Australian Government

UEENEEE190A Prepare engineering drawings using manual drafting and CAD for electrotechnology/utilities applications

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

UEENEEE190A Prepare engineering drawings using manual drafting and CAD for electrotechnology/utilities applications

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor **1) Scope:**

1.1) Descriptor

This unit covers the preparation of, and modification of, preliminary engineering drawings for electrotechnology/ utilities applications using manual drafting methods and computer-aided design (CAD) equipment and software from specifications, layouts, sketches or verbal instructions in conformance with Australian Standards and enterprise standards.

Application of the Unit

Application of the Unit **2)**

This unit is intended for competency development entry-level employment based programs incorporated in approved contracts of training.

Licensing/Regulatory Information

License to practice **3)**

The skills and knowledge described in this unit do not require a license to practice in the workplace. However, practice in this unit is subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships.

Pre-Requisites

Prerequisite Unit(s) **4)**

Competencies **4.1)**

Granting competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed.

UEENEEE101A	Apply Occupational Health and Safety regulations, codes and practices in the workplace
UEENEED104A	Use software for engineering applications
UEENEEE102A	Fabricate, dismantle, assemble of utilities industry components
UEENEEE107A	Use drawings, diagrams, schedules, standards, codes and specifications

Literacy and numeracy skills **4.2)**

Participants are best equipped to achieve competency in this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading 3 Writing 3 Numeracy 3

Employability Skills Information

Employability Skills **5)**

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a competency standard unit	Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT		PERFORMANCE CRITERIA	
1	Prepare to produce electrotechnology/utilities engineering drawings	1.1	OHS procedures for a given work area are identified, obtained and understood
		1.2	Established OHS risk control measures and procedures in preparation for the work are followed
		1.3	The extent of the work is determined from project specifications and discussion with appropriate personnel
		1.4	Appropriate personnel are consulted to ensure the work is coordinated effectively with others involved on the work site
		1.5	Software tools and equipment a needed for the work are obtained in accordance with established procedures
2	Produce electrotechnology/utilities engineering drawings	2.1	OHS risk control measures and procedures for carrying out the work are followed
		2.2	The types of design drawings and layouts required are determined from project specifications
		2.3	Technical data of system components is interpreted to determine parameters that are to be included in the drawings
		2.4	Appropriate software tools are used to produce drawing based on standard protocols
		2.5	Drawings are checked for accuracy are compliance with project specifications
		2.6	Methods for dealing with unexpected situations are selected on the basis of safety and specified work

ELEMENT	PERFORMANCE CRITERIA	
		outcomes.
3 Complete and report electrotechnology/utilities engineering drawings	3.1	Completed drawings are submitted to an appropriate person to be checking for accuracy and compliance with project specifications.
	3.2	Any alterations, additions or correction instructions are followed and drawings are re-submitted for final approval
	3.3	Copies of completed drawings are filed securely in accordance with established procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices and methods used to prepare electrotechnology/utilities engineering drawings using manual drafting and CAD applications.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01-EE190A Electrotech/utilities engineering drawings and diagrams

Evidence shall show an understanding of electrotech/utilities engineering drawings and diagrams to an extent indicated by the following aspects

T1 Drawing fundamentals encompassing:

- principles, purpose and classification of drawings
- basic drawing terms and conventions
- symbols, codes and abbreviations used in drafting drawings
- tools and equipment used in drafting drawings
- drawing forms; sheet size and format, metric, imperial, copy fold information
- drawing routines; signatures, approvals, dates, numbers and numbering systems, design considerations/specifications, materials or component specifications, lists, titles, proprietary information, fasteners, representations, notes, charts and graphs, modifications and revision conventions
- fundamentals of drafting documentation including contents, version control, indexing and product identification (e.g. logo, trademark, software warning plates)
- delineation; line conventions and lettering, multi- and sectional view drawings, pictorial drawings, types and application of engineering drawings, conventional representations, microfilming, descriptive geometry and revolutions
- measurements; types, forms, units, symbols, reading and transfer
- sketching techniques (e.g. freehand lettering)
- basic drafting skills (e.g. drafting by hand, working with triangles, and working with a T square)
- basic drawing layout (e.g. borders and information blocks)
- line types and weights
- geometric construction principles
- use of drawing instruments and equipment to produce basic technical drawings
- drawings instruments and media usage
- usage of reproducible drawings with mechanical pencils

