



Australian Government

UEECS0017 Develop industrial control programs for microcomputer equipped devices

Release: 1

UEECS0017 Develop industrial control programs for microcomputer equipped 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 industrial control programs for microcomputer equipped devices.

It includes preparing and developing devices, circuits and control programs for microcomputer equipped devices. It also includes evaluating and completing documentation.

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

Pre-requisite Unit

Not applicable

Competency Field

Computer Systems

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare microcomputer equipped devices

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** WHS/OHS risk control measures and workplace procedures are followed in preparation for the work

- 1.3 Scope of development work is determined from design brief and in consultation with relevant person/s
 - 1.4 Development work is planned in accordance with workplace procedures for timelines in consultation with others involved
 - 1.5 Development tools and software are selected based on design brief requirements and performance standards
 - 1.6 Materials and devices/components required for the work are selected on compatibility of control program and in accordance with design brief and project budget
 - 1.7 Activities are implemented to ensure development work is carried out efficiently
- 2 **Develop devices, circuits and control programs**
 - 2.1 WHS/OHS risk control measures and procedures for carrying out the work are followed
 - 2.2 Knowledge of computer-equipped devices and systems and compliance standards are applied to the design
 - 2.3 Alternative arrangements for the development are evaluated in accordance with the design brief
 - 2.4 Safety, functional and budget considerations are in accordance with design
 - 2.5 Prototype devices and circuits are constructed and tested in accordance with the design brief and relevant industry standards
 - 2.6 Programming language code functions and features in current use are applied to developing control programs
 - 2.7 Prototype malfunctions are identified, rectified and re-tested in accordance with workplace procedures and design brief
 - 2.8 Program development is documented and submitted to appropriate person/s for approval
 - 2.9 Unplanned events are identified and resolution techniques are applied in accordance with workplace procedures
 - 2.10 Quality of work is monitored in accordance with workplace procedures and/or relevant industry standards

3 Evaluate and complete documentation

- 3.1** Testing and workplace procedures are developed to evaluate control program in accordance with workplace procedures
- 3.2** Problems and errors in program are identified and rectified in accordance with workplace procedures and design brief
- 3.3** Intermediate and final work reports are completed 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 control programs for microcomputer equipped devices must include the following:

- at least three interacting functions using a relevant industry programming language

Unit Mapping Information

This unit replaces and is equivalent to UEENEED150A Develop industrial control programs for microcomputer equipped 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 UEECS0017 Develop industrial control programs for microcomputer equipped devices

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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
- completing documentation and presenting program development effectively
- dealing with unplanned events in accordance with problem-solving techniques and workplace procedures
- determining development work requirements
- developing control program within safety and functional requirements and budget limitations
- identifying the appropriate development tools and software
- obtaining approval for final program
- preparing to develop control programs for microcomputer equipped devices
- selecting devices/components compatibility.

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:

- problem-solving techniques
- programming terms, including:
 - complex data types and structures
 - documentation and debugging
 - interfacing high-level languages to assembler
 - interrupt service routines
 - language levels and their features
 - language programming
 - language simulators and emulators
 - modular programming
- relevant manufacturer specifications

- relevant job safety assessments or risk mitigation processes
- relevant tools and software
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace instructions, 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 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, tools, facilities and equipment currently used in industry
- resources that reflect current industry practices in relation to developing control programs for microcomputer equipped devices
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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