



## *Air Conditioning and Refrigeration Academy*

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**FULLY ACCREDITED  
TRADE TEST CENTRE**

Merseta

Accreditation No's.

17-QA/ACC/0357/09

17/QA/ACC/0228/07

# Course Brochure Information & Prices 2 0 1 7



Winner business of  
the year award!

## History

In 1960 Spoornet opened the Spoornet air conditioning and refrigeration training centre. Spoornet's restructuring resulted in the privatisation of the training facility in August 1998, thus opening the doors of the Air Conditioning and Refrigeration Academy. Our Lecturers have trained students from the entire industry and have achieved international status training people from several of the southern African countries. The ACADEMY became an accredited Decentralised Trade Testing Centre in 2003.

## Accreditation

The Academy carries FULL ACCREDITATION (MERSETA) for the training of apprenticeships, learnerships and skills programmes in air conditioning and refrigeration levels 2 through to 4, as well as Decentralised Assessment Centre status for Trade Testing and licensing for Safe Handling of Refrigerants for the South African Refrigeration and Air Conditioning Contractors Association (SARACCA).

All courses are therefore recognised and are nationally and internationally certificated and/or licensed or carry a Diploma.

## Training Overview

The Academy has the resources to train all aspects of the Air conditioning and refrigeration fields up to level 4. The emphasis is in the training of apprentices / learnerships, artisans and technicians as well as aspects for management requiring technical knowledge. The training is specialised to the fields of air conditioning and refrigeration. The training is competency based, meaning, any student attending a course is given an in depth theoretical knowledge and the practical skills in order to achieve competency in the workplace. Given the nature of the training required all courses have a full practical element. The aim of all the training is such that on successful completion of any particular course the student will be capable to do the job as required.

## The ACRA Team

Assessors/Moderators/Lecturers/Trade Test Officers:

Grant Laidlaw (CEO), Harry Hanekamp (Assessor/Lecturer/Trade Test Officer), Stewart Laidlaw (Assessor/Lecturer/Trade Test Officer), Koos Pieterse (Assessor/Lecturer/Trade Test Officer) & Charel Marais (Assessor/Lecturer/Trade Test Officer)

Admin, Bookings & Accounts:

Anria Pieterse (Admin Manager/SDF/Accounts), Annelize Grobbelaar (Office Administrator, Bookings), Alicia Leary (Reception), Sifiso Mpala

Marketing & Sales:

Claudine Laidlaw (Project Manager)

## The Following Courses/Skills Programmes are Currently Available

### The ACRA Diploma

Air Cond. and Refr. Technology 1 Course	- Basic/Intermediate	(10 Days)
Electrical 1 Course (pertaining to Air Cond. and Refr.)	- Basic/Intermediate	(10 Days)
Air Cond. and Refr. Technology 2 Course	- Intermediate	(10 Days)
Electrical 2 Course (pertaining to Air Cond. and Refr.)	- Intermediate	(10 Days)
Authorised Refrigeration Practitioner Course	- Safe Handling License	(5 days)
Air Cond. and Refr. Technology 3 Course	- Intermediate/Advanced	(10 Days)
Air Cond. And Refr. Technology 4 Course	- Diploma Section	(10 Days)

### Other Courses/Skills Programmes

TOP-UP/RENEWAL Authorised Refrigeration Practitioner	(2 days)
SAQCC/SARACCA Certificate of Conformance (COC)	(1 days)
Installation, Fault Finding, Maintain & Repair of Split, Console and Window Units Course	(10 days)
Use, Erect and Inspect Tower Scaffolding (pertaining to HVACR industry)	(3 days)

Basic Automotive Air Conditioning	(5 Days)	Welding, Brazing & Cutting	(5 Days)
Rigging, Bearings & Fans Course	(5 Days)	First Aid Level 1	(2 Days)
First Aid Level 2 & Level 3	(3 Days)	Fire Fighting	(1 Day)

### Trade Testing

Trade Test Preparation	(from 5 - 10 Days)	Trade Test Assessment/Test	(2 Days)
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### Apprenticeships & Learnerships

Apprenticeship - Refrigeration Mechanic (Industrial/Commercial)	Duration: <u>80 weeks</u> - 4 years	min.	max.
Learnerships - Air Cond., Refr. & Ventilation NQF Levels 2, 3 and 4	Duration: 12 months per level		

## The DIPLOMA explained:

The Diploma encompasses most of the training that and Air Conditioning and Refrigeration Technician needs to be competent.

Course Objectives, Outcomes, Prices and Dates are outlined individually from page 3 onwards.

The Diploma consists of the following SAQA Unit Standards:

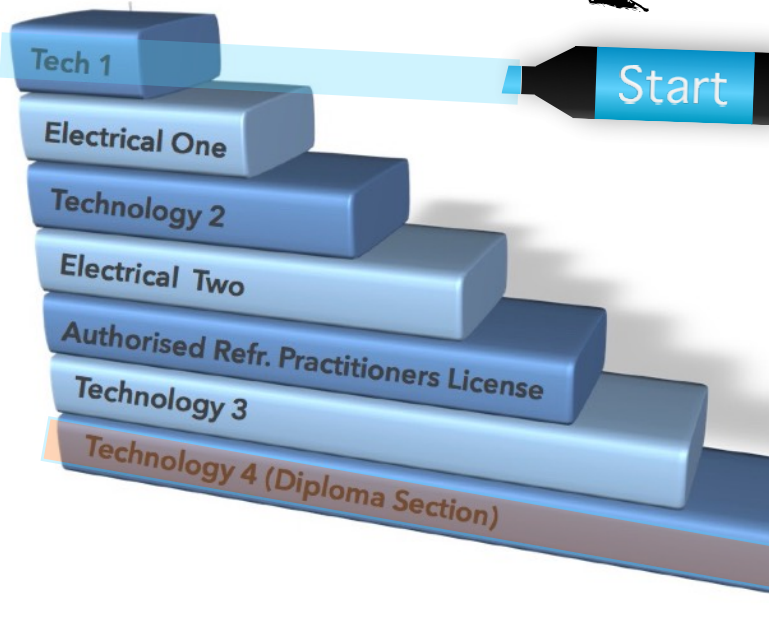
The Diploma consists of the following courses:

