

Module Code	ACCA5032
Title	Object Oriented Programming and Algorithms
Date	09/09/2020
Level	5
Credits	20
Pre-Requisites	None

AIM(S)

- To provide students with a conceptual understanding of abstract data types, data structures and algorithms used in web development and the ability to apply these concepts using object oriented (OO) development methods in web development scenarios

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Critically evaluate the suitability of selected algorithms and data structures to solve given problems
- Develop OO solutions to solve a given problem scenario(s) often encountered in web development

INDICATIVE CONTENT

- Abstract data types (ADT)
- Simple data structures e.g. stacks, queues
- Complex data structures and algorithms e.g. lists, linked lists, heaps
- Graphs – properties and graph traversal
- Trees – properties, traversal, balancing
- Hashing
- Algorithms for sorting
- Algorithms for searching
- Containers and iterators
- Object oriented concepts e.g. classes, objects, encapsulation, inheritance and polymorphism
- Essential object oriented programming principles for web development

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Implementation and Essay	2500 words equivalent	50%

Assessment Component 2

☒ Written exam ☐ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Exam	2 hours	50%

Assessment Summary

Activity type	Percentage
Written exam	50%
Coursework	50%
Practical	0%
TOTAL	100%

INDICATIVE READING LIST

Module Code	ACCA5032	
Module Title	Object Oriented Programming and Algorithms	
Classification	Reading List entry	Electronic*
Essential	Greene, J., Stellman, A., (2020) Head First C#, 4 th Edition, O'Reilly	☐
Essential	Cormen, T.H., Leiserson, C.E., (2009) Introduction to Algorithms, MIT Press	☒
Further	Weisfeld, M., (2018), The Object-Oriented Thought Process, Addison Wesley	☒
Further	Sharp, J., (2018), Microsoft Visual C# Step by Step, Microsoft Press	☐
Further	Sedgewick, R., (2011) Algorithms, 4th edition, Addison-Wesley	☐