



Australian Government

UEEEL0042 Develop engineering solutions for d.c. machine and control problems

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to develop engineering solutions for direct current (d.c.) machine and control problems.

It includes working safely; determining problem; obtaining direct current d.c. machine operation, construction and application; gathering and analysing data; applying problem-solving techniques; and developing and documenting solutions.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V d.c..

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training, such as an Australian Apprenticeship, may be required.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Permits may also be required for some work environments such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0036 Provide engineering solutions for problems in complex multiple path circuit

UEECD0039 Provide solutions to basic engineering computational problems

and

UEECD0041 Solve electrotechnical engineering problems

or

UEECD0043 Solve problems in direct current circuits

UEEEL0019 Solve problems in direct current (d.c.) machines

UEEEL0021 Solve problems in electromagnetic devices

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

UEEEL0019 Solve problems in direct current (d.c.) machines

UEEEL0021 Solve problems in electromagnetic devices

or

UEEEC0074 Troubleshoot resonance circuits in an electronic apparatus

and

UEECD0043 Solve problems in direct current circuits

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

or

UEEEC0065 Solve problems in basic electronic circuits

Competency Field

Electrical

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to develop engineering solution for d.c. machine problems

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** WHS/OHS processes and workplace procedures for a given work area are identified, obtained and applied
- 1.2** WHS/OHS risk control measures and workplace procedures in preparation for the work are followed
- 1.3** Scope of d.c. machine problem is determined from performance specifications and/or documentation and in consultation with relevant person/s

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| | 1.4 | Activities are planned to meet scheduled timelines in consultation with others involved in the work |
| | 1.5 | Strategies are formed to ensure solution development and implementation is carried out efficiently |
| 2 | Develop engineering solution for d.c. machine problems | |
| | 2.1 | WHS/OHS risk control measures and workplace procedures for carrying out the work are followed |
| | 2.2 | Relevant d.c. machine construction operation characteristics and applications are applied to developing solutions to d.c. machine problems |
| | 2.3 | Parameters, specifications and performance requirements to each machine problem are obtained in accordance with workplace procedures |
| | 2.4 | Approaches to resolving d.c. machine problems are analysed to provide most effective solutions |
| | 2.5 | Unplanned events are dealt with safely in accordance with relevant industry standards and workplace procedures |
| | 2.6 | Quality of work is monitored in accordance with relevant industry standards and workplace procedures |
| 3 | Implement engineering solution and complete documentation | |
| | 3.1 | Solutions to machine problems are tested to determine their effectiveness and modified as required |
| | 3.2 | Adopted solutions are documented and instructions for implementation with risk control measure developed |
| | 3.3 | Relevant person/s required to implement solutions to d.c. machine problems is coordinated in accordance with relevant industry standards and workplace procedures |
| | 3.4 | Justification for solutions used to solve d.c. machine problems is documented in work/project records in accordance with relevant industry standards |

Foundation Skills

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

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Developing engineering solutions must include the following:

- at least two different d.c. machines using different control systems

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG144A Develop engineering solutions for d.c. machine and control problems.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>