It is not necessary to complete all the courses at once - training can be broken up into sections.

**(the courses should be completed in sequence from top to bottom)**

T1	T2	E1	E2
U/Std. ID.	U/Std. ID.	U/Std. ID.	U/Std. ID.
NLRD116236	NLRD116468	NLRD116238	NLRD116460
NLRD262177	NLRD261819	NLRD116232	NLRD116463
NLRD116230	NLRD116712	NLRD116243	NLRD116466
NLRD116335	NLRD116707	NLRD116244	NLRD262178
NLRD116229	NLRD116233	NLRD116241	NLRD116464
	NLRD116717		

SH	T3	T4
U/Std. ID.	U/Std. ID.	U/Std. ID.
NLRD116468	NLRD261819	NLRD116698
NLRD116223	NLRD116712	NLRD12488
NLRD116355	NLRD116707	NLRD116695
NLRD116334	NLRD116718	NLRD116699
NLRD116700	NLRD116702	NLRD116406
	NLRD116717	NLRD116421
	NLRD116706	NLRD116403



### Class Times

**Mondays - Thursday:**  
 Start @ 8:00am  
 Ends @ 3:00pm  
 Study Time from 3:00pm to 4:00pm

**Fridays:**  
 Start @ 8:00am  
 Ends @ 13:00pm  
 Study Time from 13:00pm to 2:30pm

### Student Lunch Meals

\*available @ R90 per person per meal (valid from 1 Jan - 31 December 2017)  
 \*served from Monday - Thursday  
 \*please tick the correct section on the enrollment form in order to arrange lunch  
 \*we have weekly menus and each student will have a choice of two Options daily.  
 \*Lunch Time - 12:00 pm to 12:45

### Tea Breaks

Tea & Coffee is included and will be served at the following times

Morning - 7:30am to 8:30am  
 Tea Break - 10:00am to 10:30am  
 Lunch Time - 12:00pm to 1:00pm  
 Tea Break - 3:00pm to 3:30pm

(cold drinks are available)

### DIPLOMA Dates 2017

18 September - 15 December 2017

Course Name: **Air Conditioning and Refrigeration**

## TECHNOLOGY ONE

Start

Entry Requirements: Basic literacy and numeracy

Duration: 10 days (Monday – Friday) [08h00 – 15h00]

Cost: R11,385.97 excl vat / R12,980.00 incl. vat

NQF Level: Level 2

Unit Standards: NLRD116236, NLRD262177, NLRD116230, NLRD116335, NLRD116229

Module Codes: GW10,11,12,13; HT4; MA1; COM4/7; COM5/8; AS9; CT1; ACS1,2; FA6,7; EV1,2; RF2,6,9,10,11,12,14,20,21

Objectives: This course is the first phase of training in the fields air- conditioning and refrigeration. Technology 2, 3 and the diploma course follow. Technology 1 can be used as a stand-alone course. No previous knowledge or experience is required.

Outcomes: Upon successful completion of this course the student will have the understanding of the vapor compression cycle / thermo dynamics. The student will be able to perform the basics practically on the job site but has the opportunity to further his studies. The range of study progresses through air conditioning and refrigeration to and including large central plants. It is strongly advised that students and companies consider the electrical course. This course represents the foundation level. Full workshop training component.

Example of Skills: Pipe work/ evacuation/ flaring/ swaging/ charging/ testing/ tools and instruments/ safety/ refrigerants/ refrigerant containers/ basic refrigeration cycle/ fittings/ trade related tools/ evacuation/ refrigerants/ air conditioning and refrigeration components/ insulation materials

Available Dates: 28 Aug - 08 Sep 2017

09 Oct - 20 Oct 2017

04 Sept - 15 Sept 2017

13 Nov - 24 Nov 2017

18 Sept - 29 Sept 2017

20 Nov - 01 Dec 2017

Course Name:

## Electrical ONE

(pertaining to Air Cond. and Refr.)

Entry Requirements: Technology 1

Techn.1 -> Electr. One

Duration: 10 days (Monday – Friday) [08h00 – 15h00]

Cost: R11,385.97 excl vat / R12,980.00 incl. vat

NQF Level: Level 2

Unit Standards: NLRD116238, NLRD116232, NLRD116243, NLRD116244, NLRD116241

Module Codes: DSE1,2,3,4,5,8; CA1,2,4; AC6,7,8

Objectives: This course is an electrical course specifically developed for persons in the air conditioning and / or refrigeration industry. The course compliments the Technology 1 and 2 courses as well as the unitary air conditioning range of courses. This course focuses on single phase systems.

On successful completion of this course the student will have the necessary electrical knowledge and practical skills to perform most of the electrical duties as may be required from a person working in the air conditioning and refrigeration fields.

