

<b>Module Title:</b>	Programming
<b>Credits:</b>	10
<b>NFQ Level:</b>	6
<b>Module Delivered In</b>	<a href="#">1 programme(s)</a>
<b>Teaching &amp; Learning Strategies:</b>	Combination of lectures and practical laboratory sessions. Lectures will take the form of traditional theory and workshop activities. Workshop activities entail interaction with students whilst building programs from scratch using data projector facilities. Laboratory sessions take the form of formative assessment sheets with individual interaction with students
<b>Module Aim:</b>	To provide the student with: 1. the problem solving skills necessary for programming 2. the basic concepts of programming. 3. the capability to develop complete programs
<b>Learning Outcomes</b>	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Comprehend and utilise problem solving techniques to analyse a problem and develop a solution for it;
LO2	Write simple programs based on simple problem-solving algorithms they write;
LO3	Utilise and comprehend core programming concepts
LO4	Create programs to manipulate and store strings;
LO5	Create programs to manipulate arrays;
LO6	Comprehend and apply object-oriented programming concepts such as abstraction, encapsulation, inheritance and polymorphism;
<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**
**Introduction to problem solving**

Algorithms & pseudocode; translating pseudocode into program code; Introduction to a relevant language; identifiers, keywords, comments. Data types, variables, assignment statements, constants, arithmetic expressions and operators, operator precedence, using conditional expressions, console I/O. Program control constructs and their uses - sequence, iteration and selection, flow of control;

**Strings**

String manipulation, string classes and methods

**Arrays**

Concepts, declarations, creation, sorting and searching arrays, multidimensional arrays

**Objects**

Abstraction & encapsulation, classes, objects, methods, instance & local variables, scope, method parameters & return types, pass by value parameters, reference variables, access modifiers, object creation, object initialisation & constructors

**Inheritance**

Single inheritance; sub classing, overloading, overriding, this reference, polymorphism, casting, super keyword, parent constructors.

**Assessment Breakdown**
**%**

Continuous Assessment

100.00%

**Continuous Assessment**

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Other	Lab Test 1: The student will be assessed on their ability to write a piece of pseudocode and translate it into a simple program	1,2,3	10.00	n/a
Other	Lab 2: The student will be assessed on their ability to write a program that utilizes a selection structure.	1,2,3	10.00	n/a
Other	Lab 3: The student will be assessed on their ability to write a program that utilizes a iteration structure.	1,2,3	10.00	n/a
Other	Lab 4: The student will be assessed on their ability to write a program that utilizes strings.	1,2,3,4	10.00	n/a
Other	Lab 5: The student will be assessed on their ability to write a program that utilizes arrays	1,2,3,5	10.00	n/a
Other	Written Test 1: The students will be given a written test to assess their knowledge of strings.	1,2,3,4	15.00	n/a
Other	Written Test 2: The students will be given a written test to assess their knowledge of object-oriented concepts.	1,2,3,4,5,6	15.00	n/a
Other	Written Assessment on Arrays of Objects & Methods	1,2,3,5,6	10.00	n/a
Performance Evaluation	Active participation in the Lab	1,2,3,4,5,6	10.00	n/a

No Project

No Practical

No End of Module Formal Examination

**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	30 Weeks per Stage	2.00
Laboratory	30 Weeks per Stage	3.00
Tutorial	30 Weeks per Stage	1.00
Estimated Learner Hours	30 Weeks per Stage	0.67
Total Hours		200.00

**Module Delivered In**

Programme Code	Programme	Semester	Delivery
CW_KWCAP_C	<a href="#">Higher Certificate in Computing</a>	1	Mandatory