T2 Lettering encompassing:

- principles, concepts and applications of lettering

REQUIRED SKILLS AND KNOWLEDGE

- terms, conventions and codes related to lettering
- construction of vertical or inclined, single-stroke Gothic lettering, numerals, and fractions, including proper spacing and guidelines
- proper lettering instruments selection
- usage of lettering techniques for notes and titles on drawings
- text style, text composition, and text placement selection and application

T3 Sketching encompassing:

- principals, practices and rules for sketching in relation to proportion, placement of the views, and drawing medium
- concepts and applications of sketching
- terms, conventions and codes related to sketching
- sketches used in industry
- usage of sketching aids for creative communication
- sketching types and their applications
- line techniques in sketching simple objects
- estimation and proportion techniques usage
- views selection for requisite applications
- blocking technique for size, shape, and details
- surface shading techniques

T4 Geometric construction encompassing:

- principles, concepts and applications of geometric construction
- terms, conventions and shapes related to geometric construction
- drawing techniques of lines, angles, circles, arcs, tangents, and polygons
- geometric construction to single-view and multi-view drawings
- graphic geometric controls
- intermediate CAD commands
- plotting and printing equipment set up and configuration

T5 Multi-view orthographic projections Australian/New Zealand and industry standards encompassing:

- principals of multi-view orthographic projections
- terms, conventions and codes related to multi-view drawings
- applications and use of orthographic projections/drawings (e.g. 3rd angle)
- types and usage techniques of orthographic projection
- sketching techniques related to orthographic views
- rules for orthographic projection
- working drawing problems and specifications
- views visualisation and selection
- 1st and 3rd angle projection drawings
- lines, lettering, and drawing medium types

REQUIRED SKILLS AND KNOWLEDGE

- fractional, decimal, and metric equations solutions
- concepts of units of measurement usage related to multi-view orthographic projections
- sectional and/or auxiliary views uses, identification and analysis
- rules for sections and auxiliary views
- geometric figures visualisation and drawing in two dimensions
- geometric figures classification and comparison
- circle properties and relationships, and circle problem solving
- drawing from a view of a model (e.g. orthographic projection)

T6 Auxiliary views encompassing:

- principles, terms and conventions usage in auxiliary views
- use and application of auxiliary views
- primary auxiliary view construction
- secondary auxiliary view construction

T7 Descriptive geometry/revolutions encompassing:

- principles, terms and conventions usage in descriptive geometry/revolutions
- graphic solutions of points, lines, and planes
- graphic solutions of intersections (e.g. lines, planes, and solids)
- true length of lines, bearing, and slope of lines
- graphic solutions of solids
- drawings construction using the revolution method

T8 Sectional views/conventions encompassing:

- principles, terms, symbols and conventions of sectional views
- use and application of sectional views
- drawing standard sectional views
- use of conventional breaks
- symbols used to represent different materials
- use of cutting plans

T9 Pictorial drawings introduction and production to Australian/New Zealand and industry standards encompassing:

- principals, concepts and applications of pictorial drawings
- terms, symbols, conventions and codes usage in pictorial drawings
- types and usage techniques of pictorial drawings
- line of sight application
- isometric view usage
- pictorial drawing types usage and selection
- pictorial drawings sketching
- pictorial working drawing problems and specifications
- axonometric, oblique, and perspective drawings construction

REQUIRED SKILLS AND KNOWLEDGE

- calculations in projection plane angles
- standards for drawing pictorial drawings
- application of properties and relationships of triangles to solve geometric shapes
- conversion of an angular dimension of an orthographic to a linear dimension in a pictorial drawing
- drawing techniques of pictorial representations

T10 Dimensioning/size description and tolerancing as applied to drafting encompassing:

- principles, terms, symbols and conventions used in dimensioning and tolerancing
- terms, conventions and codes related to dimensioning
- dimensioning drawing construction using Australian/New Zealand standards
- types and usage techniques of dimensioning
- application of dimensioning to object drawings
- geometric dimensioning and tolerancing
- lines used in dimension drawings construction
- dimensioning practices applications
- dual dimensioning
- tolerancing applications
- dimensioning verification requirements
- formulas for positional tolerancing
- form, orientation, profile and runout

T11 Development layouts of various shaped objects to Australian/New Zealand and industry standards encompassing:

- principals and concepts of development layouts of various shaped objects
- terms, conventions and codes related to surface developments
- surface developments uses in Australian/New Zealand and industry standards
- basic three dimensional geometric shapes visualisation in a two dimensional plane
- cut out and construct models for checking accuracy
- rules to surface developments to produce stretchouts

T12 Layout drawings production to Australian/New Zealand and industry standards encompassing:

- principals, concepts and applications of layout drawings
- terms, conventions and codes related to layout drawings
- layout drawings types and differences
- rules for layout drawings
- concepts of units of measurement usage related to layout drawings

REQUIRED SKILLS AND KNOWLEDGE

T13 Technical illustrations drawing to Australian/New Zealand and industry standards encompassing:

- principals, concepts and purpose of technical illustrations
- terms, conventions, symbols and codes related to technical illustrations
- types and usage techniques of illustrations
- rules for technical illustration application
- techniques and applications for creating illustrations
- illustration types usage and selection
- illustration working drawing problems and specifications
- techniques and applications in the use of drawing instruments to prepare illustrations
- surface shading purpose and types, selection and analysis
- techniques and applications in airbrush renderings to detailed illustrations
- techniques and applications of CAD practices to technical illustrations
- techniques and applications of line-shaded illustrations
- concepts of units of measurement usage related to illustrations
- solutions for illustrations using fractional, metric, and decimal equations

T14 Graphs and charts production to Australian/New Zealand and industry standards encompassing:

- principals, concepts and applications of basic graphs, charts and diagrams production
- terms, conventions and codes related to basic graphs, charts and diagrams production
- graphs, charts and diagrams production types, usage and variations
- data configuration for graphic representation
- graph type selection per specifications and data
- basic graphic charts and diagrams interpretation
- charts and diagrams construction

T15 Thread representations encompassing:

- principles, concepts and applications of threaded fasteners
- terms, conventions and codes related to threaded fasteners
- types and usage techniques of threaded fasteners
- drawing of threads using simplified and schematic types of thread representation

T16 Working drawings encompassing:

REQUIRED SKILLS AND KNOWLEDGE

- principles, concepts and applications of working drawings
- terms, conventions and codes related to working drawings
- types and usage techniques of working drawings
- title block, bill of materials, and schedules used in working drawings
- working drawing production requirements

T17 Care and use of equipment encompassing:

- principles, concepts and applications of various drafting instruments, equipment, and materials
- types and usage techniques of drafting instruments, equipment, and materials
- drawing materials selection for specific types of drafting projects
- drawing instruments usage as a means of technical drawings preparation for accuracy, and readability
- Computer Aided Design (CAD) station components identification
- CAD setup requirements to complete a basic drafting problem

T18 Computer-aided drawing design (CAD) - basics encompassing:

- principles, terms, symbols and conventions usage in computer-aided drawing design (CAD)
- concepts and applications of CAD and related application commands
- types of CAD hardware
- CAD standards encompassing: file presentation; layering standards - sorting graphic data including data groups, principal data, supporting data, layering naming convention, colour assignment standard (layer colours and pen weights), provision for creation of new layers; blocks standards - real blocks object, common block objects, symbol objects, block library, block naming; text style standards - text styles naming, text height; dimension styles standards - dimension style naming; linetype standards; title blocks and graphic scales - title block set-up, information title blocks, drawing scales; systems of measurement and preferred scales - drawing scales
- DOS and Windows application definitions
- techniques and practices in the application of program assist and editing commands
- view and display commands (e.g. zooming and panning)
- query commands to extract drawing data
- techniques and practices in the application of changes to text styles text entering and editing
- existing drawing modifications
- working with multiple drawings using cut and paste, etc.
- components and symbol libraries creation, editing and retrieval
- plotting drawings to the proper scale

REQUIRED SKILLS AND KNOWLEDGE

- scaling techniques applications
- layering techniques applications
- Line-Type (LT) scale usage
- drawing techniques application
- drawing setups to applicable standards (e.g. settings, layers, line types, and widths)
- 2-D drawing creation
- Cartesian, polar, absolute, and relative coordinates usage in drawing lines and shapes
- techniques and practices in the application of geometric construction
- techniques and practices in the application of text to a drawing
- techniques and practices in altering font options
- techniques and practices in the application of laying out, drawing, and completing orthographic drawings
- techniques and practices in the application of drawing objects in isometric using isometric drawing commands
- techniques and practices in the application of completing primary auxiliary drawings on the CAD equipment
- techniques and practices in the application of CAD to draw screw threads
- techniques and practices in the application of making, setting, and using layers and blocks