(Electrical faultfinding and installations)

Full workshop training component.

Outcomes: Upon successful completion of this course the student will have the understanding and the practical skills (competencies) needed on the worksite including fundamentals: safety aspects, tooling and instrumentation, cables, trunking, compressor/ motor starters , basic controls and soldering techniques.

Example of Skills: Installation of cables and conductors, sketch and construct single phase electrical circuits.

Available Dates: 21 Aug - 01 Sept 2017

06 Nov - 17 Nov 2017


02 Oct - 13 Oct 2017

27 Nov - 08 Dec 2017

<b>Course Name:</b>	<b>Air Conditioning and Refrigeration TECHNOLOGY TWO</b>		
<b>Entry Requirements:</b>	Technology 1 and Electrical One Techn.1 + Electr. One -> Techn. 2		
<b>Duration:</b>	10 days (Monday – Friday) [08h00 – 15h00]		
<b>Cost:</b>	R11,385.97 excl vat / R12,980.00 incl. vat		
<b>NQF Level:</b>	Level 3		
<b>Unit Standards:</b>	NLRD116468, NLRD261819, NLRD116712, NLRD116707, NLRD116233, NLRD116717		
<b>Module Codes:</b>	SF3; MA16,17; RSY1; ET5; FA8; RF15,16, 17, 18, 19; AC5; LU2,5,6; IM4		
<b>Objectives:</b>	<p>On successful completion of this course the student will have the necessary knowledge and practical skills to perform the more advanced aspects of the trade.</p> <p>EG: Commissioning cold room/critical charging and servicing of air cond. units. This course follows on from the first course and is the second phase of the diploma course but can be used alone ending at this level.</p>		
<b>Outcomes:</b>	Upon successful completion of this course the student will have the understanding and the more advanced practical skills (competencies) needed on the worksite.		
<b>Example of Skills:</b>	Fault finding/ commissioning/ walk in fridges/ freezer/ air con units/ critical charging/ humidity/ recovery of refrigerants/ servicing/ belt drives/ couplings/ bearings/ various systems and their operation and application/ controls and safety devices/ vapor barriers.		
<b>Available Dates:</b>	04 Sept - 15 Sept 2017 18 Sept - 29 Sept 2017	16 Oct - 27 Oct 2017 27 Nov - 08 Dec 2017	

<b>Course Name:</b>	<b>Electrical TWO (pertaining to Air Cond. and Refr.)</b>		
<b>Entry Requirements:</b>	Technology 1, Electrical One and Technology 2 Techn. 1 + Electr. One + Techn. 2 -> Electr. Two		
<b>Duration:</b>	10 days (Monday – Friday) [08h00 – 15h00]		
<b>Cost:</b>	R11,385.97 excl vat / R12,980.00 incl. vat		
<b>NQF Level:</b>	Level 3		
<b>Unit Standards:</b>	NLRD116460, NLRD116463, NLRD116466, NLRD262178, NLRD116464		
<b>Objectives:</b>	<p>This course is an electrical course specifically developed for persons in the air conditioning and / or refrigeration industry. The course compliments the Technology 1 and 2 courses as applicable to large plants. This course moves onto three phase systems.</p> <p>On successful completion of this course the student will have the necessary electrical knowledge and practical skills to perform most of the electrical duties as may be required from a person working in the air conditioning and refrigeration fields.</p> <p>(Electrical faultfinding and installations)</p> <p>Full workshop training component.</p>		
<b>Outcomes:</b>	<p>Upon successful completion of this course the student will have the understanding and the practical skills (competencies) needed on the worksite.</p> <p>Focusing on three phase systems, cables, volt drop, compressor/ motor starters including star delta and part wind systems , three phase diagrams, maintain panels and controls.</p>		
<b>Example of Skills:</b>	Fault finding and repair air conditioning motors, circuitry and controls. Setting control devices, inspection and maintenance of electrical control panels and circuits.		
<b>Available Dates:</b>	30 Oct - 10 Nov 2017		

Course Name:	<b>Air Conditioning and Refrigeration</b> <b>TECHNOLOGY THREE</b>	
Entry Requirements:	Completion of Technology 1, Technology 2, Electrical One & Electrical Two Techn.1 + Electr.One + Techn.2 + Electr.Two -> Techn.3	
Duration:	10 days (Monday – Friday) [08h00 – 15h00]	
Cost:	R11,385.97 excl vat / R12,980.00 incl. vat	
NQF Level:	Level 4	
Unit Standards:	NLRD261819, NLRD116712, NLRD116707, NLRD116718, NLRD116702, NLRD116717, NLRD116706	
Module Codes:	AS3,7,8,10,11,12; CP1,2,9; CT2,3; EV3; ACS3; COM9; LU1,3,7; INS1; PU8,9,10; COD1	
Objectives:	On successful completion of this course the student will have the necessary knowledge and practical skills to perform more of the advanced aspects of the trade related to central plants / ducted / indirect systems. Chillers, air delivery systems, filtration, water reticulation systems form the focal point of this course. Some of the technical aspects include bearings and basic lifting. This course is the third phase of the diploma course but may be used alone ending at this level.	
Outcomes:	Central plant and componentry repair and maintenance, water treatment methods and equipment, advanced commissioning of air conditioning and ventilation systems, servicing central plants.	
Example of Skills:	Lubrication, burn-out procedures, acid testing, water reticulation systems and controls, water and air quantity flow rates, fans and pumps, air flow measurements and basic psychometrics.	
Available Dates:	02 Oct - 13 Oct 2017	20 Nov - 01 Dec 2017

