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| **Title** | **Create, assemble, and test a microprocessor-controlled device built from components** | | |
| **Level** | **2** | **Credits** | **3** |

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| **Purpose** | People credited with this unit standard are able to: prepare to create a microprocessor-controlled device built from components; and assemble components for, program, and test the microprocessor-controlled device.<br><br>This unit standard has been developed primarily for assessment as an option within programmes leading to the New Zealand Certificate in Computing (User Fundamentals) (Level 2) [Ref: 2591], the New Zealand Certificate in Computing (Foundation User) (Level 2) [Ref: 4132], the New Zealand Certificate in Computing (Intermediate User) (Level 3) [Ref: 2592], or the New Zealand Certificate in Computing (Advanced User) (Level 4) [Ref: 2593]. |

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| **Classification** | Computing > Generic Computing |

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| **Available grade** | Achieved |

**Guidance Information**

1 Range
The microprocessor-controlled device built from components may include but is not limited to – robotics, scientific control systems, drones, nano technology, or other emerging technology. The device may use kit sets but must include programming. This could include the use of Electronic Prototyping Platforms or Single-Board Computers.

2 A brief will be supplied to the learner. It must clearly identify the outcomes required from the microprocessor-controlled device built from components, against which the success or otherwise of the device can be evaluated. The brief will include at least – the target users, the specification, and a testing plan.

3 Definitions
*Conceptual layout design* is a representation clearly indicative of the final product, and may include diagrams that show planned layout and connectivity.
*Internal documentation* means documentation included as comments within the programme code, rather than documentation created separately.

4 Legislation relevant to this unit standard includes but is not limited to the:
Copyright Act 1994
Copyright (New Technologies) Amendment Act 2008
Health and Safety at Work Act 2015
Privacy Act 2020
and its subsequent amendments.
Current legislation and regulations can be accessed at http://legislation.govt.nz.

## Outcomes and performance criteria

### Outcome 1

Prepare to create a microprocessor-controlled device built from components.

**Performance criteria**

1.1 The requirements for a microprocessor-controlled device built from components are identified.

Range includes but is not limited to – components required, construction requirements, programming requirements.

1.2 A simple conceptual layout design plan is developed to realise the requirements.

1.3 A plan for the software is developed to realise the requirements.

Range software plan may include – the use of flow charts, pseudocode, or natural language to guide the writing of the software.

1.4 Strategies for managing identified potential hazards/risks related to the creation of the device are described.

Range includes strategies for at least two hazards and/or risks.

### Outcome 2

Assemble components for, program, and test the microprocessor-controlled device.

**Performance criteria**

2.1 The components are assembled to meet the construction requirements for the creation of the device.

2.2 The control software for the device is programmed and internal documentation completed to meet requirements of the brief.

Range internal documentation of programming must contain sufficient comments to explain its purpose.

2.3 The device is tested to ensure fitness for purpose in terms of the requirements for the brief.

Range includes but is not limited to fitness for purpose of – software, hardware, functionality, robustness.

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| **Replacement information** | This unit standard replaced unit standard 25660. |

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| **Planned review date** | 31 December 2026 |

**Status information and last date for assessment for superseded versions**

| Process | Version | Date | Last Date for Assessment |
|---|---|---|---|
| Registration | 1 | 19 January 2017 | 31 December 2024 |
| Review | 2 | 26 May 2022 | N/A |

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| **Consent and Moderation Requirements (CMR) reference** | 0099 |

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

**Comments on this unit standard**

Please contact Toi Mai Workforce Development Council qualifications@toimai.nz if you wish to suggest changes to the content of this unit standard.