

Module Title:	Computer Programming
Language of Instruction:	English
Credits:	5
NFQ Level:	6
Module Delivered In	3 programme(s)
Teaching & Learning Strategies:	A combination of lectures, class discussions, tutorials, laboratory exercises and demonstrations will be used. Emphasis will be placed on active learning including problem / project-based learning.
Module Aim:	To advance the students' knowledge in software development using a high-level programming language; to equip students with the skills and techniques required to develop software using an industry standard integrated development environment (IDE).
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Demonstrate an understanding of software and algorithm development and the building blocks of a high-level programming language.
LO2	Utilise modular programming, flowcharts, pseudocode and debugging techniques in software development; produce clearly documented source code using a neat programming style.
LO3	Define and use a variety of data types and structures in an appropriate context.
LO4	Work as an individual or in a small group to design and implement a software solution for a real world problem using a basic textual description of the problem.
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
Data Types

Data types, arrays, strings, pointers, structures, typecasting

Making Decisions and Iterations

Conditional statements, ternary operator, loops, nesting

Functions

User-defined functions, passing by value and by reference, recursion

Software Development, Testing and Debugging

Use a professional Integrated Development Environment (IDE) and debug code (breakpoints, single step), develop algorithms

Assessment Breakdown
%

Continuous Assessment

40.00%

Project

40.00%

Practical

20.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	A mixture of theory and/or practical assessments to reinforce learning throughout the semester.	1,2,3	40.00	n/a

Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	A problem-based learning project based on real world scenarios.	1,2,3,4	40.00	n/a

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	A series of programming exercises to complement the theory elements of the module.	1,2,3,4	20.00	n/a

No End of Module Formal Examination

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	A mixture of theory and/or practical assessments to reinforce learning throughout the semester.	1,2,3	40.00	n/a

Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	A problem-based learning project based on real world scenarios.	1,2,3	40.00	n/a

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	A series of programming exercises to complement the theory elements of the module.	1,2,3	20.00	n/a

No End of Module Formal Examination

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Every Week	2.00
Laboratory	Every Week	2.00
Independent Learning Time	Every Week	5.00
Total Hours		9.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EEBEE_B	<u>Bachelor of Engineering (Honours) in Biomedical Electronics</u>	3	Mandatory
CW_EESYS_B	<u>Bachelor of Engineering (Honours) in Electronic Engineering</u>	3	Mandatory
CW_EEBEE_D	<u>Bachelor of Engineering in Biomedical Electronics</u>	3	Mandatory