<table>
<thead>
<tr>
<th>Module Code</th>
<th>CSU11E03</th>
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</thead>
<tbody>
<tr>
<td>Module Name</td>
<td>Computer Engineering I</td>
</tr>
<tr>
<td>ECTS Weighting¹</td>
<td>5 ECTS</td>
</tr>
<tr>
<td>Semester taught</td>
<td>Semester 2</td>
</tr>
<tr>
<td>Module Coordinator/s</td>
<td>Assistant Professor Lucy Hederman</td>
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</tbody>
</table>

**Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline**

On successful completion of this module, students should be able to:

- LO1. Analyse simple programming problems;
- LO2. Specify and design an algorithm to solve simple programming problems;
- LO3. Write C++ programmes to solve simple programming problems;
- LO4. Compile, run, test and debug C++ programmes;
- LO5. Select and use correctly appropriate control structures for specific programming sub-problems;
- LO6. Recognise the value of procedural abstraction and be able to use procedures to simplify programme design, hide detail and allow reuse of code;
- LO7. Use arrays where appropriate in the design and implementation of a programme;
- LO8. Predict the behaviour of a given C++ program that uses the concepts and constructs covered by the course.

**Graduate Attributes: levels of attainment**

- To act responsibly - Introduced
- To think independently - Enhanced
- To develop continuously - Enhanced
- To communicate effectively - **Not embedded**

¹ TEP Glossary
| **Module Content** | This module aims to equip students with the skills to design and develop simple imperative programs. It provides a solid grounding in algorithm design and programming techniques, in preparation for later courses that require programming. Topics include  
• Introduction to computers and computing;  
• Programming, compiling and running programmes;  
• Basic C++ programmes; expressions, variables and data types, assignment;  
• Selection and the IF-ELSE statement;  
• Iteration, WHILE loops and FOR loops;  
• Programme design process, algorithms and pseudocode;  
• Advanced control flow: nested loops, nested IFs, the switch statement  
• Procedural abstraction, functions in C+  
• Arrays and array algorithms. |
| **Teaching and Learning Methods** | Recorded content, interactive lectures & programming laboratories. |
# Assessment Details

Please include the following:

- **Assessment Component**
- **Assessment description**
- **Learning Outcome(s) addressed**
- **% of total**
- **Assessment due date**

<table>
<thead>
<tr>
<th>Assessment Component</th>
<th>Assessment Description</th>
<th>LO Addressed</th>
<th>% of total</th>
<th>Week due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-semester test</td>
<td>Online real-time test.</td>
<td>LO1, LO2, LO3, LO5</td>
<td>30%</td>
<td>Week 6</td>
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<tr>
<td>End-of-semester test</td>
<td>Online real-time test.</td>
<td>LO1, LO2, LO3, LO5, LO6, LO7, LO8</td>
<td>40%</td>
<td>Week 12 or in exam period</td>
</tr>
<tr>
<td>Coursework</td>
<td>10 weekly programming exercises carried out during laboratory sessions.</td>
<td>All</td>
<td>30%</td>
<td>Each teaching week.</td>
</tr>
</tbody>
</table>

## Reassessment Requirements

Online real-time test 100% (TBC)

## Contact Hours and Indicative Student Workload

**Contact hours: 55**

- 33 hours pre-recorded material, lectures and quizzes; 22 hours laboratories.

**Independent Study (preparation for course and review of materials): 20**

**Independent Study (preparation for assessment, incl. completion of assessment): 25**

## Recommended Reading List

Main text for the course:

- **Required Texts**

  Or

  eBook version, [http://www.cengagebrain.co.uk/shop/isbn/9781133526353](http://www.cengagebrain.co.uk/shop/isbn/9781133526353)

## Module Pre-requisite

## Module Co-requisite

## Module Website

Blackboard

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2 [TEP Guidelines on Workload and Assessment](#)
Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.

<table>
<thead>
<tr>
<th></th>
<th>School of Computer Science and Statistics</th>
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<tr>
<td>Module Approval Date</td>
<td></td>
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<tr>
<td>Approved by</td>
<td></td>
</tr>
<tr>
<td>Academic Start Year</td>
<td>September 28th 2021</td>
</tr>
<tr>
<td>Academic Year of Date</td>
<td>2021/2022</td>
</tr>
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