

## MODULE DESCRIPTOR

### Module Title

Problem Solving and Maths

Reference	CM1119	Version	1
Created	November 2023	SCQF Level	SCQF 7
Approved	August 2023	SCQF Points	15
Amended		ECTS Points	7.5

### Aims of Module

To develop appropriate skills in problem solving and critical thinking, and applying these tools and techniques in a variety of settings.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Identify appropriate methods and strategies for solving problems in a variety of domains.
- 2 Employ critical thinking tools and techniques to analyse facts and evidence towards identifying solutions to problems.
- 3 Apply basic reasoning skills in the construction of logical and sound arguments in communicating solutions to problems.
- 4 Apply data-driven approaches to solving problems.
- 5 Apply analytical and mathematical modelling skills to a range of problems relevant to computing domains.

### Indicative Module Content

Problem solving methods and strategies: abstraction, sub-goals, action sequences, critical thinking: argument analysis, fallacies; reasoning: inductive reasoning, deductive reasoning, abductive reasoning, logic; statistics: data summarisation, correlation, probability.

### Module Delivery

This module is delivered using a mixture of lectures, tutorials and laboratory sessions where appropriate.

**Indicative Student Workload**

	Full Time	Part Time
Contact Hours	40	N/A
Non-Contact Hours	110	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

**ASSESSMENT PLAN**

If a major/minor model is used and box is ticked, % weightings below are indicative only.

**Component 1**

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4, 5
Description:	A coursework involving problem solving exercises.				

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

An overall minimum grade D is required to pass the module.

Module Grade	Minimum Requirements to achieve Module Grade:
<b>A</b>	The student needs to achieve an A in C1.
<b>B</b>	The student needs to achieve a B in C1.
<b>C</b>	The student needs to achieve a C in C1.
<b>D</b>	The student needs to achieve a D in C1.
<b>E</b>	The student needs to achieve an E in C1.
<b>F</b>	The student needs to achieve an F in C1.
<b>NS</b>	Non-submission of work by published deadline or non-attendance for examination

**Module Requirements**

Prerequisites for Module	None, in addition to course entry requirements.
Corequisites for module	None.
Precluded Modules	None.

**INDICATIVE BIBLIOGRAPHY**

- 1 WALTON, D., 2005, Fundamentals of Critical Argumentation
- 2 WALTON, D., REED, C. and MACAGNO, F., 2008, Argumentation Schemes
- 3 CHATFIELD, T., 2022, Critical Thinking: Your Essential Guide
- 4 CAMPBELL, M., 2019, Learn RStudio IDE: Quick, Effective, and Productive Data Science