



Australian Government

UEEIC0046 Troubleshoot process control systems

Release: 1

UEEIC0046 Troubleshoot process control systems

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 troubleshoot process control systems.

It includes applying safe working practices, interpreting process and circuit diagrams, applying knowledge of process controls to fault-finding procedures, conducting repairs, performing safety and functional testing, and completing service documentation.

Permits may be required for some work environments, such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.

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

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEEIC0047 Use instrumentation drawings, specifications, standards and equipment manuals

UEEIC0041 Solve problems in pressure measurement components and systems

UEEIC0038 Solve problems in density/level measurement components and systems

UEEIC0039 Solve problems in flow measurement components and systems

UEEIC0043 Solve problems in temperature measurement components and systems

UEEIC0029 Set up and adjust PID control loops

UEEIC0030 Set up and adjust advanced PID process control loops

and

UEECD0043 Solve problems in direct current circuits

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

Competency Field

Instrumentation & Control

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Prepare to find and rectify faults

- 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 work
- 1.3** Scope of fault is obtained from documentation and/or from work supervisor to determine work
- 1.4** Advice is sought from work supervisor to ensure work is coordinated effectively with others
- 1.5** Sources of materials required for work are identified in accordance with workplace procedures
- 1.6** Tools, equipment and testing devices required to carry out work are obtained in accordance with workplace procedures and checked for correct operation and safety

2 Find faults

- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out work are followed
- 2.2** Need to inspect, test and measure live work is determined in accordance with WHS/OHS requirements and workplace procedures
- 2.3** Apparatus is inspected and isolated in accordance with WHS/OHS requirements and workplace procedures
- 2.4** Fault finding of industrial processes, control apparatus and systems is conducted using measured and calculated values of system parameters in accordance with workplace procedures
- 2.5** Apparatus components are dismantled, as required, and

parts stored to protect against loss or damage in accordance with workplace procedures

2.6 Faulty components are rechecked and fault status confirmed

2.7 Unplanned situations are dealt with safely and with the approval of relevant person/s in accordance with workplace procedures

2.8 Fault-finding activities are carried out without damage to apparatus circuits, the surrounding environment or services using sustainable energy principles

3 Rectify fault

3.1 WHS/OHS risk control measures and workplace procedures for carrying out the work are followed

3.2 Apparatus is inspected and isolated in accordance with WHS/OHS requirements and workplace procedures

3.3 Materials required to rectify faults are sourced and obtained in accordance with workplace procedures

3.4 Repairs are conducted without damage to relevant components or apparatus in accordance with workplace procedures and sustainable energy principles

3.5 Repairs are inspected and tested in accordance with workplace procedures and relevant industry standards

3.6 Apparatus is reassembled, inspected, tested and prepared for return to customer in accordance with workplace procedures and relevant industry standard

4 Complete and report fault-finding and rectification activities

4.1 WHS/OHS work completion risk control measures and workplace procedures are followed

4.2 Work area is cleaned and made safe in accordance with workplace procedures

4.3 Work completion is documented and relevant person/s notified in accordance with workplace procedures

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.

Finding and rectifying faults must include at least two of the following:

- different systems containing more than one control loop

Unit Mapping Information

This unit replaces and is equivalent to UEENEEI114A Troubleshoot process control systems.

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 UEEIC0046 Troubleshoot process control systems

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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:
 - using risk control measures
- completing and reporting fault-finding and rectification activities
- dealing with unplanned situations with the approval of relevant person/s
- dismantling apparatus components
- documenting work and notifying relevant person/s
- documenting work tasks and rectifications to workplace procedures
- identifying sources of materials required for work
- inspecting and isolating apparatus
- inspecting, testing and measuring live work
- measuring and calculating control apparatus and systems values of parameters to find faults
- obtaining the scope to the fault
- obtaining tools, equipment and testing devices to carry out work
- rectifying faults without damage
- using sustainable energy practices.

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:

- intermittent faults and relevant causes of intermittent faults
- effect to cause reasoning - assumptions of possible causes
- inspection and testing procedures
- isolation procedures
- methods for testing
- problem-solving techniques

- relevant control apparatus and systems
- relevant factors and the nature of a fault
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications and operating instructions
- relevant measuring parameters
- relevant methods for testing assumptions
- relevant tools, equipment and testing devices
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace instructions, policies and procedures
- sustainable energy principles.

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 finding and rectifying faults in process control systems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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