Australian Government

UEEEL0041 Develop engineering solution for synchronous machine and control problems

Release: 1

UEEEL0041 Develop engineering solution for synchronous machine and control problems

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 synchronous machine and control problems.

It includes applying safe working practices; determining problems; obtaining synchronous machine operation, construction and application; gathering and analysing solutions; applying problem-solving techniques; and developing and documenting solutions.

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

Pre-requisite Unit

UEEEL0062 Provide engineering solutions to problems in complex polyphase power circuits

UEECD0036 Provide engineering solutions for problems in complex multiple path circuit

UEECD0039 Provide solutions to basic engineering computational problems

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

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	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1 Prepare to develop engineering solution for synchronous machine problems	**1.1** Work health and safety (WHS)/occupational health and safety (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 synchronous machine problem is determined from performance specifications and/or documentation and in consultation with relevant person/s
	1.4 Activities are planned to meet scheduled timelines in consultation with others involved in the work
	1.5 Effective strategies are formed to ensure solution development and implementation is carried out efficiently
2 Develop engineering	**2.1** WHS/OHS risk control measures and workplace

solution		procedures for carrying out the work are followed
	2.2	Synchronous machine construction, operation, characteristics and applications are applied to developing solutions to synchronous machine problems
	2.3	Parameters, specifications and performance requirements for each machine problem are obtained in accordance with workplace procedures
	2.4	Approaches to resolving synchronous machine problems are analysed to provide most effective solutions in accordance with relevant industry standards and workplace procedures
	2.5	Unplanned events are dealt with safely and effectively 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, including instruction for their implementation with risk control measures
	3.3	Relevant person/s required to implement solutions to synchronous machine problems is coordinated in accordance with relevant industry standards and workplace procedures
	3.4	Justification for solutions used to solve synchronous 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 four synchronous machine problems

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG143A Develop engineering solution for synchronous 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