

<b>Module Code</b>	CSU11E03
<b>Module Name</b>	Computer Engineering I
<b>ECTS Weighting<sup>1</sup></b>	5 ECTS
<b>Semester taught</b>	Semester 2
<b>Module Coordinator/s</b>	Assistant Professor Lucy Hederman
<b><a href="#">Module Learning Outcomes</a> with reference to the <a href="#">Graduate Attributes</a> and how they are developed in discipline</b>	<p>On successful completion of this module, students should be able to:</p> <p>LO1. Analyse simple programming problems;</p> <p>LO2. Specify and design an algorithm to solve simple programming problems;</p> <p>LO3. Write C++ programmes to solve simple programming problems;</p> <p>LO4. Compile, run, test and debug C++ programmes;</p> <p>LO5. Select and use correctly appropriate control structures for specific programming sub-problems;</p> <p>LO6. Recognise the value of procedural abstraction and be able to use procedures to simplify programme design, hide detail and allow reuse of code;</p> <p>LO7. Use arrays where appropriate in the design and implementation of a programme;</p> <p>LO8. Predict the behaviour of a given C++ program that uses the concepts and constructs covered by the course.</p> <p><b>Graduate Attributes: levels of attainment</b></p> <p>To act responsibly - Introduced</p> <p>To think independently - Enhanced</p> <p>To develop continuously - Enhanced</p> <p>To communicate effectively - <b>Not embedded</b></p>

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<sup>1</sup> [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.

<b>Assessment Details<sup>2</sup></b> <b>Please include the following:</b> <ul style="list-style-type: none"> <li>• <b>Assessment Component</b></li> <li>• <b>Assessment description</b></li> <li>• <b>Learning Outcome(s) addressed</b></li> <li>• <b>% of total</b></li> <li>• <b>Assessment due date</b></li> </ul>	Assessment Component	Assessment Description	LO Addressed	% of total	Week due			
	Weekly programming	11 weekly programming exercises carried out during laboratory sessions.	All	20%	Each teaching week.			
	Weekly mini-quizzes	Weekly online quizzes to be completed after review of each week's material.	LO1, LO2, LO5, LO6, LO7, LO8	5%	Each teaching week.			
	Mid-semester test	Online real-time test.	LO1, LO2, LO5	10%	Week 6			
	End-of-semester exam	2 Hour In-lab real-time exam.	LO1, LO2, LO3, LO5, LO6, LO7, LO8	65%	In exam period			
<b>Reassessment Requirements</b>	3 hour In-lab real-time exam 100%							
<b>Contact Hours and Indicative Student Workload<sup>2</sup></b>	<table border="1"> <tr> <td> <b>Contact hours: 55</b>  33 hours lectures; 22 hours laboratories. </td> </tr> <tr> <td> <b>Independent Study (preparation for course and review of materials): 20</b> </td> </tr> <tr> <td> <b>Independent Study (preparation for assessment, incl. completion of assessment): 35</b> </td> </tr> </table>					<b>Contact hours: 55</b> 33 hours lectures; 22 hours laboratories.	<b>Independent Study (preparation for course and review of materials): 20</b>	<b>Independent Study (preparation for assessment, incl. completion of assessment): 35</b>
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<b>Recommended Reading List</b>	Main text for the course:  Required Texts C++ Programming: Program Design Including Data Structures, DS Malik, 6 th edition Cengage Learning, ISBN 978-1-133-52635-3  Or  eBook version, <a href="http://www.cengagebrain.co.uk/shop/isbn/9781133526353">http://www.cengagebrain.co.uk/shop/isbn/9781133526353</a>							
<b>Module Pre-requisite</b>								
<b>Module Co-requisite</b>								

<sup>2</sup> [TEP Guidelines on Workload and Assessment](#)

<b>Module Website</b>	Blackboard
<b>Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.</b>	School of Computer Science and Statistics
<b>Module Approval Date</b>	
<b>Approved by</b>	
<b>Academic Year of Date</b>	2024/2025