

PROG: Assembly Programming

Module Title:			Assembly Programming			
Language of Instruction:		n:	English			
Credits: 5						
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NFQ Level:		6				
Module Deli	vered 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 Ou	itcomes					
On successfi	ul completio	n of th	his module the learner should be able to:			
LO1	_O1 Understand the role of a microprocessor in a computer system					
LO2	Understan	id the	role of firmware within a computer system			
LO3	LO3 Understand the operation of a microprocessor and develop assembly language programs for embedded games devices					
Pre-requisit	e 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 requireme	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	