



**Australian Government**

# **MEM23086 Apply scientific principles and techniques in avionic engineering situations**

**Release: 1**

# MEM23086 Apply scientific principles and techniques in avionic engineering situations

## Modification History

Release 1. Supersedes and is equivalent to MEM23086A Apply scientific principles and techniques in avionic engineering situations.

## Application

This unit of competency defines the skills and knowledge required to apply advanced scientific principles and techniques to avionic engineering situations.

The unit applies to engineering or related activities requiring specific mathematical techniques and is suitable for people giving technical support in avionic engineering activities and those pursuing technical qualifications and careers at paraprofessional or technician level.

Within this unit, avionic engineering is defined as the engineering discipline concerned with the conceptual development, research, design, manufacture, implementation, installation, commissioning and maintenance of aerospace electrical, instrument, radio and electronic systems and components and related test equipment for civil and military applications.

Avionic engineering applications include the description or definition of an objective or challenge requiring a conceptual development, design, manufacture and/or implementation and/or installation, commissioning and maintenance response to affect a solution or improvement with regard to electrical systems and related wiring and components, mechanical and electro-mechanical flight instruments and indication systems, electronic systems and components or automatic test stations, adapters and software.

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

## Pre-requisite Unit

MEA706 Apply basic scientific principles and techniques in avionic engineering situations

## Competency Field

Engineering science

## 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. Identify scientific                           | 1.1 Identify the scientific principles relating to avionic engineering                                 |

| Elements                                                                                       | Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i>                                               | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                                                                                                                                                           |
| principles and techniques relevant to avionic engineering                                      | 1.2 Research and report on avionic scientific principles using appropriate sources of information<br>1.3 Identify the techniques and associated technologies, software and hardware associated with implementing scientific principles relating to avionic engineering applications<br>1.4 Research and report on avionic techniques                                                                                             |
| 2. Select scientific principles and techniques                                                 | 2.1 Select relevant scientific principles for specific avionic engineering situations<br>2.2 Select relevant avionic techniques and associated technologies, software and hardware for specific avionic engineering situations                                                                                                                                                                                                   |
| 3. Apply scientific principles and techniques                                                  | 3.1 Apply applicable scientific principles to obtain required solutions<br>3.2 Calculate required quantities<br>3.3 Use coherent units in equations in a systematic manner to ensure meaningful solutions<br>3.4 Use significant figures in engineering calculations<br>3.5 Determine required solutions by applying chosen techniques and associated technologies, software and hardware in a consistent and appropriate manner |
| 4. Document the results of the application of the avionic scientific principles and techniques | 4.1 Document solutions involving engineering calculations in an appropriate style<br>4.2 Document solutions not involving engineering calculations in an appropriate style                                                                                                                                                                                                                                                       |

## 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.

Sources of information include:

- reference texts
- manufacturer catalogues and industrial magazines
- internet search engines and websites
- use of phone and email
- airworthiness and design authority regulations and associated advisory material.

## Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM23086A Apply scientific principles and techniques in avionic engineering situations.

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>