T19 Basic production fabrication drawings to Australian/New Zealand and industry standards encompassing:

- principles, terms, symbols, codes and conventions usage in production fabrication drawings
- types and usage techniques of detailed and assembly drawings
- detailing: encompassing principals, concepts and applications of detailing; terms, conventions and codes related to detailing; detailing types, application and selection; different fabrication processes and identification of machine parts; rules for drawing machine part details; concepts of units of measurement usage related to detailing; application of properties and relationships of triangles and circles to solve geometric shapes related to detailing
- assembly drawings: encompassing principals, concepts and applications of assembly drawings; terms, conventions and codes related to assembly drawings; different assembly processes and identification of machine part assemblies; rules for drawing assembly drawings; concepts of units of measurement usage related to assembly drawings; application of properties and relationships of triangles and circles to solve geometric shapes related to assembly drawings
- machine assembly drawing production
- detail drawings standard machine fits applications
- drawings for welded component parts
- parts list (e.g. balloons) development

REQUIRED SKILLS AND KNOWLEDGE

- file and/or drawing for CAD/CAM applications
- gears drawings
- cams drawings
- threads and fasteners (e.g. bolts, pins, and keys) use and applications
- drawings for metal bending and fabricating
- standard fits, finishes, and tolerances to a machine drawing applications
- manufacturing processes (e.g. machine, metal forming, and CNC)

T20 Pattern development encompassing:

- principles, concepts and purpose of pattern development
- terms, conventions and codes related to pattern development
- types and usage techniques of pattern development and related drawings
- application of pattern development and intersection techniques
- intersections of geometric surfaces development techniques and applications
- flat surfaces development techniques and applications
- construct of objects from the intersection

T21 Maps and profiles design and production to Australian/New Zealand and industry standards encompassing:

- principals, concepts and applications of maps and profiles design and production
- terms, conventions and codes related to maps and profiles design and production
- maps and profiles design and production types and uses
- rules for cartography
- components selection and transit usage
- symbols usage and applications for topography
- application of properties and relationships of triangles to solve geometric problems; trigonometric relations to solve right triangles, law of sines and cosines to solve triangles

T22 Pipe/plumbing drawings basics encompassing:

- principles, purpose, terms and conventions usage in pipe/plumbing drawings
- applicable codes, symbols and abbreviations
- piping symbols, fittings, fixtures, and valves
- types of piping systems and usage techniques in pipe drawings
- principles of pneumatics and hydraulics
- pneumatics and hydraulic schematics production
- plumbing schematics production
- techniques and applications in creating drawings of piping symbols and systems

T23 Structural steel, welding and sheet metal drawings basics encompassing:

REQUIRED SKILLS AND KNOWLEDGE

- principles, terms and conventions usage in structural steel, welding and sheet metal drawings
- applicable codes (e.g. OHS, Standards Australia/Zealand, building codes and regulations, related standards and codes)
- classification of major structural and welding components
- rules and symbols used in structural and welding drawings
- structural steel shapes
- steel-framing materials
- detail and assembly drawings (including beam connections) with bill of materials
- steel frame plan drawings production
- types and usage techniques of structural and welding drawings
- techniques and applications in creating structural drawings using measuring, labeling, and symbol procedures
- techniques and applications used in drafting the processes for joining metal and standard symbols for welding
- techniques and applications in creating welding drawings complete with weld symbols
- sheet metal layout methods and procedures
- representative sheet metal drawings
- sheet metal drawings for CAD/CAM applications

T24 Ink overlay drawings produced to Australian/New Zealand and industry standards encompassing:

- principals, concepts and applications of ink overlay drawings production
- terms, conventions and codes related to ink production
- drawing specifications identification and analysis
- rapid graph equipment usage procedures

T25 Drawings reproductions to Australian/New Zealand and industry standards encompassing:

- principals, concepts and applications of drawing reproductions
- terms, conventions and codes related to processes related to drawing reproductions
- rules for reproducing drawings
- various machines usage and selection in the reproduction process

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the unit. It must be read in conjunction with the performance criteria and the range statement of the unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this unit. It must be used in conjunction with all parts of the unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment **9.1)**

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the industry-preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal everyday work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

