

Access to Higher Education Unit

This unit forms part of an Access to HE Diploma. If delivering the graded version of this unit, please refer to the Provider Handbook for details on grading descriptors and the application of these across units within your programme.

Unit Title: Computer Memory Architecture

Graded Unit Reference Number: GA33COM06

Ungraded Unit Reference Number: UA33COM06

Module: Computing

Level: 3

Credit Value: 3

Minimum Guided Learning Hours: 30

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand the organisation of computer memory and how it used to store data	1.1 Explain the relationship between and the main uses of ROM, base RAM and extended RAM in terms of volatility and speed
	1.2 Explain the terms data register, (register) address, pointer and flag
	1.3 Define the terms bit, byte and word and relate these to computer architecture (16-bit, 32-bit and 64-bit)
	1.4 Evaluate the advantages and disadvantages in changes to computer architecture e.g. from 32-bit to 64-bit
2. Understand how data is organised and manipulated in computer memory	2.1 Describe the structure of stacks and queues and explain the use of pointers in these structures including the principles of “first-in-first-out” and “first-in-last-out”
	2.2 Show how a queue may be used to reverse the order of data in a stack
	2.3 Describe situations that may result in “stack overflow” and explain the consequences of this

3. Understand the use of lists and trees for efficient storage and location of data on fixed storage and in RAM	3.1 Describe the structure of a linked list, a heap and a binary tree, including the use of nodes and pointers
	3.2 For given numerical data, use diagrams to show how the data may be stored in a linked list and a binary tree
	3.3 For a given string data, use diagrams to show how the data may be stored in a linked list and a binary tree
	3.4 Evaluate the advantages and disadvantages of linked lists and binary trees as structures for storing and searching for data