



**Australian Government**

# **UEECD0040 Solve basic problems electronic and digital equipment and circuits**

**Release: 1**

# UEECD0040 Solve basic problems electronic and digital equipment and circuits

## 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 Solve basic problems electronic and digital equipment and circuits and circuits.

It includes working safely, applying problem-solving procedures, using measuring devices, providing solutions derived from equipment behaviour and measurements, and completing documentation.

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

## Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace and

UEECD0043 Solve problems in direct current circuits  
or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

## Competency Field

Cross Discipline

## Unit Sector

Electrotechnology

## Elements and Performance Criteria

### ELEMENTS

### PERFORMANCE CRITERIA

Elements describe the essential    Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

**1 Prepare to work on electronic and digital equipment**

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified, obtained and applied
- 1.2** WHS/OHS risk control work preparation measures and workplace procedures are followed
- 1.3** Scope of problem is obtained from documentation and/or work supervisor to determine the work to be undertaken
- 1.4** Advice is sought from work supervisor to ensure the work is coordinated effectively with others
- 1.5** Sources of materials required for work are identified and accessed in accordance with workplace procedures
- 1.6** Tools, equipment and testing devices required to carry out work are obtained and checked for correct operation and safety

**2 Solve electronic and digital equipment problems**

- 2.1** WHS/OHS risk control work measures and workplace procedures are followed
- 2.2** Need to test and measure live work is determined in accordance with WHS/OHS requirements and workplace procedures
- 2.3** Circuits are checked and isolated in accordance with WHS/OHS requirements and workplace procedures
- 2.4** Methods are used to solve electronic and digital equipment problems from observation or equipment behaviour and measured values
- 2.5** Unplanned situations are dealt with safely and with the approval of relevant person/s
- 2.6** Problems are solved without 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 workplace procedures are followed

- 3.2 Worksite is cleaned and made safe in accordance with workplace procedures
- 3.3 Justification for solutions used to solve circuit problems is documented
- 3.4 Work completion is documented and relevant 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.

## Unit Mapping Information

This unit replaces and is equivalent to UEENEEE123A Solve basic problems electronic and digital equipment and circuits.

## Links

Companion Volume implementation guides are found in VETNet - -

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

# Assessment Requirements for UEECD0040 Solve basic problems electronic and digital equipment and circuits

## Modification History

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## Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements, including using risk control measures
- checking and isolating circuits in accordance with WHS/OHS requirements and workplace procedures
- completing work and documenting problem-solving activities
- dealing with unplanned situations
- deducing equipment behaviour correctly and accurately
- identifying and accessing sources of materials required for work
- observing equipment behaviour and measured values
- obtaining and checking tools, equipment and testing devices
- obtaining problem scope
- preparing to work on electronic and digital equipment
- providing written justification for the solutions to problems
- solving electronic and digital equipment problems without damage using sustainable energy practices
- taking and recording measurements correctly and accurately using relevant measuring equipment
- testing and measuring live work in accordance with WHS/OHS requirements and workplace procedures
- using problem-solving methods.

## Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- alternating currents (a.c.) and waveforms
- analogue to digital conversion
- analogue versus digital

- basic electronic components
- basic logic
- batteries
- capacitance and inductance
- codes
- data manipulation
- digital to analogue conversion
- electromagnetic interference
- electromagnetic waves and signals
- fundamental concepts
- isolation procedures
- number systems
- problem-solving techniques
- relevant industry standards
- relevant manufacturer specifications and operating procedures
- relevant job safety assessments or risk mitigation processes
- relevant tools, equipment and testing devices
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- relevant electronic and digital equipment problems
- sustainable energy principles
- techniques in the use of multimeters
- testing and measuring live work.

## Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, facilities and equipment currently used in industry
- resources that reflect current industry practices in relation to solving basic problems in electronic and digital equipment

- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

## Links

Companion Volume implementation guides are found in VETNet - -

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