
1. Module details

Module name

DOMESTIC REFRIGERATORS AND FREEZERS

Nominal duration

One module
It is anticipated that students will achieve the competencies specified in 35 to 40 hours.

Module codes

NR006

Discipline code

2. Module purpose

To provide the student with the knowledge and skills to diagnose and repair domestic refrigerators and freezers.

3. Prerequisites

NR029 - Capillary Systems
NR008 - Appliance Motors

4. Relationship to competency standards

TBA

5. Content

1. Dangers and safety procedures
 - identify electrical hazards
 - use safe electrical practices
 - identify ozone depleting substances and use correct removal and storage procedures
2. Operation and function of refrigerators/freezers and components
 - static plate condensers
 - static fin and tube
 - forced and induced air condensers
 - capillary tube
 - plate evaporators
 - forced and induced air evaporators
 - accumulators
 - heat exchangers
 - hermetic compressors
 - thermostats
 - defrost systems
 - fans
 - charging adapters (b-p-valves, etc)
 - chest/upright freezers
 - frost free/freezers & refrigerators
 - cycle defrost refrigerators
3. Repair/replacement of electrical and refrigeration faults
 - use of vacuum pumps/correct refrigerant charging
 - replacement of door liners, gaskets & fittings

6. Learning outcome details

Learning outcome 1

Assessment criteria

4. Use of manufacturers catalogues
 - the use of domestic refrigeration catalogues/service manuals to select replacement parts or components
5. Procedures for installation/commissioning and service dockets.

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

Identify the dangers and observe safety procedures in the installation and repair of domestic refrigerators and freezers.

- 1.1 Observe safety precautions.
- 1.2 List necessary precautions when working in customers house.
- 1.3 Use appropriate equipment to correctly remove refrigerant.
- 1.4 Use appropriate test equipment.

Learning outcome 2

Assessment criteria

Describe the different components and their function in domestic refrigerators and freezers.

- 2.1 Explain the function and purpose of the various components found in refrigerators and freezers.
- 2.2 List the different types of refrigerators/freezers explaining their function and application.
- 2.3 Describe the refrigerant state as it passes through the various components in the system.

Learning outcome 3

Assessment criteria

Identify, repair and replace electrical and refrigeration faults relevant to domestic refrigerators and freezers.

- 3.1 Identify and repair faults in systems.
- 3.2 List faults within systems given symptoms and observations.
- 3.3 Use appropriate test equipment and procedures to make safe, isolate/replace and re-energise electrical components.

Learning outcome 4

Assessment criteria

Select from manufacturers catalogues correct replacement components for domestic refrigerators and freezers.

- 4.1 Diagnose faulty components in domestic refrigeration systems and select from manufacturers catalogues correct or replacement components.

Learning outcome 5

Identify the procedures necessary in the installation, commissioning and the writing of service dockets for domestic refrigerators and freezers.

Assessment criteria

- 5.1 List precautions necessary when working on customers premises.
- 5.2 Demonstrate correct lifting procedures.
- 5.3 From manufacturers data develop essential operator instructions to assist customer.
- 5.4 Correct recording on service dockets of labour/parts and work carried out.

7. Assessment Strategies

Practical tests.

8. Module Delivery Strategies

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

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

Also, an integrated theory/practice approach should be used where students learn by practical exercises and through research and workshop reports.

9. Resource Requirements

Appropriate practical equipment, service manuals, schematic diagrams test equipment.

Useful references include:

Australian Refrigeration and Air Conditioning, Volumes I & II, A CR & D Project Trust Publication.

Dossat R.J., Principles of Refrigeration, Second Edition, SI Version, John Wiley and Sons, New York. Latest Edition.

ASHRAE Handbook, Refrigeration Systems and Applications., SI Version, ASHRAE, Atlanta.

10. Occupational health and safety requirements

A safe and healthy environment will be provided for students in regards to classroom and workshop safety.