



Australian Government

MEA727 Apply calculus in avionic engineering situations

Release: 1

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Modification History

Release 1 - New unit of competency

Application

This unit of competency applies to avionic engineering tasks requiring the use of calculus to support avionic system and component circuit analysis and limited design, either manually or through use of an appropriate software package.

It is suitable for paraprofessionals and technologists required to perform circuit analysis in the design and modification of avionic systems and components, and in the development and support of test stations. It is suitable for those pursuing technologist careers and qualifications.

This unit is used in workplaces that operate under the airworthiness regulatory systems of the Australian Defence Force (ADF) and the Civil Aviation Safety Authority (CASA).

Pre-requisite Unit

MEM23004A Apply technical mathematics

Competency Field

Avionic engineering

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1.	Apply differentiation techniques to avionic engineering applications	1.1	Solve avionic engineering problems using the rules of differentiation
		1.2	Solve avionic engineering problems that are expressed in the form of differential equations
		1.3	Solve avionic engineering problems that require the application of partial differentiation
2.	Apply integration	2.1	Obtain integrals of algebraic, trigonometric and

	techniques to avionic engineering applications		exponential functions and evaluate definite integrals
		2.2	Solve avionic engineering problems using the rules of integration
3.	Apply fourier analysis and laplace transforms to avionic engineering applications	3.1	Apply fourier analysis and laplace transforms in the analysis and design of avionic circuits
4.	Communicate outcomes	4.1	Communicate outcome to relevant stakeholders by appropriate means
		4.2	Explain outcome to stakeholders as appropriate
		4.3	Check outcome has addressed problem

Foundation Skills

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.

Avionic engineering applications include:

- Circuit analysis relating to avionic systems and system components, including but not limited to:
 - communications
 - radio navigation
 - inertial navigation
 - pulse
 - display
 - automatic flight control
 - flight management
 - engine management
- Circuit analysis relating to the design, modification and update of avionic component test stands

Appropriate communication techniques include:

- Reporting
- Publication amendment
- Revision of design data

- Presentation
 - Verbal communication
 - Web-based
 - Electronic or hard copy
- Check outcome includes:**
- Ensuring that the result of the analysis does assist in the resolution of the problem

Unit Mapping Information

New unit of competency

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>