechanical, Biomedical, and Electronic/Computer Engineering students.

### Section A – Weeks 1 to 6

#### Module Organisation

<table>
<thead>
<tr>
<th>Semester</th>
<th>Start Week</th>
<th>End Week</th>
<th>Associated Practical Hours</th>
<th>Lectures</th>
<th>Tutorials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per week</td>
<td>Per week</td>
<td>Total</td>
<td>Per week</td>
<td>Per week</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total Contact Hours:** 24

**Lecturer(s):** Gerard Lacey (gerard.lacey@scss.tcd.ie)

#### Module Description

This module aims to introduce students to the concepts and tools of project management. We will use a project management simulation software Management for Engineers to develop the practical skills required to be a successful and effective project manager.
Module Outline and Learning Outcomes

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Learning Outcomes</th>
</tr>
</thead>
</table>
| 1    | 1. Module Outline and introduction to project management concepts;  
      | 2. Team dynamics and organizational behaviour.  |
| 2    | 3. Project definition and organisation.  |
| 3    | 4. Project planning tools.  |
| 4    | 5. Project feasibility and evaluation.  |
| 5    | 6. Risk, resources and costs.  |
| 6    | 7. Alternative models of project management: IT, innovation, new product development.  |

Coursework


End week 7 (Reading Week) Individual case study on project management – submit via Turnitin.

Recommended Text(s)

Primary Texts


Supplementary Texts


Assessment

This section of the module will be assessed entirely by coursework. Plagiarism will be taken extremely seriously and all assessments must be submitted via the Turnitin plagiarism detection system.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management Case Study</td>
<td>70%</td>
</tr>
<tr>
<td>Individual Reflective diary on Project Management Simulation</td>
<td>30%</td>
</tr>
</tbody>
</table>
Section B – Weeks 8 to 12

Module Organisation

<table>
<thead>
<tr>
<th>Semester</th>
<th>Start Week</th>
<th>End Week</th>
<th>Associated Practical Hours</th>
<th>Lectures Per week</th>
<th>Lectures Total</th>
<th>Tutorials Per week</th>
<th>Tutorials Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8</td>
<td>12</td>
<td>0</td>
<td>3</td>
<td>15</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total Contact Hours:** 15

Lecturer(s): **Professor Linda Doyle** (ledoyle@tcd.ie)

Module Description

'IoT is about instrumenting the world with smart devices and using the data those devices generate to make informed decisions that impact our world'

This module is about unpacking this statement through a look at the technologies that underpin IoT and the services that IoT enables, and their effect on productivity, efficiency and social capital. The module will be based on a mix of lectures and group work. Each group will be tasked with designing an IoT product for a chosen vertical (e.g. Health, transport, agriculture, water etc.). The group will be expected to do market analysis on the vertical and their product. They will be expected to produce a design process and basic business plan around their chosen idea. The lectures will expose the students to different issues in IoT from the technical to the regulatory as well as concepts in startup management and entrepreneurship. Issues around design bias and feminist perspectives on technical design will be also be highlighted. IoT is very much at the top of the Gartner Hype cycle and students will be expected to make informed decisions about future prospects for IoT.

Learning Outcomes

On completion of this module, the student should be able to:
1. analyse current technological trends in IoT
2. debate, discuss and critically appraise the implications of technology trends
3. use techniques for idea generation
4. organise and plan at a group level
5. structure, compose and deliver a business plan
6. articulate ideas in IoT for lay audiences

Module Syllabus

1. Core aspects of IoT
2. Business Plan design and creation
3. IoT ideas and inspirations
4. Group work
**Teaching Strategies**
The teaching strategy for this part of the module will consist of lectures and in class group work. The lectures will oscillate between focusing on the core topic, namely the Internet-of-Things and focusing on business plan development.

**Assessment**
Students will complete one group project. Each group will deliver a single business plan for an IoT business. Assessment will be on the basis of this business plan and the contribution of each member of the team.