Course Name:	<b>Air Conditioning and Refrigeration</b> <b>TECHNOLOGY FOUR (Diploma Section)</b>		
Entry Requirements:	Completion of Technology 1, Technology 2, Electrical One, Electrical Two & Technology 3 Tech n.1 + Electr. One + Techn. 2 + Electr. Two + Techn.3 -> Techn.4 (Diploma)		
Duration:	10 days (Monday – Friday) [08h00 – 15h00]		
Cost:	R11,385.97 excl vat / R12,980.00 incl. vat		
NQF Level:	Level 4		
Unit Standards:	NLRD116698, NLRD12488, NLRD116695, NLRD116699, NLRD116406, NLRD116421, NLRD116403		
Module Codes:	FA3,4,5; RF7,13; DR2,12,3,4,7		
Objectives:	Advanced aspects of air conditioning and refrigeration in depth, including central plant A/C, mechanical and electrical procedures applicable to the industry.		
Outcomes:	Includes the retrofitting process and heat load calculations as well as psychometrics and mollier diagrams. Although this is an in depth course the level is with-in the artisans/technicians scope of work.  This course is very popular with the medium to large corporate client running a central plant / ducted or indirect system, with persons wishing to have an in depth understanding of the trade.		
Example of Skills:	Central plant air conditioning/ advanced fault finding using mollier diagrams/ heat load calculations. Psychometrics, air flow rates and balancing, determination and calculation of ventilation rates, air changes per hour/ humidity/ maintenance schedules.  Properties of air, humidification, calculations involving heat & mass transfer. Air flow measurements, air changes, flow rates, duct balancing, define operating parameters, refrigerant blends/temperature glide, operational faults & remedial action. Detailed practical mollier chart application, determination of plant capacity, C.O.P., Compression ratios, super heat & sub cooling, mass flow etc.		
Available Dates:	16 Oct - 27 Oct 2017	04 Dec - 15 Dec 2017	

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Course Name: **SAQCC/SARACCA Authorised Refrigeration Practitioner (SARACCA Safe Handling)**

Entry Requirements: basic literacy and numeracy (Technology 1 is advisable)

Duration: 5 days (Monday – Friday) [08h00 – 15h00]

Cost: R5,692.98 excl vat / R6,490.00 incl. vat

Excludes: Saracca Reg. fee of R2109.00 incl. vat payable directly towards Saracca.

Remember to bring: 2 colour id photos and 1 copy of id must accompany the student on the first day of training. (SARACCA)

Unit Standards: 116223, 116334, 116355, 116700, 116468                      Module Codes: SF1, SF2, SF5, COD1

Objectives: Training and Assessment to comply with the legal requirement of the OHS Act. Pressure Equipment Regulation (Clause 17-18) July 2009 No 85 of 1993.

Example of Skills: This course, required by law enables persons to register as an authorised person in the relevant categories with Saracca.

Available Dates:      11 Sept - 15 Sept 2017    13 Nov - 17 Nov 2017  
                                 26 Sept - 29 Sept 2017    20 Nov - 24 Nov 2017  
                                 16 Oct - 20 Oct 2017    04 Dec - 08 Dec 2017

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Course Name: **Top-Up / Renewal SAQCC/SARACCA Authorised Refrigeration Practitioner (SARACCA Safe Handling)**

Entry Requirements: valid or expired Acricsa/Saracca Safe Handl. License

Duration: 2 days (Monday & Tuesday) [08h00 – 15h00]

Cost: R2,277.19 excl. vat / R2,596.00 incl. vat

Excludes: Saracca Reg. fee of R2109.00 incl. vat for Renewal and R400.00 for Upgrade/Top-Up payable directly towards Saracca

Unit Standards: 116223 & 116334

Objectives: Training and Assessment to comply with the legal requirement of the OHS Act. Pressure Equipment Regulation (Clause 17-18) July 2009 No 85 of 1993.

Outcomes: This course, required by law enables persons to register as an authorised person in the relevant categories with Saracca.

Available Dates:      11 Sept - 12 Sept 2017    13 Nov - 14 Nov 2017  
                                 26 Sept - 27 Sept 2017    20 Nov - 21 Nov 2017  
                                 16 Oct - 17 Oct 2017    04 Dec - 05 Dec 2017

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Course Name: **SAQCC/SARACCA Certificate Of Conformance**

Entry Requirements: Valid Saracca Safe Handling License & Trade Test in Refrigeration Mechanic (Ind./Comm)  
Saracca Safe Handl. License    +                      Trade Test (Refr. Mech.)    ->                      Saracca C.O.C. Course

Duration: 1 day (Monday) [08h00 – 15h00]

Cost: R4,554.39 excl. vat / R5,192.00 incl. vat

Excludes: Saracca Reg. fee of R2109.00 incl. vat payable directly towards Saracca.

Unit Standards: 262159

Objectives: Training and Assessment to comply with the legal requirement of the OHS Act. Pressure Equipment Regulation (Clause 17-18) July 2009 No 85 of 1993.

Outcomes: This course, required by law enables persons to register as an Inspector Category C providing all other requirements as per Saracca.

