

Module Title:	Robotics Programming 3
Language of Instruction:	English
Credits:	5
NFQ Level:	6
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	
<i>On successful completion of this module the learner should be able to:</i>	
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 <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
No requirements listed	

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

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
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