Australian Government

Assessment Requirements for UEECD0036 Provide engineering solutions for problems in complex multiple path circuits

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.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- analysing complex multiple path circuits
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including
  - using risk control measures
- completing work and documenting problem-solving activities
- completing written justification of solutions
- coordinating work with others
- dealing with unplanned events in accordance with problem-solving techniques and workplace procedures
- determining the operating parameters of existing circuits
- inspecting and testing active systems
- obtaining and following work instructions
- obtaining and using tools, equipment and products
- preparing to solve problems in complex multiple path circuits
- providing effective solutions to circuit problems from measurements and calculations
- providing solutions for problems in complex multiple path circuits
- using sustainable energy practices in accordance with workplace procedures
- using testing devices.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- complex alternating current (a.c.) power and maximum power transfer theorem
- complex impedance
- mesh and nodal analysis for a.c. linear circuits
- mesh and nodal analysis for direct current (d.c.) linear circuits

- Norton's principles for d.c. linear circuits
- phasors
- problem-solving techniques
- relevant complex multiple path circuits
- relevant industry standards
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications and operating instructions
- relevant materials, tools, equipment, product and testing devices
- relevant sustainable energy principles
- relevant tools, equipment and products
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace instructions, policies and procedures
- series and parallel a.c. linear circuits
- star-delta conversions
- superposition principles and Kirchhoff's law applied to a.c. linear circuits
- superposition principles for d.c. linear circuits
- Thévenin and Norton theorems applied to a.c. linear circuits
- Thévenin's principles for d.c. linear circuits
- transients
- voltage/current sources and Kirchhoff's law for d.c. linear circuits.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, facilities, tools, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to solving problems in complex multiple path circuits.
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6