PROG: Advanced Programming

Module Title:	Advanced Programming
Language of Instruction:	English

Credits:	10

NFQ Level:	7

Module Delivered In	2 programme(s)

Teaching & Learning Strategies:	Lectures, Laboratories, Programming Assignments, Final Examination

Module Aim:	To give students a thorough understanding and practical experience of programming with C, and to introduce Object Oriented Programming with C++.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Be familiar with correct program structure and good programming practice
LO2	Have an understanding of C/C++ necessary to design and implement a given application
LO3	Utilise problem solving techniques to analyse a given problem and develop a solution for it;

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
Introduction Building , Debugging; Testing; Programming paradigms;
C programming Introduction; Data types; Enumerations; Symbolic constants; Operators; Expression evaluation - precedence & associativity;.
Flow control Program structure; Programming standards
Functions Parameter passing; Recursion; Stack issues; Scope; Static functions. Functions with variable sized parameter lists.
Arrays Contiguousness; Arrays as function parameters; Strings; Initialisation.
Pointers Pointer arithmetic; Pointers on PC
Pointers and arrays Arrays of pointers; Character arrays vs. string constants; Pointers to functions; Dynamic memory; Stack & Heap;
Structures Unions,bit fields, Typedef

I/O & file handling;
I/O & file handling;

C++ Building on C; OOP; Classes, objects, constructors and destructors; Data hiding; Encapsulation; Inheritance; Polymorphism; Operator and function overloading; Other C++ enhancements; GUI & systems programming

Assessment Breakdown	%
Project	45.00%
Practical	25.00%
End of Module Formal Examination	30.00%

No Continuous Assessment

Project

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	Project assignments to apply learned knowledge and develop problem solving skills	1,2,3	15.00	Week 5
Project	Practical assignments to apply learned knowledge and develop problem solving skills	1,2,3	15.00	Week 8
Project	Practical assignments to apply learned knowledge and develop problem solving skills	1,2,3	15.00	Week 12

Practical

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	Practical assignments to apply learned knowledge and develop problem solving skills	1,2	25.00	n/a

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	No Description	1,2,3	30.00	End-of-Semester

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	12 Weeks per Stage	3.00
Laboratory	12 Weeks per Stage	4.00
Estimated Learner Hours	15 Weeks per Stage	11.07
	Total Hours	250.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KCSOF_B	Bachelor of Science (Honours) in Software Development	5	Mandatory
CW_KCSOF_D	Bachelor of Science in Software Development	5	Mandatory