Ollscoil Teicneolaíochta an Oirdheiscirt
South East Technological University

PROG C1607: Programming Systems

Module Title:	Programming Systems
Language of Instruction:	English

Credits:	5

NFQ Level:	6

Module Delivered In	3 programme(s)

Teaching & Learning Strategies:	Teaching will take the form of lectures and problem-based learning during tutorials and practical classes where appropriate.

Module Aim:	Provide students with fundamental programming skills using the Python programming language.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Demonstrate an understanding of the fundamentals of software development and the building blocks of a high-level programming language, e.g. data types, iteration, tuples, lists, dictionaries, sets, and strings, etc..
LO2	Following Pythonic stylistic and conventional guidelines, develop programs to solve basic engineering-based problems and use flowcharts to represent these programs.
LO3	Read from and write to files, read arguments from the shell, accept arguments from the shell, call and pass variables with functions or objects and employ modules where necessary.
LO4	Troubleshoot programs, use the Python3 debugger, trap and handle common errors that occur in programs.
LO5	Construct a program as part of a capstone project.

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
Flowcharts Graphically represent the flow of a Python3 program.
Core Python3 skills Installation, running programs, data format, data types, sequence types.
Iteration and Functions Loops, conditionals, functions, passing arguments and comprehensions.
Files and databases Testing, writing, reading from files, interfacing with SQLite for storing non-volatile data.
Regular expressions Pattern matching, greedy, non-greedy, backreferences and anchors.
OOP Introduction to classes, methods and modules.
Handling errors Try/Except, exception, raise errors and exiting.
Capstone Project Individual project to consolidate all the elements of the module.

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

Continuous Assessment				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Case Studies	n/a	1,2,3,4	40.00	n/a

Project				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	n/a	1,2,3,4,5	40.00	n/a

Practical				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	n/a	1,2,3,4,5	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	2.00
Independent Learning	Every Week	5.00
Project	Per Semester	0.32
	Total Hours	17.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EEBEE_B	Bachelor of Engineering (Honours) in Biomedical Electronics	1	Mandatory
CW_EESYS_B	Bachelor of Engineering (Honours) in Electronic Engineering	1	Mandatory
CW_EEBEE_D	Bachelor of Engineering in Biomedical Electronics	1	Mandatory