

ADVANCED DIPLOMA OF BIOMEDICAL ENGINEERING

MODULE DETAILS	MODULE 12: C++ PROGRAMMING
	<p>Nominal duration: 4 weeks (48 hours total time commitment)</p> <p>This time commitment includes the preparation reading, attendance at each webinar (1 hour plus 15-30 minutes for discussion), and the time necessary to complete the assignments and further study.</p>
MODULE PURPOSE	To provide the participants with the knowledge and skills required to develop simple software applications using programming tools.
PRE-REQUISITES MODULE, UNITS / CO-REQUISITES	Module 3: Fundamentals of Professional Engineering
ASSESSMENT STRATEGY	To evaluate the achievement of the learning outcomes; written assignments, group projects and practical exercises are set.
SUMMARY OF LEARNING OUTCOMES	<ol style="list-style-type: none"> 1 Perform basic C++ computations involving loops, functions and structures 2 Develop C++ programs that reference arrays, strings, file I/O and command line arguments 3 Develop C++ programs that involve class design, linked lists and variable argument lists 4 Develop C++ programs that involve enumerated types, formatted output, modulus and templates
Learning Outcome 1	Perform basic C++ computations involving loops, functions and structures
Assessment Criteria	<ol style="list-style-type: none"> 1.1 Install an open-source development environment for C++ 1.2 Develop a simple C++ program that makes use of: <ol style="list-style-type: none"> (a) IF statements (b) Loops (c) Functions (d) Switch case (e) Pointers (f) Data structures

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Learning Outcome 2	Develop C++ programs that reference arrays, strings, file I/O and command line arguments
Assessment Criteria	2.1 Develop a simple C++ program that makes use of: <ul style="list-style-type: none"> (a) Arrays (b) Strings (c) File I/O (d) Typecasting (e) Classes (f) Inline functions (g) Command line arguments
Learning Outcome 3	Develop C++ programs that involve class design, linked lists and variable argument lists
Assessment Criteria	3.1 Develop a simple C++ program that makes use of: <ul style="list-style-type: none"> (a) Linked lists (b) Recursion (c) Variable argument list (d) Binary trees (e) Inheritance (f) Initialization lists (g) C++ class design
Learning Outcome 4	Develop C++ programs that involve enumerated types, formatted output, modulus and templates
Assessment Criteria	4.1 Develop a simple C++ program that makes use of: <ul style="list-style-type: none"> (a) Enumerated types (b) Formatted output (c) Random number generation (d) Modulus (e) Template functions

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Delivery Mode

A combination of asynchronous and synchronous e-learning delivery comprising a judicious mix of interactive online web conferencing, simulation (virtual labs) software, remote online labs, online videos, PowerPoints, notes, reading and study materials (in pdf, html and word format) accessed through the Moodle Learning Management System (LMS).