Available Dates: 26 Sept 2017

Course Name:	<b>Installation, Fault Finding, Maintain &amp; Repair of Split, Console &amp; Window Units</b>		
Entry Requirements:	Technology 1 and Electrical One Techn.1 + Electr. One -> Installation, Fault Finding, Maintain & Repair Course		
Duration:	10 days (Monday – Friday) [08h00 – 15h00]		
Cost:	R11,385.97 excl vat / R12,980.00 incl. vat		
Unit Standards:	116234,116226,116238,116697		
Objectives:	Covering the installation, maintain & repair of all aspects of small air conditioning units excluding repair of printed circuit boards. Amongst others, the replacement of compressors & other components, evacuation and critical charging of these units. This course includes basic theory of the functions of the components as well as the practical safety and installation procedures of the above-mentioned units.		
Outcomes:	Upon successful completion of this course the student will have the understanding and the basic practical skills (competencies) needed on the worksite for the installation, maintain and repair of air conditioning unitary systems. The student will perform on actual installations as part of training. Full workshop training component.		
Example of Skills:	For Window/ Console/ and split unit air conditioning: Chemicals/ Compressor testing/ Compressor replacement/ burnouts/ critical charging/ testing/ recovery of refrigerants. Full installations, all repairs, servicing and maintenance. Areas include: pipe work/ brazing/ evacuation/ fitters/ driers/ vapor barrier etc.		
Available Dates:	11 Sept - 22 Sept 2017	23 Oct - 03 Nov 2017	

Course Name:	<b>Basic Automotive Air Conditioning inclusive of Authorised Refrigeration Practitioner License applicable to Automotive (Safe Handling)</b>		
Entry Requirements:	ABET Level 4 (Read/Write)		
Duration:	5 days (Monday – Friday) [08h00 – 15h00]		
Cost:	R5,692.98 excl vat / R6,490.00 incl. vat		
Excludes:	Saracca Reg. fee of R2109.00 incl. vat payable directly towards Saracca.		
Unit Standards:	116355,116703,116708		
Objectives:	Anyone interested to start working on automotive air cons as well as following industries: Auto Industries / Car Manufacturers (B) Mining as well as their sub-contractors, Panel Beaters, Insurance Industry Assessor, Fitment Center's.		
Outcomes:	On completion of this course the student will be able to:  A) Be competent to use basic tools and procedures applicable to automotive air-conditioning.  B) Understand principles of refrigeration, heat and unit used to express heat, specific heat, methods of heat transfer, latent and sensible heat, heat of compression, thermometers and their scales, atmospheric pressure, gauge pressure, absolute pressure, effect of pressure on boiling point of liquid, mechanical refrigeration cycle.  C) Leak testing apply leak testing methods.  D) Components–identify and explain automotive components and their function thereof. I.e. Compressor / condenser / evaporation / receiver drier / accumulator / orifice tube / expansion valve.		
Example of Skills:	repairs, maintenance as required		
Available Dates:	18 Sept - 22 Sept 2017	06 Nov - 10 Nov 2017	
	09 Oct - 13 Oct 2017	11 Dec - 15 Dec 2017	

Course Name:	<b>Welding, Brazing &amp; Cutting</b> <b>Electric Arc,C02,copper to copper, Oxy/Acetylene and aluminum welding</b>
Entry Requirements:	Basic literacy and numeracy
Duration:	5 days (Monday – Friday) [08h00 – 15h00]
Cost:	R5,692.98 excl vat / R6,490.00 incl. vat
Unit Standards:	116245      Module Codes: AO1;AO2;AO3;AO4;GC1;GC2;GC3,TA1,2,3,4;
Objectives:	Typically for candidates working on general welding i.e.. brackets/condenser brackets. Perform basic arc welding, brazing of copper to copper, copper to brass and use of the cutting torch. Selecting and checking welding equipment and consumables. Operating welding equipment. Applying safety equipment and procedures. Ensuring suitability and strength of weld. Electric arc/C02 and aluminum welding available.
Outcomes:	Job instructions are obtained and interpreted. Identify arc-welding equipment and check it for safety and suitability. Welding consumables are inspected for correct size and suitability. Metals to be welded are inspected for suitability. Things that make metals and/or consumables unsuitable are listed and discussed. Safety equipment and procedures required are listed and discussed. Arc-weld metals. Metals to be welded are prepared for welding process. Work area is inspected for fire hazard, secured and made safe. Appropriate welding process is applied. Weld is cleaned using correct procedure. Consequences of using wrong power setting or wrong consumables are listed and explained. Correct and all safety equipment is used. Apply quality checks on completed weld and correct if necessary. Visual check is conducted to ensure quality weld. Weld is checked for strength. Work-piece is checked for compliance with job sheet. Improper welded sections are made good.
Example of Skills:	Arc welding, brazing, cutting, electric arc, C02 welding, copper to copper, oxy/acetylene and aluminum welding.
Available Dates:	09 Oct - 13 Oct 2017

