



Australian Government

MEM30026 Select and test components for simple electronic switching and timing circuits

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM30026A Select and test components for simple electronic switching and timing circuits.

Application

This unit of competency defines the skills and knowledge required to select common electronic components to suit basic applications and perform basic electronic calculations. It includes selecting, testing and using simple electronic switching and timing circuits and selecting common power supplies and power control devices.

The unit applies to engineering or related activities and is suitable for people giving technical support in manufacturing or engineering operations and those pursuing technical qualifications and careers at paraprofessional or technician level. All work is carried out under supervision.

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

Pre-requisite Unit

MEM12024 Perform computations

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

Competency Field

Engineering technician

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Perform basic electronic calculations	1.1 Follow standard operating procedures (SOPs) and comply with work health and safety (WHS) requirements at all times 1.2 Perform calculations for a given circuit voltage, current, resistance and direct current (DC) power 1.3 Calculate the period, frequency, RMS, peak and peak-to-peak

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	voltages for a given repetitive waveform 1.4 Verify waveform calculations using an oscilloscope
2. Select, test and use simple electronic switching circuits	2.1 Select transistors required for simple switching applications 2.2 Wire up the circuit and test using suitable prototyping equipment including breadboards 2.3 Use checking processes to verify calculations
3. Select, test and use simple electronic timing circuits	3.1 Select the appropriate timing circuit and calculate the time constant 3.2 Wire up the circuit and test using breadboards 3.3 Use checking processes to verify calculations
4. Select common power supplies and power control devices	4.1 Select half or full wave rectification based on requirements 4.2 Select appropriate power control devices

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.

Simple electronic switching circuit includes one or more of the following:	• simple transistor switches • simple linear integrated circuits.
Appropriate timing circuit includes one or more of the following:	• simple resistor capacitor (RC) timing circuit • type 555 integrated circuit.

Power control devices include one or more of the following:	• zener diodes • light emitting diodes (LEDs) • silicon controlled rectifiers (SCRs) • triode for alternating current (TRIACs).
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Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM30026A Select and test components for simple electronic switching and timing circuits.

Links

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