



Australian Government

UEECD0004 Apply material science to solving electrotechnology engineering problems

Release: 1

UEECD0004 Apply material science to solving electrotechnology 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 apply material science to solving electrotechnology engineering problems.

It includes identifying and solving electrotechnology engineering problems using material science. It also includes applying knowledge of materials science and documenting justification for 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 Identify electrotechnology problem/s

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) processes 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 electrotechnology problem and material for the environment are obtained and applied from documentation and/or work supervisor
	1.4	Tools, equipment and testing devices required for work are obtained and checked for correct operation and safety
2 Apply material science to developing solutions	2.1	WHS/OHS risk control work measures and workplace procedures are followed
	2.2	Tests and measurements are undertaken in accordance with WHS/OHS requirements and workplace procedures
	2.3	Tests, measurements and results are used to identify material science solutions to electrotechnology problems
	2.4	Effects on environments, materials and health risks are considered in resolving electrotechnology problems
	2.5	Unplanned situations are dealt with in accordance with WHS/OHS and approval of relevant person/s
3 Report solution/s	3.1	Proposed solutions to electrotechnology problems are documented with justification for the solutions
	3.2	Identified health risks exposed by a material and/or application is documented in workplace report
	3.3	Proposed solution report is forwarded to relevant person/s 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.

Applying material science from the workplace • electrotechnology problems

must include:

Unit Mapping Information

This unit replaces and is equivalent to UEENEEE081A Apply material science to solving electrotechnology 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 UEECD0004 Apply material science to solving electrotechnology 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 material science to developing solutions to electrotechnology problems
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including
 - using risk control measures
- considering environment and health risks in resolving electrotechnology problems
- dealing with unplanned situations in accordance with WHS/OHS and approval from relevant person/s
- documenting proposed solutions and justification
- obtaining the scope of electrotechnology problem and materials to be used
- obtaining tools, equipment and testing devices
- interpreting results to identify material science solutions to electrotechnology problems
- using testing devices
- using test and measurement results to identify material science solutions.

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:

- problem-solving techniques
- relevant classification, nature and physical properties of materials used in electrotechnology
- relevant environment and health issues
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications and operating instructions
- relevant material processing and manufacturing
- relevant material science
- relevant tests and measurement
- relevant tools, equipment and testing devices
- relevant WHS/OHS legislated requirements

- relevant workplace documentation, including
 - solution report
- relevant workplace instruction, policies and procedures.

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

Links

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