Course Name:	<b>Scaffolding Course (pertaining to HVACR industry)</b>
Entry Requirements:	basic literacy and numeracy
Duration:	3 days (Monday – Wednesday) [08h00 – 15h00]
Cost:	R3,415.77 excl. vat / R3,893.98 incl. vat
	Aligned with SANS 10085-1:2004, Unit Standard - 9672: Erect and dismantle scaffolding
Objective:	The qualifying learner will be able to: Assist to erect / dismantle a scaffold tower on level ground and to understand all aspects of working with scaffolding (members of an air conditioning installation team). A requirement by the OHS Act The learner will be required to complete Scaffold erection. The learner will be able to inspect and certify access scaffolding.
Outcomes:	The learner will be able to use scaffolding including the understanding of a fall arrestance plan and maximum loading of various types of scaffolding. The use of Safety harnesses, signage and barricading. Hazards and risks identified and dealt with accordingly. Full workshop training component. The qualifying learner will be able to: Erect / dismantle a scaffold tower on level ground. Interpret basic drawings and instructions for the erection of access scaffolding. Co-ordinate the resources for the erection of access scaffolding. The learner will be able to use scaffold including the understanding of a fall arrestance plan. The use of Safety harnesses, signage and barricading. Hazards and risks identified and dealt with accordingly. Types of scuffling identified as per SANS 10085. Full workshop training component. Load limitations, stabilizing, erection sequence as to SANS 10085. The qualifying learner will be able to: demonstrate an understanding of the types of scaffolding, applications and compliance with SANS 10085 Explain the roles and responsibilities of the inspector. Read and interpret relevant drawings. Inspect and handover access scaffolding. The use of Safety harnesses, signage and barricading. Hazards and risks identified and dealt with accordingly. Load limitations, stabilizing, erection sequence as to SANS 10085. Full workshop training component.
Available Dates:	27 Sept - 29 Sept 2017

## NEW COURSES Available:

- \*BMS Control Systems
- \*Polyethylene/Aluminium Composite Plastic Refrigerant Tubing
- \*Refrigerant Pipework Installations
- \* Drain Piping for HVAC&R
- \*Steel Piping Installation
- \*Duct Work Installations
- \*Duct Work Manufacturing (Ductshops)
- \* Pipe Grooving
- \* Evaporative Cooling Installation/Commissioning
- \*Evaporative Cooling (Design Aspects)



Course Name:	<b>Polyethylene/Aluminium Composite Plastic Refrigerant Tubing</b>	
Entry Requirements:	basic literacy and numeracy	
Duration:	02 days (Thursday-Friday) [08h00 – 15h00]	
Cost:	R2,277.19 excl. vat / R2,596.00 incl. vat	
Objective:	The student will receive the necessary knowledge around the advantages/disadvantages of the piping system. Selection and use of pipes and fittings and the use of applicable tooling. Practical aspects include a full installation of an air conditioning unit using piping, bending, joints, testing leaks, evacuation, insulation and final commissioning of the piping on the unit.	
Outcomes:	On completion of the course the student will have theoretical understanding and practical skills for the installation using Polyethylene/Aluminium Composite Plastic Refrigerant Tubing.	
Available Dates:	17 Aug - 18 Aug 2017 31 Aug - 01 Sept 2017 07 Sept - 08 Sept 2017 21 Sept - 22 Sept 2017	12 Oct - 13 Oct 2017 16 Nov - 17 Nov 2017 23 Nov - 24 Nov 2017

Course Name:	<b>Refrigeration Pipework Installations</b>	
Entry Requirements:	basic literacy and numeracy	
Duration:	02 days (Saturdays) [08h00 – 15h00]	
Cost:	R2,291.05 excl. vat / R2,725.80 incl. vat (Cost specific for Saturday classes)	
Objective:	This course forms part of refrigerant pipe work installation, brackets and mountings, cable trays and trunking, insulation, basic bending, flaring, swaging and brazing, usage of nitrogen for brazing and pressure testing. We look at common mistakes made and what constitutes good practice including relevant quality standards.	
Outcomes:	On completion of the course the student will have theoretical understanding and practical skills with regards to pipework installations.	
Available Dates:	<b>Available on Request</b>	

Course Name:	<b>Drain Piping for HVAC&amp;R</b>	
Entry Requirements:	basic literacy and numeracy	
Duration:	01 day (Saturdays) [08h00 – 15h00]	
Cost:	R1,145.53 excl. vat / R1,305.90 incl. vat (Cost specific for Saturday classes)	
Objective:	This course encompasses drain pipe installation inclusive of joining methods, sizing, u-bends, mountings and brackets. We look at common mistakes made and what constitutes good practice including relevant quality standards.	
Outcomes:	On completion of the course the student will have theoretical understanding and practical skills with regards to pipework installations.	
Available Dates:	<b>Available on Request</b>	

Course Name:	<b>Steel Piping Installation (pertaining to HVAC&amp;R industry)</b>	
Entry Requirements:	basic literacy and numeracy	
Duration:	03 days (Saturdays) [08h00 – 15h00]	
Cost:	R3,436.59 excl. vat / R3,917.71 incl. vat (Cost specific for Saturday classes)	
Objective:	The course include application of steel pipe, components, joining methodology, flaring, what constitutes good practice for welding, supports, basics of layout, corrosion protection, etc. We look at common mistakes made and what constitutes good practice including relevant quality standards to steel piping installations.	
Outcomes:	On completion of the course the student will have theoretical understanding and practical skills with regards to steel piping installation.	
Available Dates:	<b>Available on Request</b>	

Course Name:	<b>BMS Control Systems</b>
Entry Requirements:	Basic Understanding of Computers (It could be advantageous for the candidate to have a basic understanding of Air Conditioning Systems)
Duration:	04 days (Monday – Thursday) [08h00 – 15h00]
Cost:	R4,554.39 excl. vat / R5,192.00 incl. vat
Objective:	<i>Control Basics</i> - Have a basic understanding of the control process. Describe what a sensor is, its use and where sensors should be located. Describe how a controller works and how it can be used. <i>Introduction to Direct Digital Control (DDC)</i> - Describe what a DDC is and have a basic understanding of the functions these devices can perform. Describe common terminologies used by a DDC. Understand the fundamentals of how PID loops function. Describe some basic programming blocks used in a DDC configuration. <i>DDC Networking Basics</i> - Have an understanding of why we network DDC's. Understand how DDC's communicate and share information. <i>DDC Programming Basics</i> - Describe a DDC program. Understand the basics of configuration logic and how the program works.
Outcomes:	Write basic program on a system to operate a controller. Test and run basic program operating a controller.
Available Dates:	<b>09 Oct - 12 Oct 2017</b>

