



Australian Government

UEEEEC0011 Design and develop electronics/computer systems projects

Release: 1

UEEEEC0011 Design and develop electronics/computer systems projects

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 design and develop an electronics/computer system project.

It includes working safely; and designing, constructing, recording, evaluating and reporting of an electronics/computer system design project.

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

Pre-requisite Unit

Not applicable

Competency Field

Electronics and Communications

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Identify electronics/computer system project requirements

PERFORMANCE CRITERIA

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

- 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** Hazards are identified, WHS/OHS risks are assessed,

	control measures and workplace procedures are implemented in preparation for work
1.3	Scope of proposed project design/development work is determined from design brief in consultation with appropriate person/s
1.4	Project work is planned to meet scheduled timelines in consultation with others involved on the worksite
1.5	Resources required for work are selected based on compatibility with project requirements and budget constraints
1.6	Tools, equipment and testing devices needed to carry out work are obtained and checked for correct operation and safety
2 Design and develop electronics/computer system	2.1 WHS/OHS risk control work measures and workplace procedures are followed
	2.2 Electronics/computer devices and systems and industry standards are applied to the design specifications
	2.3 Alternative designs are considered based on the design brief
	2.4 Safety, functional and budget considerations are incorporated in the design
	2.5 Electronic/computer hardware and/or software systems are constructed and tested for compliance with design brief and regulatory requirements
	2.6 Electronic/computer faults are rectified and retested to ensure effective operation of design
	2.7 Project design specifications are documented for submission to appropriate person/s for approval
	2.8 Solutions to unplanned situations are implemented in accordance with workplace policy
3 Obtain approval for electronics/computer system	3.1 Electronic/computer system design is presented and explained to client representative and/or relevant person/s
	3.2 Modifications to design are negotiated with relevant person/s within the constraints of workplace policy

- 3.3 Final project design is documented and approval obtained from appropriate person/s
- 3.4 Quality of work is monitored against performance agreement and/or workplace or 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.

Designing and developing a medium-sized electronics/computer systems project includes designing, modifying, installing and applying the following:

- at least four digital and four analogue inputs and outputs (I/O), and at least one human-machine interface (HMI)

Unit Mapping Information

This unit replaces and is equivalent to UEENEEH188A Design and develop electronics - computer systems projects.

Links

Companion Volume implementation guides are found in VETNet - -

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

Assessment Requirements for UEEEC0011 Design and develop electronics/computer systems projects

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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, including:
 - implementing workplace procedures and practices
 - using risk control measures
- constructing and testing prototype hardware and/or software according to design brief and regulatory requirements
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- developing outlines/plans of alternative designs
- developing the design within the safety and functional requirements and budget limitations/constraints
- documenting and presenting design effectively
- obtaining final design approval
- successfully negotiating design alteration requests
- verifying compliance of the design against the final brief
- identifying and preparing to design and develop electronic/computer system in accordance with design brief.

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:

- connection of test/measuring devices into a circuit
- design objectives (specifications) to satisfy a customer attribute/brief
- design plan and solution synthesis (by selecting or creating the solution)
- electronic measuring instruments
- engineering design process

- functional and non-functional requirements of a customer project
- relevant job safety assessments or risk mitigation processes, including:
 - risks and control measures associated with low voltage (LV) machines
- relevant industry standards, regulations, codes of practice and WHS/OHS legislated requirements
- relevant manufacturer specifications
- relevant workplace documentation
- relevant workplace policies and procedures
- validations of the resulting design against the customer's needs.

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 suitable 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 simulations
- relevant and appropriate materials, tools, facilities and equipment currently used in industry
- resources that reflect current industry practices in relation to designing and developing electronics/computer systems projects
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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