Australian Government

Assessment Requirements for UEEEC0024 Diagnose and rectify faults in electronic display circuits

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 one occasion and include:

- applying logical diagnostic methods
- using fault scenarios to test the source of circuit faults
- identifying the cause faults using logical diagnostic methods
- rectifying faults effectively
- verifying that the display operates correctly
- documenting fault rectification
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, workplace procedures and practices, including using risk control measures
- applying sustainable energy principles and practices
- connecting test/measuring devices into a circuit in accordance with industry standards.

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:

- electronic displays faults, applying safe working practices and relevant standards, codes and regulations, including:
  - cathode ray tube displays encompassing:
    - operation and characteristics of various types of cathode-ray tubes, including delta, in-line and precision in-line
    - voltages, statics and x-rays around cathode ray tubes
    - set-up and adjustment techniques
    - rear and front projection television systems
    - typical faults
  - plasma displays and their circuit control operation encompassing:
    - advantages of flat panel displays (over conventional cathode ray tubes and raster

geometry)
    - theory of plasma gas discharge and phosphor excitation
    - scanning techniques (column/row addressing)
    - luminance/colour aspects (the need to re-address pixels to control light output)
    - gamma correction considerations (reversal of the gamma correction that is carried out at the television studio to compensate for the non-linearity of light output of a conventional cathode ray tube
    - plasma flat panel construction (and handling)
- liquid crystal displays and the control circuit operation encompassing:
    - principles of transmissive liquid-crystal display (LCD) (as opposed to reflective types)
    - light polarisation (polarisation twisting characteristics of liquid crystal and the need for polarisation filters in display panel)
    - voltage/current requirements and need for electric field
    - fluorescent back light (need for high frequency operation and power requirements)
    - scanning techniques (colour/row addressing and thin film transistors)
    - light attenuation (caused by the many layers/filters the back light has to pass through)
    - construction and handling
- display circuit diagnostics encompassing:
    - sub-system components (i.e. functional blocks) and their operating parameters
    - factors effecting system performance
    - typical faults, their symptoms and cause
    - fault diagnosis procedures and testing
    - sub-system adjustments
- advance electronic measuring instruments encompassing:
    - test/measuring devices and their application: frequency counters and synthesisers, spectrum analysers, noise and distortion meters, and radio frequency (RF) communications service monitor
- connection of test/measuring devices into a circuit encompassing:
    - safety procedures
    - loading and matching
    - storage and delay
    - circuit arrangement of test/measuring devices
- taking and interpreting readings
- notion of decibels, including dBm, dBr, dBu and dBo
- WHS/OHS enterprise responsibilities encompassing:
    - provisions of relevant WHS/OHS legislation
    - principles and practice of effective WHS/OHS management
    - management arrangements relating to regulatory compliance
    - enterprise hazards and risks, control measures and relevant expertise required
    - characteristics and composition of workforce and their impact on WHS/OHS management

- relevance of enterprise management systems to WHS/OHS management
- analysis of working environment and design of appropriate WHS/OHS management systems
- analysis of relevant data and evaluation of WHS/OHS system effectiveness
- assess resources to establish and maintain WHS/OHS management systems
- relevant manufacturer specifications
- 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 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, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to diagnosing and rectifying faults in display circuits
- 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