Module Title:	Robotics Programming 1
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 introduce students to software development using a high-level programming language; to equip students with the skills and techniques required to develop software using an integrated development environment (IDE).

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Demonstrate an understanding of software and algorithm development and the building blocks of a high-level programming language.
LO2	Utilise, flowcharts, pseudocode and debugging techniques in software development.
LO3	Define and use a variety of data types and structures in an appropriate context.
LO4	Demonstrate an understanding of program flow and control
LO5	Work as an individual or in a small group to design and implement a software solution for a real world problem using a basic textual description of the 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

Module Content & Assessment

Indicative Content
Software Design Core elements of computer programs
Data Types Data types, arrays, strings, structures, typecasting
Making Decisions and Iterations Conditional statements, ternary operator, loops, nesting
Functions User-defined functions, calling and passing values to functions
Software Development, Testing and Debugging Use a professional Integrated Development Environment (IDE) and debug code (breakpoints, single step), develop algorithms

Assessment Breakdown	%
Continuous Assessment	40.00%
Project	40.00%
Practical	20.00%

Continuous Assessment				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Examination	A mixture of theory and/or practical assessments to reinforce learning throughout the semester.	1,2,3,4	40.00	n/a

Project				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	A problem-based learning project based on real world scenarios.	1,2,3,4,5	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.	1,2,3,4	20.00	n/a

No End of Module Formal Examination

Continuous Assessment				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Examination	A mixture of theory and/or practical assessments to reinforce learning throughout the semester.	1,2,3,4	40.00	n/a

Project				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	A problem-based learning project based on real world scenarios.	1,2,3,4	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.	1,2,3,4	20.00	n/a

No End of Module Formal Examination

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

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](#)	1	Mandatory
CW_EEROO_D	[Bachelor of Engineering in Robotics and Automated Systems](#)	1	Mandatory