Course Name:	<b>Duct Work Installation</b>
Entry Requirements:	basic literacy and numeracy
Duration:	02 days (Saturdays) [08h00 – 15h00]
Cost:	R2,291.05 excl. vat / R2,725.80 incl. vat (Cost specific for Saturday classes)
Objective:	Duct work installation covers safety, tooling, various types on hangers, joining methods and insulation. We look at common mistakes made and what constitutes good practice including relevant quality standards to duct work installation.
Outcomes:	On completion of the course the student will have theoretical understanding and practical skills which covers duct joints, application of sealant and application of insulation, hangers and fixing methods, application of rust preventative coatings.
Available Dates:	<b>28 Aug - 01 Sept 2017</b> <b>30 Oct - 03 Nov 2017</b> <b>11 Dec - 15 Dec 2017</b>

Course Name:	<b>Duct Work Manufacturer (on-site training only)</b>
Entry Requirements:	basic literacy and numeracy
Duration:	02 days (Saturdays) [08h00 – 15h00]
Cost:	R2,291.05 excl. vat / R2,725.80 incl. vat (Cost specific for Saturday classes)
Objective:	Quality assurance for a duct manufacturing workshop. Duct manufacturing and handling procedures in accordance to relevant quality standards for all ducting types except black iron. Training includes application of insulation methods and joining methods. We look at common mistakes made and what constitutes good practice including relevant
Outcomes:	On completion of the course the student will have theoretical understanding and practical skills which covers duct manufacturing.
Available Dates:	<b>Available on Request</b>

Course Name:	<b>Pipe Grooving Course</b>
Entry Requirements:	basic literacy and numeracy
Duration:	01 day (Thursdays) [08h00 – 15h00]
Cost:	R1,138.59 excl. vat / R1,298.00 incl. vat
Objective:	The course includes the application of steel pipe grooving used as an alternative to welding. Solid as well as flexible fittings, measurement of grooves equipment selection installation methodology and safety aspects are all included.
Outcomes:	On completion of the course the student will have theoretical understanding and practical skills applicable to steel pipe grooving, joining, various fittings, accessories, tooling and equipment. The practical component includes the use of an actual grooving machine and the installation of steel piping.
Available Dates:	<b>30 Mar 2017</b> <b>01 Jun 2017</b> <b>27 Jul 2017</b> <b>05 Oct 2017</b> <b>23 Nov 2017</b>

Course Name:	<b>Evaporative Cooling Installation/Commissioning</b>	
Entry Requirements:	basic literacy and numeracy	
Duration:	02 days (Thursday-Friday) [08h00 – 15h00]	
Cost:	R2,277.19 excl. vat / R2,596.00 incl. vat	
Objective:	On successful completion of this course the student should have the understanding and practical skills to install and commission an evaporative cooler.	
Outcomes:	Full theoretical understanding of evaporative cooling, safety aspects, plumbing and electrical aspects, roof flashing and commissioning of unit. Full practical element including a full evaporative cooler installation including plumbing, electrical, flashing and final running and commissioning of unit.	
Available Dates:	17 Aug - 18 Aug 2017 07 Sept - 08 Sept 2017 21 Sept - 22 Sept 2017	19 Oct - 20 Oct 2017 30 Nov - 01 Dec 2017

Course Name:	<b>Evaporative Cooling Sizing/System Selection/Design Aspects</b>	
Entry Requirements:	basic literacy and numeracy	
Duration:	01 day (Thursday) [08h00 – 15h00]	
Cost:	R1,138.59 excl. vat / R1,298.00 incl. vat	
Objective:	On successful completion of this course the student should have the understanding of evaporative cooling loads, air flow rates, correct sizing of units and dropper/duct layouts: Includes electrical requirements.	
Outcomes:	Full understanding of air changes, unit sizing, types of installations, duct requirements, etc.	
Available Dates:	19 Oct 2017	07 Dec 2017

Course Name:	<b>Trade Test Preparation-Refrigeration Mechanic (Industrial &amp; Commercial) (For Section 13 Apprentices as well as Artisan RPL Trade Test previously Section 28/26D)</b>	
Entry Requirements:	Merseta Serial No. / Indlela Registration Confirmation	
Duration:	1-10 days (Monday – Friday) [08h00 – 15h00]	
Cost per day:	R1,138.59 excl. vat / R1,298.00 incl. vat PER DAY DEPENDING ON DURATION	
Objectives:	To prepare the candidate for trade testing. Applications for trade testing available at the Academy.	
Available Dates:	<b>Dates issued after receipt of Trade Test Assessment Dates from Merseta / Indlela. The dates will be scheduled 10days / 5 days prior to the Trade Test Assessment date. The duration of Preparation is subject to your knowledge and experience.</b>	

Course Name:	<b>Trade Testing - Refrigeration Mechanic (Trade Test Assessment) (Industrial &amp; Commercial) (For Section 13 Apprentices as well as Artisan RPL Trade Test previously Section 28/26D)</b>	
Entry Requirements:	Merseta Serial No. / Indlela Registration Confirmation	
Duration:	2 days [08h00 – 15h00]	
Cost:	R2,277.19 excl. vat / R2,596.00 incl. vat	
Objectives:	The Academy is a Department of Labour / Merseta Accredited Decentralised Trade Test Centre (National Certification). Applications for trade testing available at the Academy.	
Available Dates:	<b>Trade Test dates are issued by Merseta after submission of your Trade Test Application at your nearest Merseta office - contact Merseta at 010 219 3000.</b>	

Course Name:

## Merseta Apprenticeship - Refrigeration Mechanic (Industrial&Commercial)

Description:

The apprenticeship system is a well known technical training system, including practical and theoretical components offered in designated trades to achieve artisan status. INFORMATION AVAILABLE ON REQUEST!

