



OTTC Practical Diploma New German Pilot Program 2019

1st educational year:

Course	Content	Dates
MetB 1a	<ul style="list-style-type: none"> • health and safety • practical tool skills • measuring • production processes: molding, forming, separating, adding 	
MetB 1b	<ul style="list-style-type: none"> • foundations of mathematics • SI-Units 	
MetB 2	<ul style="list-style-type: none"> • reading and drawing of technical drawings 	
MetB 3	<ul style="list-style-type: none"> • practical production: cutting , filing, drilling, threading, rivet, etc. 	
MetB 4	<ul style="list-style-type: none"> • welding, arc welding • manufacturing frames • channel-systems 	
RPI 1	<ul style="list-style-type: none"> • copper pipe work: cutting, deburring, bending • pipe connection by flaring 	
RPI 2	<ul style="list-style-type: none"> • pipe connection by using of fittings and swaging • brazing of copper pipes with soft solder, copper solder and silver solder 	
RPI 3	<ul style="list-style-type: none"> • pipe installation • bracket building • insulating 	
Plant building 1	<ul style="list-style-type: none"> • practical tests about MetB and RPI courses: building of a refrigeration plant incl. pressure test 	



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2nd educational year:

Course	Content	Dates
R1A	<ul style="list-style-type: none"> foundations of thermodynamic and mechanic converting of formulas 	
R 1B	<ul style="list-style-type: none"> physical basics of the refrigeration cycle foundations of of the log p, h diagram the single stage refrigeration cycle reading and connecting of service gauges practical measurements on refrigeration plants 	
ELC 1	<ul style="list-style-type: none"> foundations of electrical direct current series and parallel connection 	
R 2A	<ul style="list-style-type: none"> heat exchanger (evaporators and condensers): types, construction, function expansion devices: types, construction, function, interaction with the evaporator 	
R 2B	<ul style="list-style-type: none"> compressors: types, construction, function, oil cycle, technical problems 	
ELC 2A	<ul style="list-style-type: none"> single-phase alternating current basic electrical components (isolator switch, circuit breaker, contactor, relays, lights, switches, timer): types, construction, function 	
R 2C	<ul style="list-style-type: none"> additional components: types, construction, function refrigerant, oil pressure test, evacuating 	
ELC 2B	<ul style="list-style-type: none"> basics of electrical circuits (self holding circuit, interlocking circuit) basics of electrical circuits for refrigeration systems (load and control circuit, safety chain) 	
Mechanic	<ul style="list-style-type: none"> Mechanical servicing of compressors, repair & overhaul skills, fault identification. Belt drives, pulley alignment. Bearing service, Couplings, Key and Locking Devices 	
SH-R	<ul style="list-style-type: none"> 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. 	
Technical drawing 1	<ul style="list-style-type: none"> drawing flowcharts and electrical schematics of refrigeration systems 	
Plant building 2	<ul style="list-style-type: none"> building and commissioning of a refrigeration plant with thermostatic control and defrost by coldroom air fault finding on refrigeration plants 	

28.04.2019

Open Trade Training Centre

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3rd educational year:

Course	Content	Dates
R 3	<ul style="list-style-type: none"> • defrost methods • settings of the electronic controllers • evaluation of controller diagrams 	
ELC 3	<ul style="list-style-type: none"> • circuits for refrigeration systems (defrost systems and electronic controllers) • construction and function of electronic controllers 	
R 4	<ul style="list-style-type: none"> • methods of energy saving • secondary controls • heat recovery • skipping calculation of refrigeration systems 	
ELC 4	<ul style="list-style-type: none"> • three-phase alternating current • single and three-phase motors • motor start-ups • other electrical components (coil, transformer, capacity): types, construction, function • electrical power station and electrical systems 	
Secondary cooling 1	<ul style="list-style-type: none"> • hydraulic systems: types, construction, function, technical problems • hydraulic balance 	
Technical drawing 2	<ul style="list-style-type: none"> • drawing flowcharts and electrical schematics of refrigeration systems 	
Plant building 3	<ul style="list-style-type: none"> • building and commissioning of a refrigeration plant with electronic control, electrical and hotgas defrost • fault finding on refrigeration plants 	



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4th educational year:

Course	Content	Dates
R 5	<ul style="list-style-type: none"> • multiplex systems: types, construction, function, pipe installation • two stage cycles, cascade systems: types, construction, function 	
ELC 5	<ul style="list-style-type: none"> • electronic motor management (soft starter, frequency converters): types, construction, function • faults in electrical systems • protection of electrical systems (earthing and earth leakages) • basic component and wiring sizing 	
CO ₂ 1	<ul style="list-style-type: none"> • subcritical and transcritical CO₂ plants: types, construction, function, pipe installation 	
Propane-/CO ₂ -SH	<ul style="list-style-type: none"> • health and safety in dealing with propane and CO₂ • charging and discharging of propane and CO₂ • leak detecting systems 	
Technical drawing 3	<ul style="list-style-type: none"> • drawing flowcharts and electrical schematics of refrigeration systems 	
Plant building 4	<ul style="list-style-type: none"> • writing of logbooks • building and commissioning of a refrigeration plant to prepare the practical diploma • fault finding on refrigeration plants 	
Practical Diploma	<ul style="list-style-type: none"> • building and commissioning of a refrigeration plant including of a theoretical and a practical test 	

Duration of each course 1 week. Cost per week R 6,500.00 + 15 % VAT

Quoted prices includes: training work-books, material, lunch, tea, coffee

Pass mark per course 60 %, pass mark for theoretical and practical Diploma test 75 %

Pre requisites: basic literacy and numeracy, courses are presented in English

All OTTC Courses are Unit Standard aligned

Assessments for NQF Learnership Qualifications and / or Trade Test testing can be arranged

Select your own course dates from OTTC programme. Preferred duration: spread over 3,5 years

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