



Australian Government

UEEIC0012 Develop structured programs to control external devices

Release: 1

UEEIC0012 Develop structured programs to control external devices

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 structured programs to control an external device.

It includes identifying and developing structured programs for control sub-systems. It also includes testing and documenting structured programs for control sub-systems.

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

Pre-requisite Unit

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

Competency Field

Instrumentation & Control

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Identify structured program requirements for control sub-system

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) requirements and workplace procedures are identified and applied
- 1.2** Hazards are identified, risks are assessed and control measures implemented

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| | 1.3 | Extent of structured programming is determined from job specifications and consultations with relevant person/s |
| | 1.4 | Activities are planned to meet scheduled timelines in consultation with relevant person/s |
| | 1.5 | Development kit and software are selected from job specifications and in accordance with workplace procedures |
| | 1.6 | Strategies are implemented to ensure programming is written in accordance with workplace procedures |
| 2 | Develop structured programs for control sub-system | |
| | 2.1 | WHS/OHS risk control measures and procedures for carrying out the work are followed |
| | 2.2 | Information technology functions are applied to develop structured programs |
| | 2.3 | Correct structure and syntax are applied to developing structured program |
| | 2.4 | Programming languages are applied to structured programs to develop and test solutions |
| | 2.5 | Issues/problems are analysed to identify and apply solutions |
| | 2.6 | Quality of work is monitored in accordance with workplace procedures |
| 3 | Test and document structured program for control sub-system | |
| | 3.1 | Developed program is tested in accordance with workplace procedures and manufacturer specifications |
| | 3.2 | Programming anomalies are identified and corrected in accordance with workplace procedures and manufacturer specifications |
| | 3.3 | Work reports are written in accordance with workplace procedures and presented to relevant person/s |

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 structured programs to control external devices for a given representative range of programs and control devices must include the following attributes:

- safe working practices
- control applications
- knowledge application
- analogue or digital input/output (I/O) signals
- program writing and testing
- documenting programming changes

Unit Mapping Information

This unit replaces and is equivalent to UEENEEI155A Develop structured programs to control external devices.

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 UEEIC0012 Develop structured programs to control external devices

Modification History

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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 risk control measures
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- developing testing procedures
- identifying and correcting anomalies in programs
- identifying and developing structured programs for control sub-systems
- meeting scheduled timeframes
- producing relevant documentation
- testing and documenting structured programs for control sub-systems
- using functions of relevant programming languages
- working with relevant person/s.

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:

- control applications of software
- software terminology
- programming languages currently used by industry
- program development
- programming concepts, including:
 - programming structure
 - documentation
 - compiling source code
 - generating executable files
 - scalar and structured data types

- constants variables
- reading from keyboard and writing to screen
- arithmetic, relational and logical operations
- making decisions
- looping operations
- programming to access external devices via input/output (I/O) boards
- functions - macros
- global and local variables, auto and static variables
- intrinsic functions used in control
- writing functions
- linking in external functions to control hardware
- numerical and character arrays
- control programming fundamentals, including:
 - control applications of software
 - software terminology
 - programming languages currently used by industry
 - program development, including flowcharts, pseudocode and algorithms
 - programming concepts
- job safety assessments or risk mitigation processes, including risk control measures
- problem-solving techniques
- relevant manufacturer specifications
- relevant programming languages, functions and applications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures.

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
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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