Course Name:

## Merseta Learnership - National Certificate in Air Conditioning, Refrigeration and Ventilation Level 2, 3 & 4

Description:

A learnership is a structured learning process for gaining theoretical knowledge and practical skills in the workplace leading to a qualification registered on the NQF. INFORMATION AVAILABLE ON REQUEST!

### COURSES Available on Request:

\*Duct Erection  
\*First Aid Level1

\*Pipe Work  
\*First Aid Level 2 & 3

\*Rigging, Bearings and Fans  
\*Domestic Refrigeration Course

\*Basic Fire Fighting

Air Conditioning and Refrigeration Academy 2017 Course Dates Summary						
<b>Technology 1</b> 28 Aug - 08 Sept 2017 04 Sept - 15 Sept 2017 18 Sept - 29 Sept 2017 09 Oct - 20 Oct 2017 13 Nov - 24 Nov 2017 20 Nov - 01 Dec 2017	<b>Technology 2</b> 04 Sept - 15 Sept 2017 18 Sept - 29 Sept 2017 16 Oct - 27 Oct 2017 27 Nov - 08 Dec 2017	<b>Electrical One</b> 21 Aug - 01 Sept 2017 02 Oct - 13 Oct 2017 06 Nov - 17 Nov 2017	<b>Electrical Two</b> 30 Oct - 10 Nov 2017	<b>Technology 3</b> 02 Oct - 13 Oct 2017 20 Nov - 01 Dec 2017	<b>Technology 4</b> 16 Oct - 27 Oct 2017 04 Dec - 15 Dec 2017	<b>Full Diploma (From Techn. 1 up to Techn. 4 - 13 weeks)</b> 18 Sept - 15 Dec 2017
<b>Auth. Refr. Pract. License</b> 11 Sept - 15 Sept 2017 26 Sept - 29 Sept 2017 16 Oct - 20 Oct 2017 13 Nov - 17 Nov 2017 20 Nov - 24 Nov 2017 04 Dec - 08 Dec 2017	<b>Top-Up / Renewal Auth. Refr. Pract. License</b> 11 Sept - 12 Sept 2017 26 Sept - 27 Sept 2017 16 Oct - 17 Oct 2017 13 Nov - 14 Nov 2017 20 Nov - 21 Nov 2017 04 Dec - 05 Dec 2017	<b>Basic Automotive Air Conditioning</b> 18 Sept - 22 Sept 2017 09 Oct - 13 Oct 2017 06 Nov - 10 Nov 2017 11 Dec - 15 Dec 2017	<b>Maint, Rep, Inst &amp; Fault Find AC Units</b> 11 Sept - 22 Sept 2017 23 Oct - 03 Nov 2017	<b>Weld, Brazing, Cutting</b> 26 Sept - 29 Sept 2017 09 Oct - 13 Oct 2017	<b>BMS Control Systems</b> 09 Oct - 12 Oct 2017	<b>Rigging, Bearings, Fans</b> 16 Oct - 20 Oct 2017 13 Nov - 17 Nov 2017
<b>Evaporative Cooling Installation</b> 17 Aug - 18 Aug 2017 07 Sep - 08 Sep 2017 21 Sep - 22 Sep 2017 19 Oct - 20 Oct 2017 30 Nov - 01 Dec 2017	<b>Polyethylene/Aluminium Composite Plastic Refr. Tubing</b> 31 Aug - 01 Sept 2017 07 Sept - 08 Sept 2017 21 Sept - 22 Sept 2017 12 Oct - 13 Oct 2017 16 Nov - 17 Nov 2017 23 Nov - 24 Nov 2017	<b>Duct Work Installation</b> 03 Apr - 07 Apr 2017 26 Jun - 30 Jun 2017 28 Aug - 01 Sept 2017 30 Oct - 03 Nov 2017 11 Dec - 15 Dec 2017	<b>Handtools</b> 18 Apr - 28 Apr 2017 08 May - 19 May 2017 10 Jul - 21 Jul 2017	<b>Scaffold Use, Erect &amp; Inspect</b> 27 Sept - 29 Sept 2017	<b>Pipe Grooving</b> 23 Nov 2017	<b>Evaporative Cooling Design</b> 19 Oct 2017 07 Dec 2017
<b>COC (Certificate of Conformance)</b> 26 Sept 2017						

#### Websites that might be of interest:

<http://www.acra.co.za>  
<http://www.sairac.co.za>  
<http://www.hvacronline.co.za>  
<http://www.saracca.co.za>  
<http://saqccgas.co.za>



Find more information regarding training on our website South African Institute for Refrigeration & Air Conditioning You will find interesting reading material at HVACRONline.co.za South African Refrigeration & Air Conditioning Contractors' Association Find names of Registered/Licenses Authorised Refrigeration Practitioners here