



Australian Government

Assessment Requirements for UEEEC0013

Design electronic printed circuit boards

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:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, workplace procedures and practices, including using risk control measures
- creating a library of components
- creating custom component footprints and schematic elements using physical measurements and/or applicable datasheets
- dealing with unplanned situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- designing single and double-layer boards
- developing outlines of alternative designs
- developing the design within safety and functional requirements
- documenting and presenting design effectively
- extracting and checking manufacturing files/gerber and drill/excelon
- implementing common design rule parameters used by printed circuit board fabrication houses
- modifying existing component footprints and schematic elements using physical measurements and/or applicable datasheets
- running design rule and error checks within software package
- using a version control system (VCS) or implementing a version control strategy
- using an industry standard printed circuit board design software package
- using both surface mount device (SMD)/surface mount technology (SMT) and through-hole components
- using Vias in accordance with industry standards.

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:

- design principles and industry standards
- design tools and software
- factors influencing design, including component placement, routing and auto-routing and design rules
- printed circuit board techniques, including materials and processes overview (photographic, mechanical, thermal and dielectric) and types of printed circuit board (single-sided, double-sided and multi-layer)
- relevant job safety assessments or risk mitigation processes
- relevant printed circuit board manufacturer specifications, including component specifications and their implications in a given circuit
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- sources of components and technical data, including sources of components and technical data (data sheets and manufacturer's data) and circuit/apparatus parameters and specifications.

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 workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated 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 other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to designing electronic printed circuit boards
- 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>