

SEMLATA2-13 - H00D 04

Carry out simple scientific or technical tests using automated equipment



Overview

This unit covers the competences you need to carry out simple scientific or technical tests using automated equipment, in accordance with approved procedures and practices. You will be expected to select and use relevant knowledge, ideas, skills and procedures to complete well-defined tasks and address straightforward problems. You will be expected to complete tasks and procedures and exercise autonomy and judgement subject to overall direction or guidance. You will be required to work to the relevant workplace procedures, legislation and organisational policy, and to use good scientific or technical techniques and practices.

On completion of workplace activities, you will be required to show you have completed well-defined, generally routine tasks and can address straightforward problems, selecting and using the relevant scientific or technical skills and procedures. You will be expected to show you have identified, gathered and used relevant information to inform your actions and identify how effective these have been.

Your responsibilities will require you to comply with organisational policy and procedures for the scientific or technical activities undertaken, and to report any problems with the activities, materials or equipment that you cannot personally resolve, or that are outside your permitted authority, to the relevant people. You will work under a team leader, whilst taking responsibility for your own actions in the completion of tasks and procedures, whilst exercising a degree of autonomy and judgement. You will also be responsible for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of scientific or technical facts, procedures and ideas to complete well-defined tasks and address straightforward problems in the workplace. You will have an understanding of the workplace process used, and its application, and will know about the scientific or technical equipment, materials and consumables in adequate depth to provide a sound background for carrying out the activities to the required specification. You will know how to interpret workplace information and ideas and be aware of the types of resources that are relevant to these scientific or technical activities.

You will understand the safety precautions required when carrying out the scientific or technical activities. You will be required to demonstrate safe working practices throughout, and will understand the responsibility you owe to yourself and others in the workplace.

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Performance criteria

- You must be able to:*
- P1 ensure that your work is carried out in accordance with workplace procedures
 - P2 use safe practices and the appropriate personal protection equipment (PPE) when doing scientific or technical activities
 - P3 confirm that the laboratory equipment is set up and ready for operation
 - P4 check that the laboratory conditions are appropriate for the tests to be done
 - P5 follow the defined procedures for starting and running the laboratory equipment
 - P6 load and unload samples from laboratory equipment in accordance with procedures and analyser/equipment specifications
 - P7 deal promptly and effectively with error messages or equipment faults that are within your control and report those that cannot be solved
 - P8 monitor the equipment process and ensure that the output readings are to the required specification
 - P9 shut down the equipment to a safe condition on conclusion of the activities
 - P10 communicate the required information laboratory activities to authorised people in accordance with departmental and organisational procedures

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Knowledge and understanding

You need to know and understand:

Sector specific

- K1 the health and safety requirements of the area in which you are carrying out the scientific or technical activities
- K2 the implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities
- K3 the scientific or technical techniques and processes you must use correctly in the workplace.

You need to know and understand:

Organisation specific

- K4 the importance of wearing protective clothing, gloves and eye protection for scientific or technical activities
- K5 the importance of correct identification, and any unique workplace coding system
- K6 the lines of communication and responsibilities in your department, and their links with the rest of the organisation
- K7 the limits of your own authority and to whom you should report if you have problems that you cannot resolve

You need to know and understand:

Equipment/Process specific

- K8 the minimum size/volume of sample required for the scientific or technical tests conducted
- K9 the types of sample and container used for transport and scientific or technical testing
- K10 how to assess if a sample is suitable for analysis
- K11 how to start and shut down the scientific or technical equipment, including what to do in an emergency
- K12 why is it important to carry out pre-test checks and identify the status of the equipment before starting tests
- K13 how to load samples from the testing equipment and how to initiate sample tests
- K14 the appropriate action to take when sampling or equipment errors occur
- K15 how to unload samples from the test equipment, and how to store them during the testing process
- K16 the procedure to be followed when samples do not match up with the test output specification or accompanying documentation
- K17 the procedure to be followed when a broken or leaking sample is identified in the workplace
- K18 the procedure to be followed if a hazardous or high risk sample is received in the workplace
- K19 the methods used for numbering and labelling samples in the workplace
- K20 the procedures for storing tested samples when archiving is required

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K21 the factors which might adversely affect the integrity of the sample during storage or transport

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Additional Information

Scope/range related to performance criteria

You must be able to:

1. carry out all of the following operations for automated equipment:
 - 1.1 transport samples in the workplace and store them appropriately
 - 1.2 seek any necessary instruction/training on the operation of the equipment, when appropriate
 - 1.3 check that equipment guards are in place and are correctly adjusted
 - 1.4 ensure that samples have been loaded correctly and are held securely
 - 1.5 check that the operating program for the automated equipment is at the correct start point, and that the samples are at the correct location the test
 - 1.6 follow the defined operating procedures for the automated equipment, and apply safe working practices and procedures at all times
 - 1.7 confirm with a qualified professional that equipment settings are adjusted, as and when required, to maintain the required accuracy
 - 1.8 confirm with a qualified professional that the test results produced meet the required specification for quality and accuracy
2. carry out **two** of the following equipment checks:
 - 2.1 calibration
 - 2.2 serviceability
 - 2.3 cleanliness and preparation
3. use **one** of the following resources:
 - 3.1 materials
 - 3.2 utilities
4. check **two** of the following conditions for the scientific or technical test:
 - 4.1 health and safety environment
 - 4.2 cleanliness
 - 4.3 time
 - 4.4 external influence giving rise to variations
 - 4.5 recording system
5. record and communicate details of the work done, to the appropriate people, using:
 - 5.1 verbal reportplus **one** method from the following:
 - 5.2 written or typed report
 - 5.3 computer-based record
 - 5.4 specific company documentation
 - 5.5 electronic mail

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