SOUTH AFRICAN QUALIFICATIONS AUTHORITY

REGISTERED QUALIFICATION:

National Certificate: Air-Conditioning, Refrigeration and Ventilation

SAQA QUAL ID	QUALIFICATION TITLE		
65489	National Certificate: Air-Conditioning, Refrigeration and Ventilation		
ABET BAND	**MINIMUM CREDITS**	**NQF LEVEL**	**QUAL CLASS**
Undefined	122	Level 3	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This is the second qualification in a series of qualifications which will lead to a learner acquiring all the skills required to work in the industry in the repair, maintenance, installation, manufacture and ultimately design of the mechanical/electrical systems which provide temperature control for environmental or process needs.

The following represents a learning progression path:

- Assistant Mechanic, at NQF Level 2: Technical competence - Has a basic understanding of equipment and is able to carry out technical work under supervision.
- **Mechanic, at NQF Level 3: Technical competence** - Has a knowledge of equipment and systems and is able to carry out technical work without supervision.
- Artisan, at NQF Level 4: Technical competence - Has an advanced knowledge of systems and equipment and is able to work without supervision and to supervise a team.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

This qualification assumes that the candidate has already achieved one of more of the following:

- Communication and mathematical literacy at NQF Level 2 or an equivalent.
- ID 65449: National Certificate in Air conditioning, Refrigeration and Ventilation at NQF Level 2, and or an equivalent.

QUALIFICATION RULES

Fundamental component: 36 credits as expressed by the following:

- Communication: 20 credits at the level of the qualification.
- Mathematical Literacy: 16 credits at the level of the qualification.

Core component: 67 credits.

Elective component: 19 credits is required in the. For this qualification, learners are required to include Unit Standards 116720, 9532 and 9533 in this combination.

UNIT STANDARDS:

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Core	116226	Identify and set ON-OFF control devices as used in air conditioning and refrigeration systems, explain their operation and discuss their application and fault finding	Level 2	6
Core	116243	Install, connect and maintain electrical cables and conductors as applied in air conditioning, refrigeration and ventilation installations	Level 2	6
Core	116244	Sketch and construct electrical circuits applicable to single-phase air conditioning, refrigeration and ventilation installations	Level 2	9

Core	116468	Adhere to the legal requirements of SANS 10147 (SABS 0147) standards when handling group 1 refrigerants	Level 3	6
Core	261819	Apply an understanding of various systems, system components, the actual and the theoretical refrigeration cycle	Level 3	7
Core	116719	Demonstrate knowledge of the OHS Act as it affects experienced workers in the air conditioning, refrigeration and ventilation industries	Level 3	3
Core	116712	Dismantle and assemble air conditioning and refrigeration equipment	Level 3	6
Core	116697	Fault find an air-conditioning, refrigeration or ventilation plant stoppage or failure	Level 3	5
Core	116702	Identify, handle and sample refrigeration oils for analysis, and demonstrate how oil can indicate the general condition of a refrigeration system	Level 3	2
Core	116696	Identify, use and maintain power tools used in the air-conditioning, refrigeration and ventilation trades	Level 3	8
Core	116717	Interpret air-conditioning, refrigeration and ventilation plant layout and component drawings, sketches and specifications	Level 3	6
Core	9530	Manage work time effectively	Level 3	3
Fundamental	119458	Analyse and respond to a variety of literary texts	Level 3	5
Fundamental	9010	Demonstrate an understanding of the use of different number bases and measurement units and an awareness of error in the context of relevant calculations	Level 3	2
Fundamental	9013	Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 3	4
Fundamental	119466	Interpret a variety of literary texts	Level 3	5
Fundamental	119457	Interpret and use information from texts	Level 3	5
Fundamental	9012	Investigate life and work related problems using data and probabilities	Level 3	5
Fundamental	119467	Use language and communication in occupational learning programmes	Level 3	5
Fundamental	7456	Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	Level 3	5
Elective	116233	Identify and state application of belt drives, couplings, gearboxes and bearings used on air-conditioning, refrigeration and ventilation plants and recognize misaligned, mismatched and worn components	Level 2	6
Elective	9532	Demonstrate basic knowledge of computers	Level 3	6
Elective	116701	Handle and place in position equipment used within the air-conditioning, refrigeration and ventilation industries	Level 3	4
Elective	116707	Identify and apply insulation methods and materials for piping and flat surfaces as applicable to air-conditioning and refrigeration systems	Level 3	8
Elective	116465	Identify and commission modulating control systems as used in air conditioning and refrigeration systems	Level 3	6
Elective	244589	Identify causes of stress and techniques to manage it in the workplace	Level 3	2
Elective	116718	Identify water reticulation systems, its components, accessories and controls used in air-conditioning and refrigeration installations	Level 3	4
Elective	116713	Install and service power transmission systems for air-conditioning, refrigeration and ventilation equipment	Level 3	6
Elective	116706	Operate water treatment systems used in air-conditioning and	Level 3	3

		refrigeration installations		
Elective	116715	Remove, install and service bearings used on air-conditioning, refrigeration and ventilation equipment	Level 3	6
Elective	116720	Show understanding of diversity in the workplace	Level 3	3
Elective	9533	Use communication skills to handle and resolve conflict in the workplace	Level 3	3

QUALIFICATION Cost

- Fundamental component: **36 credits. = R11740.00**
- Core component: **67 credits.** = **R21850.00**
- Elective component: **19 credits. = R6196.00**
- Total: **122 credits. = R39786.00 Excl. Vat**