



Australian Government

UEECD0041 Solve electrotechnical engineering problems

Release: 1

UEECD0041 Solve electrotechnical engineering problems

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 electrotechnical engineering problems.

It includes working safely, applying problem-solving techniques, using a range of mathematical processes and techniques to provide solutions to electrotechnical problems, and documenting solutions.

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

Pre-requisite Unit

Not applicable.

Competency Field

Cross Discipline

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Provide calculated solutions to electrotechnical engineering problems

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** Scope of the problems are obtained from documentation and/or from work supervisor to determine work to be

	undertaken
	1.3 Problems are stated in writing and/or diagrammatic form to ensure they are identified, and relevant methods used to resolve them 1.4 Constants and variables related to the problem are obtained from measured values and/or problem documentation 1.5 Alternative methods for resolving the problem are considered and, as required, discussed with relevant person/s 1.6 Problems are solved using relevant mathematical processes and techniques within relevant industry standards
2 Complete work and document calculated solutions to electrotechnical activities	2.1 Justification for solutions used to solve electrotechnical engineering problems is documented in work/project development records in accordance with relevant industry standards 2.2 Work completion is documented and relevant person/s notified

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 UEENEEE129A Solve electrotechnical engineering problems.

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 UEECD0041 Solve electrotechnical engineering problems

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
- completing work and documenting calculated solutions to electrotechnical activities
- documenting justification of solutions provided in accordance with relevant industry standards
- obtaining known constants and variables from relevant sources
- obtaining scope of problem from documentation and/or work supervisor
- providing calculated solutions to electrotechnical engineering problems
- solving problems using relevant calculations
- stating problems in written and/or diagrammatic form.

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:

- capacitance in alternating current (a.c.) circuits
- capacitance/capacitors
- electromagnetic induction
- impedance in a.c. circuits
- inductance in a.c. circuits
- magnetism and electromagnetism
- measurement of electrical quantities
- parallel circuits
- phase relationships in a.c. circuits
- problem-solving techniques
- relevant industry standards
- relevant manufacturer specifications and operating instructions
- relevant job safety assessments or risk mitigation processes

- relevant WHS/OHS legislated requirements
- relevant workplace documentation, including:
 - diagrammatic form
 - work/project development records
- relevant workplace policies and procedures
- resistance
- series circuits
- series/parallel circuits
- single-source resistive a.c. circuits of various frequencies
- sinusoidal alternating voltage and current
- test equipment.

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 applying calculations required to solve electrotechnical problems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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