PROJ C2605: Robotics Programming 3

Module Title:	Robotics Programming 3
Language of Instruction:	English

Credits:	5

NFQ Level:	8

Module Delivered In	2 programme(s)

Teaching & Learning Strategies:	A combination of lectures, class discussions, tutorials, laboratory exercises and demonstrations will be used. Emphasis will be placed on active learning including problem / project-based learning.

Module Aim:	To enhance students ability to develop software using a high-level programming language; to provide students with knowledge of modern techniques and concepts used in software development.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Demonstrate an understanding of the fundamentals of object-oriented software development and the building blocks of a high level object-oriented programming language.
LO2	Develop, debug, test, and document source code using an integrated development environment (IDE).
LO3	Understand and apply various algorithms to solve engineering-based problems.
LO4	Work as an individual or in a small group to design and implement a software solution for a real-world problem.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*
No requirements listed

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Module Content & Assessment

Indicative Content
Object Orientated Programming Classes, Objects, Inheritance, aggregation, and association.
Software Development, Testing and Debugging Use an Integrated Development Environment (IDE) to test and debug code (breakpoints, single-step), develop test strategies, input error handling.
Data Structures Lists, tuples, dictionaries, sets, user-defined data structures.
Algorithms Application of algorithms to engineering problems.

Assessment Breakdown	%
Project	40.00%
Practical	20.00%
End of Module Formal Examination	40.00%

No Continuous Assessment

Project

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	A problem-based learning project based on real world scenarios.	3,4	40.00	n/a

Practical

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	A series of programming exercises to complement the theory elements of the module.	2,3,4	20.00	n/a

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	A theory and practical exam to assess the students' learning.	1,2,3	40.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	Every Week	2.00
Laboratory	Every Week	3.00
Independent Learning Time	Every Week	2.00
	Total Hours	7.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EEROB_B	Bachelor of Engineering (Honours) in Robotics and Automated Systems	4	Mandatory
CW_EEROO_D	Bachelor of Engineering in Robotics and Automated Systems	4	Mandatory