

1. Module details**Module name****Service Electric Heaters and Cooking Stoves****Module duration**

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 36 – 40 hours.

Module code

NUE015

Discipline code**2. Module purpose**

This module aims to provide students with the knowledge and skills to service and fault find on electric heaters and cooking stoves.

3. Prerequisites

NUE016 Domestic Appliance Principles.

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**Codes and Regulations**

rating

location

ventilation

dangers and safety precautions

identify cause of burning odours

predict electrical hazards

safe working practices

earthing and insulation

testing and making safe.

Types, construction operational features, application and installation requirements of:

ducted furnace central heating

radiant burner (infra red and tube)

radiant forced convection heater

wall furnace (force convection)

portable radiant

portable convection cookers

cook tops ovens

fryers

woks.

Fault finding

test instruments and equipment

safety; electrical, gas, ventilation

electrical circuits (interpretation of wiring diagrams, sequence of operation, relevant electrical symbols, fuses, high

temperature leads, making safe - earthing, blowers and blower motors, controllers, ignition, time clocks
gas circuit (interpretation of piping diagram, sequence of operation, gas pressure, lift off, flash back, gas connections, safety controls, ignition packs, devices, appliance regulators, control valves, thermostats, solenoid, flame monitoring devices, sensing devices, pressure devices, burners, flues)

Repair/replace components

access to appliance
location of gas leaks
confirm fault diagnosis
obtain required components
disconnect services to the appliance
remove faulty component
repair or replace component
assemble
connect services.

Test

set operational and safety controls
check electrical components
operate system and adjust cycle controls
carry out leak tests.

Service Report

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

6. Assessment strategy

Assessment methods

Theory test, Short answer questions, Practical test

Conditions of assessment

7. Learning outcome details**Learning outcome 1****List statutory requirements relating to dishwashing machines.****Assessment criteria**

- 1.1 Identify the rating on the appliance.
- 1.2 Identify the relevant codes, regulations and statutory requirements.
- 1.3 List requirements for electrical safety and water supply and drainage.
- 1.4 Identify appliance ventilation requirements for gas.
- 1.5 Identify and determine installation requirements for room heaters and cookers.

Learning outcome 2**Identify types, application and operating principles of typical dishwashing machines from manufacturer's data.****Assessment criteria**

- 2.1 List typical types of dishwashing machines.
- 2.2 List significant differences between the various types of dishwashing machines.
- 2.3 Draw and interpret electrical and piping circuits for a given gas appliance.
- 2.4 List ignition and safety devices used in gas appliances.

Learning outcome 3**Use manufacturers data and appropriate test equipment to connect/disconnect, test and fault find on typical gas appliances.****Assessment criteria**

- 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 leaking gas.
- 3.4 Test for, correct earthing and insulation.
- 3.5 Test for complete combustion.
- 3.6 Identify fault and faulty component.
- 3.7 Tag the appliance.

Learning outcome 4

Repair/replace faulty components in gas appliances in accordance with manufacturer's data.

Assessment criteria

- 4.1 Identify, confirm and dismantle faulty component.
- 4.2 Select appropriate or alternative replacement part.
- 4.3 Replace defective components as per manufacturers instruction.
- 4.4 Check for correct operation of repair/replace component.

Learning outcome 5

Test repair/replace faulty components in gas appliances in accordance with manufacturer's data.

Assessment criteria

- 5.1 Set operational and safety controls.
- 5.2 Test appliance operation.
- 5.3 Adjust controls and check appliances efficiency and 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 label.

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 electric heaters for repairs.

Several types of electric cooking stoves for repairs.

Spare parts and replacement parts for electric heaters and cooking stoves.

Relevant electrical instruments.

Associated test equipment.

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.