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## MODULE DESCRIPTOR

### Module Title

Advanced Software Design And Development

Reference	CM2115	Version	1
Created	February 2022	SCQF Level	SCQF 8
Approved	June 2022	SCQF Points	15
Amended		ECTS Points	7.5

### Aims of Module

To extend students' knowledge and proficiency in object oriented design and develop skills in implementing graphical user interfaces.

### Learning Outcomes for Module

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

- 1 Demonstrate an extended knowledge and understanding of object-oriented modelling and design concepts concerning inheritance, interfaces, and abstract classes.
- 2 Identify appropriate applications for commonly used design patterns in object-oriented software design and development.
- 3 Design and implement examples of software system classes.
- 4 Use an event handling model to identify components and interaction required to design and implement graphical user interfaces in object-oriented software.

### Indicative Module Content

Inheritance, interfaces, abstract classes, polymorphism, exceptions, file handling, testing, debugging, enumerated types, design patterns, collections, graphical user interfaces.

### Module Delivery

The module will be delivered through a mixture of lectures, tutorials and laboratory sessions.

### Indicative Student Workload

	Full Time	Part Time
Contact Hours	30	N/A
Non-Contact Hours	120	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  
 Description: Extended software development coursework.

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

The calculation of the overall grade for this module is based on 100% weighing of C1. 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	CM1113 - Software Design and Development (or equivalent)
Corequisites for module	None.
Precluded Modules	None.

**INDICATIVE BIBLIOGRAPHY**

- 1 Troelsen, A. and Japikse, P., 2022. Pro C# 10 With .NET 6: Foundational Principles and Practices in Programming. 11th Ed. Apress
- 2 Sarcar, V., 2022. Test your skills in C# programming: review and analyze important features of C#. 1st Ed. Apress
- 3 Sarcar, V. 2020. Design patterns in C#: a hands-on guide with real-world examples. 2nd Ed. Apress
- 4 Sommerville, I., 2016. Software Engineering. 10th Ed. Pearson.