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MEM234021 Apply statistics to technology problems

Release: 1

MEM234021 Apply statistics to technology problems

Modification History

Release 1. Supersedes and is equivalent to MEM234021A Apply statistics to technology problems.

Application

This unit of competency defines the skills and knowledge required to apply advanced statistics in an engineering or related application and includes probability distributions, correlation, inference and significance,. It includes both the application of theory in simple calculations and the use of statistical tables and equations either manually or through the use of relevant statistical packages for more complex situations.

It is suitable for paraprofessionals and technologists required to solve advanced statistical problems in an engineering or related field, or for those pursuing technologist careers and qualifications.

Individuals completing this work either already have or are developing skills and experience in probability and statistics covering central tendency, measures of variability and confidence limits.

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

Pre-requisite Unit

Nil

Competency Field

Engineering science

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. Identify a need for the application of statistics	1.1 Identify and define a problem requiring a statistical application and which allows for statistical analysis and the application of quantitative data 1.2 Determine data currently available for analysis 1.3 Determine information required from outcome

Elements	Performance Criteria
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
2. Prepare to solve statistical problem	2.1 Determine statistical techniques to be applied 2.2 Identify and gain access to appropriate computational devices 2.3 Collect required input data 2.4 Analyse collected data for suitability and completeness 2.5 Take appropriate action to address any deficiencies found
3. Solve statistical problem	3.1 Apply appropriate techniques to collected data 3.2 Check answer to ensure it is within the expected rational results 3.3 Interpret answer to determine information required by problem definition and translate the result of the statistical analysis into a form which is useable by relevant stakeholders
4. Communicate outcomes	4.1 Communicate outcome to relevant stakeholders by appropriate means 4.2 Explain outcome to stakeholders, as appropriate to nature of the problem 4.3 Confirm that the result of the analysis assists in the resolution of the problem

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.	
Statistical techniques include:	• the techniques listed under Knowledge Evidence.
Computational devices	• calculators with statistical functions

include:	• computer software packages.
Appropriate actions include:	• taking necessary steps to obtain required data • obtaining some relevant proxy for the desired data • choosing a different statistical technique and computational device which will function with available data.
Appropriate techniques include:	• selected statistical technique which will yield required outcome • technique which is appropriate for the available data and which is relevant to the problem.
Appropriate communication includes one or more of the following:	• report • presentation • verbal communication • web-based • electronic or hard copy.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM234021A Apply statistics to technology problems.

Links

Companion Volume Implementation Guides are available on VETNet -
https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2