

1. Module details

Module name**Service Refrigerators, Freezers & Room Air Conditioners****Nominal duration**

Full module

This module is designed on the assumption that most of the students will achieve the competencies specified in 35-40 hours. The length of time taken to complete a module will vary depending on factors such as teaching method used, knowledge and skills at entry and individual student's ability.

Module codes

NUE 013

Discipline code

2. Module purpose

This module aims to provide students with knowledge and skills to enable them to effectively and efficiently carry out service and repairs on refrigerators, freezers and room air conditioners.

3. Prerequisites

Domestic Appliance Principles (NUE 016).

4. Relationship to competency standards

This module provides some of the knowledge and skills underpinning competence in the following Appliance Servicing Draft Standards: A.1, A.2, A.3, A.4, A.5.

5. Content

1. Codes and Regulations

- rating
- location
- ventilation
- dangers and safety precautions
- predict electrical hazards
- safe working practices
- earthing and insulation
- testing and making safe.

2. Types, operational features, application and installation requirements:

- refrigerators, freezers
 - single door
 - two door
 - all refrigerator
 - combination cabinet
 - cool water and ice dispensing
 - chest freezer
- air conditioners
 - window mounted
 - wall mounted
 - roof mounted (drop in)
 - split unit
 - portable.

3. Fault finding

- test instruments and equipment
- safety electrical, ventilation
- electrical circuit
 - interpretation of wiring diagrams
 - sequence of operation
 - relevant electrical symbols
 - fuses
 - making safe; earthing, flash back
 - fans and fan motors
 - controllers, time clocks.

4. Service

- access to the appliance
- confirm fault diagnosis
- obtain required components
- disconnect services to the appliance
- remove faulty component
- repair or replace component
- reassemble
- reconnect services.

5. Safety

- set operational and safety controls
- check electrical components
- operate appliance and adjust cycle controls
- carry out leak test
- check water supply and drainage leaks.

6. Service Reports

- information and advice to equipment owners
- equipment labels
- service reports
- documentation.

6. Assessment strategy**Assessment method**

Theory test
Short answer questions
Practical test

Conditions of assessment**7. Learning outcome details**

On completion of this module, the student will be able to:

Learning outcome 1

List relevant codes, regulations and statutory requirements pertaining to refrigerators, freezers and air conditioners.

Assessment Criteria

- 1.1 Identify the rating on the appliance.
- 1.2 List relevant codes and regulations.

Learning outcome 2	Identify the types, construction, operational features, application and installation requirements for refrigerators, freezers and air conditioners.
Assessment Criteria	<ol style="list-style-type: none">2.1. Identify and state applications for given appliance.2.2. Describe the operation of given appliances.2.3. Draw the electrical circuits for a given appliance.2.4. List starting and protection devices used in appliances.
Learning outcome 3	Use manufacturers data and appropriate test equipment to connect/disconnect, test and fault find on typical domestic refrigerators, freezers and air conditioners.
Assessment Criteria	<ol style="list-style-type: none">3.1 Select and use appropriate test equipment to fault find appliance and system faults.3.2 Use typical circuit diagrams to identify circuit components and system operation.3.3 Test for, correct earthing and insulation.3.4 Identify fault and fault component.3.5 Tag the appliance.
Learning outcome 4	Repair/replace faulty components in refrigerators, freezers and air conditioners in accordance with manufacturer's data.
Assessment Criteria	<ol style="list-style-type: none">4.1 Repair or replace faulty components.4.2 Test appliance operation.4.3 Adjust controls and check system operation.
Learning outcome 5	Test repaired appliance to ensure it meets company standards and customer satisfaction.
Assessment Criteria	<ol style="list-style-type: none">5.1 Set operational and safety controls.5.2 Test appliance operation.5.3 Adjust controls and check system operation.

Learning outcome 6

Complete service report and required documentation.

Assessment Criteria

- 6.1 Complete customer service report.
- 6.2 Complete warranty/company documentation.
- 6.3 Change equipment.

8. Delivery of the module**Delivery strategy**

Delivery strategies must be suitable for both theoretical and/or practical learning and module purpose.

It is recommended that learning and assessment be facilitated in a holistic manner which may require a learning sequence other than indicated in the body of this module descriptor.

Resource requirements

Most of the practical aspects of this modules would be by demonstration or group participation. However when applicable, maximum of one student per appliance being tested after repairs have been carried out is advised for competency.

Appliance workshop**Equipment:**

Several types of refrigerators, freezers and air conditioners.

Associated test equipment.

Relevant electrical test instruments.

Spare parts and replacement parts for refrigerators, freezers and air conditioners.

Occupational health and safety requirements

Students should be made aware of Occupational Health and Safety issues in all situations and be expected to demonstrate safe working practices at all times. Electrical safety should be emphasised.