MODULE DESCRIPTOR

Module Title

Object Oriented Software Development

Reference	EN3543	Version	8
Created	March 2023	SCQF Level	SCQF 9
Approved	December 2009	SCQF Points	15
Amended	August 2023	ECTS Points	7.5

Aims of Module

To provide the student with the skills and knowledge necessary to manage software projects and to develop software systems using an object-oriented approach.

Learning Outcomes for Module

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

1	Implement software which utilises appropriate control structures in Python software and adheres to the principles of object-oriented programming design.
2	Implement software which uses an appropriately designed data structure with an accessible graphical user interface as a front-end.

Indicative Module Content

Programming structure and control. Conditionals, loops. Simple data structures. Functions and recursion. File handling, Exception handling. Modules and packages. Using the standard library. Object-oriented Design: objects, object classes, inheritance. Design representation, UML. Object-oriented Programming: classes, attributes and methods. Initialisers and destructors. Overriding, superclasses, polymorphism. Software Development for graphical user interfaces: Class frameworks, user interface design, widgets, event handling. Designing GUIs for accessibility and inclusion. Rapid Application development for GUIs. Data Structures: lists, linked lists, queues, stacks, dictionaries, sets.

Module Delivery

The module is taught using a structured programme of lectures, tutorials, laboratories and student-centred learning.

Indicative Student Workload

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

ASSESSMENT PLAN

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

Component 1

Type:	Coursework	Weighting:	40%	Outcomes Assessed:	1
Description:	Individual project				

Component 2

Type:	Coursework	Weighting:	60%	Outcomes Assessed:	2
Description:	Individual project				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The module has 2 components and to gain an overall pass a minimum D grade must be achieved in each component. The component weighting is as follows: C1 (x axis) is worth 40% and C2 (y axis) is worth 60%.

		Coursework:						
		A	**B**	**C**	**D**	**E**	**F**	**NS**
	A	A	A	B	B	E	E	
	B	B	B	B	C	E	E	
Coursework:	**C**	B	C	C	C	E	E	
	D	C	C	D	D	E	E	
	E	E	E	E	E	E	F	
	F	E	E	E	F	F	F	
	NS	Non-submission of work by published deadline or non-attendance for examination						

Module Requirements

Prerequisites for Module	EN2542 Microprocessor Based Systems or equivalent.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1	SUMMERFIELD, M., 2010. Programming in Python 3. 2nd ed. Addison Wesley.
2	KALB, I., 2018, Learn to Program with Python 3, Apress
3	SUNDRES, J., 2020, Introduction to Scientific Programming with Python, Springer Open
4	NAGAR, S., 2017, Introduction to Python for Engineers and Scientists, Apress
5	DONALDSON, T., 2013, Python: Visual QuickStart Guide, 3rd Ed, Peachpit Press
6	SHOVIC, J.C., 2021, Python All-In-One For Dummies, 2nd ed. For Dummies