



# OTTC Air-Conditioning Diploma New German Pilot Program 2021



2<sup>nd</sup> educational year:

Course	Content	Own Dates
R1A	<ul style="list-style-type: none"> <li>foundations of thermodynamic and mechanic</li> <li>converting of formulas</li> </ul>	
R 1B	<ul style="list-style-type: none"> <li>physical basics of the refrigeration cycle</li> <li>foundations of off the log p, h diagram</li> <li>the single stage refrigeration cycle</li> <li>reading and connecting of service gauges</li> <li>practical measurements on refrigeration plants</li> </ul>	
ELC 1	<ul style="list-style-type: none"> <li>foundations of electrical</li> <li>direct current</li> <li>series and parallel connection</li> </ul>	
R 2A	<ul style="list-style-type: none"> <li>heat exchanger (evaporators and condensers): types, construction, function</li> <li>expansion devices: types, construction, function, interaction with the evaporator</li> </ul>	
R 2B	<ul style="list-style-type: none"> <li>compressors: types, construction, function, oil cycle, technical problems</li> </ul>	
ELC 2A	<ul style="list-style-type: none"> <li>single-phase alternating current</li> <li>basic electrical components (isolator switch, circuit breaker, contactor, relays, lights, switches, timer): types, construction, function</li> </ul>	
R 2C	<ul style="list-style-type: none"> <li>additional components: types, construction, function</li> <li>refrigerant, oil</li> <li>pressure test, evacuating</li> </ul>	
ELC 2B	<ul style="list-style-type: none"> <li>basics of electrical circuits (self-holding circuit, interlocking circuit)</li> <li>basics of electrical circuits for refrigeration systems (load and control circuit, safety chain)</li> </ul>	
AC-service	<ul style="list-style-type: none"> <li>dismantle and assemble AC equipment</li> <li>use and maintain service tools and instruments</li> <li>elementary air-flow measurements and calculations</li> <li>drawings and sketches</li> </ul>	
Mechanic	<ul style="list-style-type: none"> <li>Mechanical servicing of compressors, repair &amp; overhaul skills, fault identification. Belt drives, pulley alignment. Bearing service, Couplings, Key and Locking Devices</li> </ul>	
SH-R	<ul style="list-style-type: none"> <li>Authorized Practitioner training includes practical demonstration and hands on, using a reclaim unit and vacuum pump. All the Unit Standards to obtain the level 3 for Refrigeration SAQCC Gas. After successfully completion thereof they can apply for the SAQCC Gas Registration.</li> </ul>	



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Technical drawing 1	<ul style="list-style-type: none"> <li>drawing flowcharts and electrical schematics of refrigeration systems</li> </ul>	
Plant building 2	<ul style="list-style-type: none"> <li>building and commissioning of a refrigeration plant with thermostatic control and defrost by cold room air</li> <li>fault finding on refrigeration plants</li> </ul>	
AC-1	<ul style="list-style-type: none"> <li>Principles of Air-Conditioning, main components, measurement for Air-Conditions. Psychometrics intro, air humid handling, process, and equipment</li> </ul>	
AC-2	<ul style="list-style-type: none"> <li>Advances air volume calculations, sizing of AC-systems, AC projects design and calculations. Heat load and humidity load calculations, comfort zone, requirements for room conditions</li> </ul>	
ACP-1 ACP-2	<ul style="list-style-type: none"> <li>Practical: plot, manufacture, installation of complete duct unit systems, connection boxes, fan, air-grillers, dampers, advanced manufacturing, servicing skills, measuring air-volume, control airflow</li> </ul>	
AC Diploma	<ul style="list-style-type: none"> <li>Lay-out &amp; design of control, air-handling unit with mix chamber, filter, fans, heat-exchanger, air-distribution, duct design and air-distribution, plant design and tuning, heat load and humidity load calculations. Air-Conditioning Technical Diploma Test</li> </ul>	

## OTTC Program Definition

### 1. OTTC Try a Trade

2 weeks free training for school-leavers to get motivated working as an artisan.

### 2. OTTC Refrigeration & Air-conditioning for Beginners

The program is designed for the first-year apprentice ship. The outcome is a perfect assistance working efficiently with the Technician and is an asset to be employed.

### 3. OTTC Practical Diploma

Precondition:

OTTC Beginners Program for Refrigeration & AC or equivalent to prior learning. For the perfect Technician for commercial refrigeration to do: New installations on cold rooms and refrigeration plants Servicing and maintenance, repair, fault-finding, improvements for energy savings. Still working under supervision. Including all requirements to do a trade test on international levels.

### 4. OTTC Air-Conditioning Diploma

Specialized program for technician and supervisor and designer working in the Air-Conditioning Industry for heating and cooling on central Air-conditioning plants.