# Access to H.E.
# National Programme Unit

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| Unit Title: | Computer Memory Architecture | | |
| Graded Unit Code: | GA33COM06 | Ungraded Unit Code: | UA33COM06 |
| Pathway(s): | Computing<br>Hospitality, Leisure and Tourism | | |
| Module(s): | Computing | | |
| Level: | 3 | Credit Value: | 3 |
| Valid from: | 1st August 2014 | Valid to: | 31st July 2024 |

**The following QAA grade descriptors must be applied if you are delivering the graded version of this unit:**

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| 1 | Understanding of the subject |
| 2 | Application of knowledge |
| 7 | Quality |

| LEARNING OUTCOMES | ASSESSMENT CRITERIA |
|---|---|
| **The learner will:** | **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 |

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| LEARNING OUTCOMES | ASSESSMENT CRITERIA |
|---|---|
| **The learner will:** | **The learner can:** |
| 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 |