



Australian Government

UEEEL0006 Develop detailed and complex drawings for electrical systems using CAD systems

Release: 1

UEEEL0006 Develop detailed and complex drawings for electrical systems using CAD systems

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 develop detailed and complex drawings for electrical systems using computer-aided design (CAD) systems.

It includes 2-D and 3-D drawing formats covering a representative range of electrical systems, such as installations with alternative supplies, installations over 400 ampere (A) per phase at low voltage (LV) and/or high voltage (HV), single or multi-tenancies, heavy plant, switchgear, protection systems, earthing, power factor correction, control equipment, and energy monitoring and management.

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

Pre-requisite Unit

UEECS0033 Use engineering applications software on personal computers

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

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEEEL0007 Develop detailed electrical drawings

UEECD0031 Prepare engineering drawings using manual drafting and CAD for electrotechnology applications

UEECD0030 Prepare electrotechnology/utilities drawings using manual drafting and CAD equipment and software

UEECD0032 Produce detailed electrotechnology/utilities drawings using CAD equipment and software

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

Electrical

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to develop detailed and complex drawings for electrical systems

2 Develop detailed and complex drawings for electrical systems

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 measures and workplace procedures in preparation for the work are followed
- 1.3** The scope of detailed and complex electrical drawings is interpreted from workplace documentation and/or work instructions
- 1.4** Electrical drawing details required for work are identified in accordance with project specifications and workplace procedures
- 1.5** Relevant personnel are consulted to ensure the work is coordinated effectively with others
- 1.6** Relevant software tools, components, materials and equipment needed for the work are selected in accordance with workplace procedures
- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out the work are followed
- 2.2** Design layouts and detailed and complex electrical drawings are determined from project specifications for the electrical systems
- 2.3** Technical data of electrical system component/s are identified to determine parameters to be detailed in

electrical drawings

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| | 2.4 | Relevant software tools are used to produce detailed and complex electrical drawings in accordance with workplace procedures |
| | 2.5 | Detailed and complex electrical drawings are checked for accuracy in accordance with project specifications and workplace procedures |
| | 2.6 | Unplanned situations are dealt with safely and in accordance with workplace procedures |
| 3 Complete detailed and complex drawings for electrical systems | 3.1 | Completed detailed and complex electrical drawings are submitted to relevant person/s to be checked for accuracy in accordance with project specifications and workplace procedures |
| | 3.2 | Alterations, additions or correction instructions are followed and detailed and complex electrical drawings re-submitted for final approval |
| | 3.3 | Completed detailed and complex electrical drawings are documented 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 UEENEEG180A Develop detailed and complex drawings for electrical systems using CAD systems.

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 UEEEL0006 Develop detailed and complex drawings for electrical systems using CAD systems

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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 graphical techniques to produce products, processes, systems or services design representations
- applying knowledge of complex electrical equipment design drawing methods, techniques, procedures and protocols and documenting design
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including
 - using risk control measures
- developing a variety of detailed and complex electrical drawings
- incorporating feedback into final products
- interpreting and using technical data and specifications
- preparing to develop detailed and complex drawings for electrical systems
- presenting designs of electrical engineering products, processes, systems or services
- producing drafting documentation
- producing drawing sets
- selecting relevant computer-aided design (CAD) software tools, components, materials and equipment.

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:

- managing resources
- relevant advanced CAD systems
- relevant CAD modelling techniques
- relevant computer-based modelling, design, drafting and application systems
- relevant graphical engineering design techniques for products, processes, systems or services representation
- relevant manufacturer specifications and operating instruction

- relevant job safety assessments or risk mitigation processes
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace instructions, 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 developing detailed and complex drawings for electrical systems
- 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>