Australian Government

MEM09205 Produce electrical schematic drawings

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM09205A Produce electrical schematic drawings.

Application

This unit of competency defines the skills and knowledge required to produce electrical schematic drawings complying with Australian and international standards and is primarily for those working within a drafting work environment with engineering or manufacturing applications.

Critical dimensions and specifications for the drawing are predetermined and drawings are produced under supervision. Drawings may be carried out with or without the use of computer-aided design (CAD) systems, and show the physical arrangement of components, electrical circuits and connections between devices, using appropriate symbols. A matching reference list of circuit components is also produced.

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

Pre-requisite Unit

MEM09204 Produce basic engineering detail drawings

MEM09229 Read and interpret technical engineering drawings

Competency Field

Drawing, drafting and design

Elements and Performance Criteria

Elements	**Performance Criteria**
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Determine job requirements	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Identify job requirements from available information and identify and address further information needs 1.4 Determine purpose, scope and information requirements for drawing

Elements	Performance Criteria
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
	1.5 Identify and prepare equipment required to complete work
2. Identify system requirements	2.1 Identify and apply codes, standards and symbols used for electrical diagrams and drawings 2.2 Identify function and purpose of circuit and its components and assemblies 2.3 Identify environmental implications of inefficient systems and strategies for minimising impact
3. Prepare electrical drawings and diagrams	3.1 Lay out drawing in accordance with the sketches and specifications 3.2 Prepare an electrical block diagram in accordance with Australian Standards 3.3 Draw cable run and multi-storey riser diagrams from schedules 3.4 Produce switchboard layout drawings 3.5 Prepare single line and interconnecting electrical diagrams in accordance with Australian Standards 3.6 Prepare wiring and circuit diagrams in accordance with Australian Standards
4. Prepare materials list	4.1 Select components and materials from supplier catalogues using predetermined specifications 4.2 Produce a parts list in accordance with SOPs 4.3 Store drawings and materials list in accordance with SOPs
5. Consult with other disciplines	5.1 Verify the parameters of the brief and clarify specifications with appropriate personnel 5.2 Identify and consult with support services 5.3 Present and explain drawings at appropriate stages of the project

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.	
Available information includes one or more of the following:	• construction documents • building and coordination information • work specifications • information for plant services equipment • industry codes, standards and regulations • catalogues and manuals • design brief.
Types of electrical drawings or diagrams include one or more of the following:	• block • single line • interconnecting Plus one or more of the following: • wiring • circuit • telephonic and telegraphic diagrams • cable form diagrams • notations.
Components and assemblies include one or more of the following:	• resistors: fixed (composition and wire wound), variable (rheostats, potentiometers and trimmers), and non-linear (thermistors) • capacitors: fixed (ceramic, plastic and electrolytic), variable, magnetic, transformers, chokes, relays, contactors, rectifiers, smoothing filters, voltage regulators and feedback.
Electrical layouts include one or more of the following:	• domestic lighting • domestic power • commercial • lighting schedule • power schedule • factory electrification • flame proofing • buzz bar systems • 3 phase • 240 volt • 415 volt.
Cable runs include one or more of the following:	• racking • schedules.
Switchboards include one	• layouts • wiring schedules.

or more of the following:	

Other disciplines include one or more of the following:	• appropriate personnel:
	  • designer
	  • engineer
	  • supervisor
	  • contractor/consultant
	  • builder
	• support services:
	  • estimating department and personnel
	  • engineering department and personnel
	  • drafting department and personnel
	  • project manager
	  • factory manager or staff
	• stakeholders:
	  • team members
	  • cross-function support groups
	  • experts
	  • appropriate licensed technicians and professionals.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM09205A Produce electrical schematic drawings.

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2