PROG: Assembly Programming

Module Title:	Assembly Programming
Language of Instruction:	English

Credits:	5

NFQ Level:	6

Module Delivered In	1 programme(s)

Teaching & Learning Strategies:	Combination of lecture and laboratory sessions. Lectures will provide traditional theory. Laboratory sessions will employ formative practical/assessment sheets and learning assembly language. Project work will be based on programming in assembly language on an embedded games device

Module Aim:	Examine instruction set of a microprocessor and connected peripherals. Design, develop, test, and debug assembly language programming on an embedded games device

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Understand the role of a microprocessor in a computer system
LO2	Understand the role of firmware within a computer system
LO3	Understand the operation of a microprocessor and develop assembly language programs for embedded games devices

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

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Module Content & Assessment

Indicative Content
Hardware Exploration of Computer Hardware. Structure of a computer: CPU architecture and operation, memory, I/O; ALU, registers, fetch/execute cycle, and buses. I/O devices.
Software Models Introduction to the layers of software / firmware architecture
Assembly Language Programming using 68000 and 8-bit Atmel Micro-controller ATmega644 processors and instruction sets. Machine language, displaying and modifying of register and memory contents. Instruction sets: characteristics and function, modes and formats, data types, addressing, flow of control.

Assessment Breakdown	%
Project	30.00%
Practical	20.00%
End of Module Formal Examination	50.00%

No Continuous Assessment

Project				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	Assembly Programming	3	30.00	Week 22

Practical				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	Laboratory based practicals	1,2	20.00	Every Week

End of Module Formal Examination				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	No Description	1,2,3	50.00	End-of-Semester

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

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	12 Weeks per Stage	1.00
Laboratory	12 Weeks per Stage	2.00
Estimated Learner Hours	15 Weeks per Stage	5.93
	Total Hours	125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KCCGD_B	Bachelor of Science (Honours) in Computer Games Development	4	Mandatory