

Full Title	Multi-Paradigm Programming		
Status	Uploaded to Banner	Start Term	2017
NFQ Level	08	ECTS Credits	05
Module Code	COMP08056	Duration	13 weeks - (13 Weeks)
Grading Mode		Department	Comp Science & Applied Physics
Module Author	Ian McLoughlin		

Module Description

An introduction to various programming paradigms, such as object-oriented programming, functional programming and dataflow programming.

Learning Outcomes

On completion of this module the learner will/should be able to:

1. Compare different programming paradigms.
2. Select an appropriate programming paradigm for a given programming problem.
3. Write programs using a variety of different programming paradigms.
4. Explain how various programming paradigms have evolved over time.

Indicative Syllabus

Object-oriented programming

- Encapsulation
- Data and methods
- Objects, classes, instances

Dataflow programming

- Tables, spreadsheets, tensors
- Dataflow graphs
- Sessions

Functional programming

- Lists, pairs
- Map, reduce
- Recursion

Teaching and Learning Strategy

The module will be delivered through a series of lectures covering theoretical concepts and practicals where students will learn to apply the theory to real-world problems.

Assessment Strategy

Students will complete a series of reports and practical programming assignments during the course, with an emphasis on adding these to the student's online portfolio of work. Some lectures will be dedicated to topics related directly to the assignments, so that the student can grasp the essence of the subject quickly.

Repeat Assessment Strategies

A repeat project will be given to students covering all learning outcomes.

Indicative Coursework and Continuous Assessment:		100 %		
<i>Form</i>	<i>Title</i>	<i>Percent</i>	<i>Week (Indicative)</i>	<i>Learning Outcomes</i>
Assignment	Programming project	40 %	Week 4	1,2,4
Assignment	Programming project	40 %	Week 8	1,2,3
Written Report	Report	20 %	Week 13	2,3,4

Full Time Delivery Mode Average Weekly Workload:			4.00 Hours		
<i>Type</i>	<i>Description</i>	<i>Location</i>	<i>Hours</i>	<i>Frequency</i>	<i>Weekly Avg</i>
Lecture	Lecture	Not Specified	2	Weekly	2.00
Practical	Practical	Not Specified	2	Weekly	2.00

Online Learning Delivery Mode Average Weekly Workload:			4.00 Hours		
<i>Type</i>	<i>Description</i>	<i>Location</i>	<i>Hours</i>	<i>Frequency</i>	<i>Weekly Avg</i>
Online Learning	Online (Asynchronous)	Not Specified	3	Weekly	3.00
Online Learning	Online (Synchronous)	Not Specified	1	Weekly	1.00

Literary Resources

Programming Languages: Principles and Paradigms - Gabbrielli, Maurizio, Martini, Simone

Programme Membership

GA_KDATG_L08 201700 Higher Diploma in Science in Data Analytics