

Module Code	Pre-requisite Module codes	Co-Requisite Modules code(s)	ISCED Code	Subject Code	ECTS Credits	NFQ Level (CPD)#
CMPU 2029					10	6
<b>Module Title</b>	Object Oriented Programming					

## Object Oriented Programming

<b>School Responsible:</b>	School of Computing
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### Module Overview:

This module develops the students' programming and problem solving skills, progressing from procedural to object oriented programming. Topics include the principles, practices, and applications of programming in object oriented environment with applications to business and scientifically oriented problems. The techniques and language features of object oriented design are implemented in programming projects. Emphasis is placed upon development of well designed, efficient, maintainable object oriented software and on understanding those concepts intrinsic to the OOP paradigm such as class hierarchies, data encapsulation, instantiation and operator overloading

### Learning Outcomes (LO):

On Completion of this module, the learner will be able to

<b>1</b>	Differentiate between traditional imperative style programming and Object Oriented Programming
<b>2</b>	Represent Class hierarchies using semantic networks and UML constructs
<b>3</b>	Design and implement Object Oriented class hierarchies
<b>4</b>	Use Interfaces and Abstract classes
<b>5</b>	Implement different levels of data visibility
<b>6</b>	Process Strings, Arrays and other data structures and classes
<b>7</b>	Handle streamed I/O
<b>8</b>	Handle exceptions
<b>9</b>	Handle Files
<b>10</b>	Implement Graphical User Interfaces

### Indicative Syllabus:

Comparison of Procedural Programming with OOP

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Evolution of OOP

Object Oriented Principles and Concepts

Introduction to semantic networks and UML constructs

Object Oriented Programming Language Constructs

Abstract data types, classes, objects, Instance variables, methods,

Access modifiers and data encapsulation,

Abstract Classes and Interfaces

Arrays and other collections

Command Line processing

String Handling

I/O and Streams

File Handling

Exception Handling

Graphical User Interfaces

#### Learning and Teaching Methods:

The course delivery involves a combination of lectures and labs which may incorporate the use of blended learning techniques as appropriate throughout the delivery.

<b>Total Teaching Contact Hours</b>	39
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<b>Total Self-Directed Learning Hours</b>	148
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**Module Delivery Duration:** 1 Semester

#### Assessment

Assessment Type	Weighting (%)	LO Assessment (No.)
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Examination	60	1,2,3,4,5,6,7,8,9,10
In Class Examination	40	3,4,5,6,7,8,9,10
<b>Module Specific Assessment Arrangements (if applicable)</b>		
(a) Derogations from General Assessment Regulations		
(b) Module Assessment Thresholds		
(c) Special Repeat Assessment Arrangements		

**Essential Reading:** (author, date, title, publisher)  
 The Java™ Tutorials  
<https://docs.oracle.com/javase/tutorial/>

**Supplemental Reading:** (author, date, title, publisher)  
 Effective Java: Programming Language Guide (Java Series)  
 by Joshua Bloch ISBN-13: 978-0201310054  
 Publisher: Addison-Wesley Longman, Inc. Published: 2008

<b>Version No:</b>		<b>Amended By</b>	
<b>Commencement Date</b>		<b>Associated Programme Codes</b>	

# Modules that are to be offered as Stand-Alone CPD Programmes must have an NFQ level assigned

\*Details of the assessment schedule should be contained in the student handbook for the programme stage.

**Date of Academic Council approval .....**

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