



Australian Government

UEEEEC0072 Troubleshoot microcontroller-based hardware systems

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to troubleshoot microcontroller-based hardware systems.

It includes solving microcontroller hardware and firmware problems by determining correct operation of microcontroller system, and providing solutions derived from measurements and calculations to predictable faults in microcontroller hardware.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Electronics and Communications

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to work on microcontroller hardware

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are obtained and applied

1.2 WHS/OHS risk control work preparation measures and

procedures are followed

- 1.3** Nature of microcontroller hardware problems is obtained from documentation or from work supervisor to establish the scope of work to be undertaken
 - 1.4** Advice is sought from the work supervisor to ensure the work is coordinated effectively with others
 - 1.5** Sources of materials required for the work are established in accordance with workplace procedures
 - 1.6** Tools, equipment and testing devices needed to carry out the work are obtained and checked for correct operation and safety
- 2 Solve microcontroller hardware and firmware problems**
- 2.1** WHS/OHS risk control work measures and procedures are followed
 - 2.2** Need to test or measure live work is determined in strict accordance with WHS/OHS requirements and, as required, conducted within established safety procedures
 - 2.3** Circuits are checked as being isolated, as necessary, in strict accordance with WHS/OHS requirements and workplace procedures
 - 2.4** Established methods are used to solve problems from measured and calculated values as they apply to microcontroller hardware
 - 2.5** Unplanned situations are responded to in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
 - 2.6** Problems are solved without unnecessary damage to apparatus, circuits, the surrounding environment or services using sustainable energy practices
- 3 Complete work and document problem-solving activities**
- 3.1** WHS/OHS work completion risk control measures and procedures are followed
 - 3.2** Worksite is cleaned and made safe in accordance with established procedures
 - 3.3** Justification for solutions used to solve circuit problems are documented

- 3.4** Work completion is documented and appropriate person/s notified in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Troubleshooting must include at least two of the following types of microcontroller hardware problems:

- determining the operating parameters of an existing circuit
- altering an existing circuit to comply with specified operating parameters
- developing circuits to comply with a specified function and operating parameters

Unit Mapping Information

This unit replaces and is equivalent to UEENEEH166A Troubleshoot microcontroller based hardware systems.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>