



Australian Government

UEECS0027 Provide programming solution for computer systems engineering problems

Release: 1

UEECS0027 Provide programming solution for computer systems engineering problems

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 provide programming solutions for computer systems engineering problems.

It includes identifying and developing programming solutions and documenting development activities.

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 to identify computer systems engineering problem

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

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| | <p>1.3 Scope of engineering programming problem is determined from performance specifications and/or documentation and in consultation with relevant person/s</p> <p>1.4 Activities are planned in accordance with workplace procedures for timelines in consultation with others involved</p> <p>1.5 Software development tools are selected based on programming requirements and performance specification</p> <p>1.6 Activities are implemented to ensure programming is carried out in accordance with workplace procedures</p> |
| 2 Develop programming solutions | <p>2.1 WHS/OHS risk control measures and workplace procedures for carrying out the work are followed</p> <p>2.2 Demonstrated structured programming functions and features are applied to provide a programming solution</p> <p>2.3 Code in programs are analysed and modifications and/or corrections are made to rectify engineering programming problem</p> <p>2.4 Key features of the programming language are applied to develop and test solutions</p> <p>2.5 Unplanned issues/problems are analysed and effective solutions identified in accordance with workplace procedures</p> <p>2.6 Quality of work is monitored in accordance with workplace procedures and/or relevant industry standards</p> |
| 3 Test and document the programming solutions | <p>3.1 Test methods are developed to analyse code in accordance with relevant programming language and workplace procedures</p> <p>3.2 Problems and errors in program are rectified in accordance with program performance requirements and relevant industry standards</p> <p>3.3 Intermediate and final documentation are completed and relevant person/s notified in accordance with relevant industry standards and workplace procedures</p> |

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.

Unit Mapping Information

This unit replaces and is equivalent to UEENEED151A Provide programming solution for computer systems engineering problems.

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 UEECS0027 Provide programming solution for computer systems engineering problems

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 and performance criteria on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements
- determining the engineering programming problem
- developing testing procedures
- identifying problems and errors in code
- preparing to identify computer systems engineering problems and developing programming solutions
- rectifying problems and errors in code
- using key features of programming language.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- problem-solving techniques
- relevant manufacturer specifications
- relevant programming fundamentals and high-level language programming, including:
 - complex data types and structures
 - control applications of software
 - interfacing high-level languages to assembler
 - interrupt service routines
 - program development
 - programming concepts, including:
 - programming languages currently used by industry
 - software terminology
- 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 providing programming solution for engineering problems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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