



Australian Government

Assessment Requirements for UEEEC0019

Develop software solutions for microcontroller-based systems

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 risk identification, assessment, reporting and control requirements
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including the use of risk control measures
- configuring the microcontroller to use the input/output (I/O) ports for reading digital inputs and writing to digital outputs
- configuring microcontroller timers
- configuring timers to provide different microcontroller functions
- coordinating work with relevant person/s
- implementing a program for a specific task
- implementing code to perform specific tasks.
- providing justification for solutions to problems
- providing solutions to microcontroller software problems
- uploading code to a microcontroller using the correct set-up for the architecture and using appropriate programming hardware
- using a microcontroller and attached relevant components to test and debug code
- using industry standard integrated development environment (IDE) to develop code
- using methodical problem-solving methods
- using the inbuilt functions of an IDE to simulate the functions and registers of a microcontroller in order test and debug code.

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:

- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation

- relevant workplace policies and procedures
- software programming fundamentals, including:
 - addressing modes
 - arithmetic and logic instructions
 - I/O ports
 - microprocessor/microcontroller architecture
 - relevant standards, codes and regulations
 - sub-routines
 - timing loops.

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, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to developing software solutions in microcontroller-based systems
- 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>