

Module Title:	Programming
Language of Instruction:	English
Credits:	20
NFQ Level:	6
Module Delivered In	No Programmes
Teaching & Learning Strategies:	A mix of traditional lectures and programming practicals and projects that will enable the student to apply the problem solving skills necessary for object oriented programming to develop complete programs.
Module Aim:	To provide the student with: 1. The problem solving skills necessary for well defined object oriented programs; 2. The basic concepts of object oriented programming; 3. The capability to develop simple programs.

Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Utilise problem solving techniques to analyse a well defined problem and develop a solution for it;
LO2	To be able to use variables and apply different sequences and the necessary control structures in their code;
LO3	To be able to use and manipulate different input and output devices, data structures and suitable libraries;
LO4	Produce maintainable programs with suitable documentation and standards;
LO5	Design, develop, test, and debug simple object-oriented programs.

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
Introduction to problem solving:

Designing algorithms; translating design (pseudocode & flow charts) into program code; Introduction to a relevant language; identifiers, keywords, comments.

Variables:

Data types, variables, assignment statements, constants, arithmetic expressions and operators.

Program control constructs:

Program control constructs and their uses - sequence, iteration and selection, flow of control.

Data structures:

To be able to create, populate and search data structures like the array and dictionary.

Input/Output:

To be able to use and manipulate simple input (keyboard) and output devices (screen).

Strings:

To be able to use and manipulate strings, and be able to use the different library functions available.

Classes & objects:

Encapsulation, classes, objects, functions, instance & local variables, scope, parameter passing, object creation, object initialisation.

Files:

File handling concepts, loading images, reading & writing to files.

To use libraries:

To use suitable libraries.

Assessment Breakdown	%
Continuous Assessment	10.00%
Project	35.00%
Practical	20.00%
End of Module Formal Examination	35.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	Some written exams to be given. The written exams should be a similar format and standard to their final written exam.	1,2,3,4	10.00	n/a

Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	A number of projects (2 or more) to be given throughout the year, to be done in the labs and on the students own time.	1,2,3,4,5	35.00	n/a

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	A number of practical programming lab exercises to be given and evaluated.	1,2,3,4	20.00	n/a

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	The final examination will include questions on many aspects of the course.	1,2,3,4	35.00	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	4.00
Laboratory	Every Week	4.00
Estimated Learner Hours	Every Week	4.00
Total Hours		12.00