Critical aspects of evidence required to demonstrate competency in this unit **9.2)**

Before the critical aspects of evidence are considered all prerequisites must be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated performance criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines – UEE11'. Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
  - Implement Occupational Health and Safety workplace procedures and practices, including the use of risk control measures as specified in the performance criteria and range statement
  - Apply sustainable energy principles and practices as specified in the performance criteria and range statement
  - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.
  - Demonstrate an appropriate level of skills enabling employment
  - Conduct work observing the relevant Anti Discrimination legislation, regulations, polices and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
  - Prepare electrotechnology/ utilities engineering drawings using manual drafting and CAD applications as described in 8) Range and including:

A Carrying out freehand sketching of simple electrotechnology/ utilities products, and components using pictorial methods to generate two and three dimensional electrotechnology/ utilities images encompassing a range of standard components, such as devices, components, parts, equipment and structures, sketched together with other solid and hollow

	items.
B	Preparing and modifying preliminary electrotechnology/ utilities drawings and diagrams using manual drafting methods, techniques, procedures and devices
C	Preparing and modifying preliminary electrotechnology/ utilities drawings and diagrams using computer-aided design equipment and software
D	Notating type, form and size of materials from information, abbreviations and symbols supplied on electrotechnology/ utilities drawings, briefs and/or specifications.
E	Obtaining specifications from design information, customer requirements, sketches, preliminary layouts and/or field investigations.
F	Drawing single part components, simple electrotechnology/ utilities assemblies for fabrication, assembly or installation of products encompassing dimensions, fabrication and/or installation notes, and parts lists from predetermined dimensions, associated tolerances and design specifications
G	Using CAD equipment and related commands and drawing environments to produce setting out details; drawing template for a range of paper sizes, the drawing title and scale used, date of drawing and other relevant information; and/or working drawings
H	Stating the purpose and usage of a variety of atypical electrotechnology/ utilities drawings for electrotechnology and electricity supply industry applications
I	Generating a variety of CAD drawings from 2D components to 3D models by applying relevant techniques and processes, extracting properties, applying basic rendering techniques and incorporating pre-prepared symbols to construct electrotechnology/ utilities diagrams and assembly drawings to produce section, surface modelling, solid modelling, and wireframe modelling views
J	Applying safety precautions when working with CAD equipment

Context of and specific resources for assessment

9.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed in this unit.

These should be used in the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions for assessment must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to preparing electrotechnology/ utilities engineering drawings using manual drafting and CAD applications

Method of assessment

9.4)

This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires that the specified essential knowledge and associated skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

Concurrent assessment and relationship with other units

9.5)

For optimisation of training and assessment effort, competency development in this unit may be arranged concurrently with units covering the preparing electrotechnology/ utilities engineering drawings using manual drafting and CAD applications

Range Statement

RANGE STATEMENT

10) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

This unit shall be demonstrated in relation to the preparation of electrotechnology/utilities engineering drawings using manual drafting and CAD applications:

- Covers mechanical, fabrication, fluid power
- Drawings include 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
- Engineering drafting specifications, layouts, sketches or verbal instructions in conformance with Australian Standards and enterprise standards for electrotechnology/ utilities applications
- Manual drafting methods, techniques, procedures and devices
- Type, form and size of materials from information, abbreviations and symbols supplied on electrotechnology / utilities related engineering drawings, briefs and/or specifications
- Sketching methods, techniques, procedures and devices encompassing freehand sketching
- Specifications may be obtained from design information, customer requirements, sketches, preliminary layouts and/or field investigations
- Geometric construction
- Multi-view orthographic projections
- Auxiliary views
- Descriptive geometry/revolutions
- Sectional views/conventions
- Pictorial drawings
- Dimensioning/size description and tolerancing
- Development layouts
- Layout drawings
- Technical illustrations
- Graphs and charts
- Thread representations
- Working drawings
- Technical drawing equipment including computer-aided drawing design (CAD) applications, peripherals and devices
- Care and use of equipment

RANGE STATEMENT

- Safety precautions when working with CAD equipment
- Fabrication drawings
- Pattern development
- Maps and profiles design
- Pipe/plumbing drawings
- Structural steel and sheet metal drawings
- Ink overlay drawings production
- Drawings reproductions
- 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 work site procedures
- Organisational procedures for collaborating with the client, key stakeholders and other staff in the selection of the preferred option

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**

Electrotechnology