

# COGPEM61 - SQA Unit Code FP5C 04

## Test the performance and condition of electrical plant and equipment



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### Overview

This unit is about your competence in testing Electrical plant and equipment. You will be expected to refer to manufacturer's manuals and follow your company procedures.

This unit deals with the following:

1. Test the performance and condition of electrical plant and equipment

During this work you must take account of the relevant installation procedures and safe working practices AS THEY APPLY TO YOU.

### Previous Version:

Adapted from Unit E3.14 of Process Engineering Maintenance NOS – version February 2004. This unit has been tailored from an electrical unit produced by the ECITB Eng Engineering Competence Standards (ECS 6.02) which was originally designated MPS Elec 18.

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### Performance criteria

- You must be able to:*
- P1 work safely at all times, complying with health and safety and other relevant regulations and guidelines
  - P2 follow the appropriate procedures for use of tools and equipment to carry out the required tests
  - P3 set up and carry out the tests using the correct procedures and within agreed timescales
  - P4 record the results of the tests in the appropriate format
  - P5 review the results and carry out further tests if necessary

### Knowledge and understanding

*You need to know and understand:*

- K1 you must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
- K2 you must have a working knowledge of the relevant regulations and the safe working practices and procedures required within your work area
- K3 you must have a working knowledge and understanding of engineering test specifications. This could be expected to include the latest manufacturers' data sheets and test specifications for specific equipment
- K4 you must have a working knowledge and understanding of different types of test equipment and their applications
- K5 you must have a working knowledge and understanding of the calibration of equipment and authorisation procedures. This should include how to ensure that test equipment is set up and calibrated correctly
- K6 you must have a working knowledge and understanding of testing methods and procedures. This could be expected to include which tests relate to different aspects of performance and conditions specifications, which procedures are followed in different testing contexts, and what the normal timescales are for conducting tests, including individual company procedures
- K7 you must have a working knowledge and understanding of analysis methods and techniques. This could be expected to include what data is provided from tests and which methods can verify data, why it is important to be sure about the reliability, validity and completeness of data before analysis begins, and which analysis methods and procedures can be applied to test results
- K8 you must have a working knowledge and understanding of environmental controls relating to testing, including company hse policy
- K9 you must have a working knowledge and understanding of the test reporting documentation and procedures. This should include what the formats are for recording the test procedures and results in line with individual company procedures
- K10 you must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

### Additional Information

#### Scope/range related to performance criteria

- 1 The level and extent of responsibility is limited to working within a detailed specification and following clearly defined procedures. In some cases, you may still be expected to refer to others for final authorisation, even though you remain responsible for identifying and implementing decisions.
- 2 The typical plant and equipment which are likely to be tested could include:
  - 2.1 Rotating equipment and tools
  - 2.2 Protection methods
  - 2.3 Electrical distribution systems
- 3 The type of tools and test equipment to be used
  - 3.1 Electrical test equipment
  - 3.2 Hand tools
  - 3.3 Load banks
- 4 Type and complexity of tests to be carried out  
The tests to be applied are clearly defined and are appropriate for the engineering product. Detailed procedures and specifications define the set up and conduct of the tests and the interpretation of test results.  
Aspects for which the product is likely to be tested could include:
  - 4.1 Operating conditions
  - 4.2 Output
  - 4.3 Safety limits
  - 4.4 Transmission
  - 4.5 Rotation
  - 4.6 Noise
  - 4.7 Resistance
  - 4.8 Continuity
  - 4.9 Speed
  - 4.10 Vibration
  - 4.11 Coating/Insulation/protectionTypical products/assets that are likely to be tested could include:
  - 4.12 Rotating equipment and tools
  - 4.13 Protection methods
  - 4.14 Electrical distribution systems.
- 5 The quality standards and accuracy to be achieved are as set down in the work specifications.

#### Scope/range related to knowledge and understanding

The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role.

The expression "working knowledge and understanding" indicates you are able to:

- 1 Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials
- 2 Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote "Chapter and verse". Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information confirm any additional required detail
- 3 Interpret and apply the information obtained to your role, your working practice and in your expected working environment

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