



Australian Government

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

Release: 1

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

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 prepare engineering drawings using manual drafting and computer-aided design (CAD) for electrotechnology/utilities applications.

It includes planning and producing electrotechnology/utilities engineering drawings. It also includes completing, reporting electrotechnology/utilities engineering drawings as well as using manual drafting methods, CAD equipment and software from specifications, layouts, sketches or verbal instructions.

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

UEECS0033 Use engineering applications software on personal computers

UEECD0019 Fabricate, assemble and dismantle utilities industry components

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

Competency Field

Cross Discipline

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

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| 1 Plan
electrotechnology/utilities
engineering drawing | 1.1 | Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures are identified and applied |
| | 1.2 | Hazards are identified, risks are assessed and control measures are implemented |
| | 1.3 | Extent of work is determined from job specifications, discussions with relevant person/s, sketches, preliminary layouts and/or field investigations |
| | 1.4 | Relevant person/s is consulted to coordinate work |
| | 1.5 | CAD software, tools and equipment required for work are obtained in accordance with workplace procedures |
| 2 Produce
electrotechnology/utilities
engineering drawing | 2.1 | WHS/OHS risk control measures and procedures for carrying out the work are followed |
| | 2.2 | Design, drawings and layouts required are determined from job specifications |
| | 2.3 | Technical data of system components is interpreted to determine parameters included in drawings |
| | 2.4 | Relevant CAD software tools are used to produce drawings in accordance with workplace procedures |
| | 2.5 | Drawings are checked for accuracy and compliance with job specifications |
| | 2.6 | Unplanned situations are responded to in accordance with workplace procedures and approval with authorised person/s |
| 3 Complete and report
electrotechnology/utilities
engineering drawing | 3.1 | Completed drawings are submitted to relevant person/s and checked for accuracy and compliance with job specifications |
| | 3.2 | Modifications are followed and drawings re-submitted for final approval |
| | 3.3 | Completed drawings are filed 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.

Preparation of electrotechnology/utilities engineering drawing using manual drafting and CAD applications must include:

- auxiliary views
- care and use of equipment
- descriptive geometry/revolutions
- development layouts
- dimensioning/size description and tolerancing
- drawings, including component drawings for fabrication, assembly and sub-assembly drawings, installation drawings, fault location aids such as flow diagrams and modifications (version control), and conversion between drawing types
- drawing reproductions
- engineering drafting specifications, layouts, sketches or verbal instructions in conformance with Australian Standards and enterprise standards for electrotechnology/utilities applications
- fabrication drawings
- geometric construction
- graphs and charts
- ink overlay drawings production
- layout drawings
- manual drafting methods, techniques, procedures and devices
- maps and profiles design
- mechanical, fabrication and fluid power
- multi-view orthographic projections
- organisational procedures for collaborating with the client, key stakeholders and other staff in the selection of the preferred option
- organisational procedures for preparation and production of drawings, drawing sets, specifications, drafting documentation and operating and maintenance instructions/manuals for products and

systems

- organisational procedures for processing, filing and saving all graphics, specifications, instructions and related documentation in correct format and location in accordance with worksite procedures
- pattern development
- pictorial drawings
- pipe/plumbing drawings
- safety precautions when working with CAD equipment
- sectional views/conventions
- sketching methods, techniques, procedures and devices including freehand sketching
- specifications obtained from design information, customer requirements, sketches, preliminary layouts and/or field investigations
- structural steel and sheet metal drawings
- technical drawing equipment, including CAD applications, peripherals and devices
- technical illustrations
- thread representations
- type, form and size of materials from information, abbreviations and symbols supplied on electrotechnology/utilities related engineering drawings, briefs and/or specifications
- working drawings

Unit Mapping Information

This unit replaces and is equivalent to UEENEEE190A Prepare engineering drawings using manual drafting and CAD for electrotechnology/utilities applications.

Links

Companion Volume implementation guides are found in VETNet - -

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