

<b>Module Title:</b>	Robotics Programming 3
<b>Language of Instruction:</b>	English
<b>Credits:</b>	5
<b>NFQ Level:</b>	6
<b>Module Delivered In</b>	<a href="#">2 programme(s)</a>
<b>Teaching &amp; Learning Strategies:</b>	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.
<b>Module Aim:</b>	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.
<b>Learning Outcomes</b>	
<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.
<b>Pre-requisite learning</b>	
<b>Module Recommendations</b> <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
<b>Incompatible Modules</b> <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
<b>Co-requisite Modules</b>	
No Co-requisite modules listed	
<b>Requirements</b> <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**

<b>Workload: Full Time</b>		
<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	<a href="#">Bachelor of Engineering (Honours) in Robotics and Automated Systems</a>	4	Mandatory
CW_EEROO_D	<a href="#">Bachelor of Engineering in Robotics and Automated Systems</a>	4	Mandatory