



Rev. No. Set 008 23-Dec-16

# OTTC - Ammonia Qualification 2017

<b>OTTC Director: Mrs. Isolde Döbelin</b>		<b>Tel. No.: 011-816-2580</b>	<b>Cell. No.: 083-735-7220</b>	<a href="http://www.ottc-training.center">http://www.ottc-training.center</a> <a href="http://www.ottc.co.za">http://www.ottc.co.za</a>	<a href="mailto:info@ottc.co.za">mailto:info@ottc.co.za</a>
Module	Course	Content / Objective	Duration	Includes also Unit Standards	Dates
<b>1</b>	<b>MetB - 1, 2, 3, 4</b>	<b>Metal Basic:</b> Practical tool skills, bending, soldering, brazing, welding, arc welding, measuring, manufacturing frames, brackets, support structures etc. - implement all stages from planning, drawing, specifying to produce & manufacture components / parts for installation purposes <b>(Optional for beginners)</b>	4 weeks (33 Credits)	116234, 116335, 116241, 116245, 116696	
<b>3</b>	<b>RPI - 1, 2, 3, 4</b>	Plotting & manufacturing of refrigeration components, soldering, brazing, welding, arc welding, pipe bending with different bending methods, full pipe installation on wall, insulation of pipes, components and ducts	4 weeks (27 Credits)	116230, 116229, 116712, 116707	
	<b>Coded Welding</b>	t.b.a.			
<b>4</b>	<b>Math/ Phys</b>	Mathematics and Physics applied in refrigeration and air-conditioning <b>(Optional for beginners)</b>	2 weeks (33 Credits)	9009, 7480, 9008, 12444, 9007, 13202, 9010, 14106, 9013, 7455, 9016	
<b>5</b>	<b>Mech</b>	Mechanical servicing of compressors, repair & overhaul skills, fault identification. Belt drives, pulley alignment. Bearing service.	2 week (18 Credits)	116233, 116713, 116715	
<b>6</b>	<b>R - 1/ R - 2</b>	Mechanical principles of refrigeration cycle and components. connection of service gauges, main components, compression principles, compressor types, refrigeration cycle and components, types of heat exchangers, types of expansion devices, pressure switches and thermostats, reclaiming, recharging, SAFE HANDLING OF REFRIGERANTS	2 weeks (57 Credits)	116236, 116224, 116239, 116699, 116701, 116702, 116334, 116355, 116700, 116468	
<b>7</b>	<b>AM-ELC - 1, 2, 3,</b>	Physical electricity basics in refrigeration, single and three phase systems, single and three phase motors, starters, pressure and temperature controllers, Wiring diagrams for electromechanical controlling, plant protection, motor managements, suction control, defrost control. Electronic motor management, soft starter, frequency converters, electronic cold room controllers	3 weeks (60 Credits)	116232, 116243, 116244, 116226, 116463, 116466, 116464, 116465	
<b>8</b>	<b>R - 3/ R - 4</b>	Advanced study of mechanical refrigeration cycle, heat load calculations, cold room design, capacity calculations, food-load, defrost methods; reversed cycles, pressure regulators, humidity control, frequency inverters, methods of energy saving, pump down Advanced study of system design, h, lg p- diagram, sizing of main components, sizing of pipe-work, oil-problems, fault finding, refrigeration cycle analysis, refrigerant types	2 weeks (66 Credits)	116697, 116717, 116418, 116408, 116461, 116389, 116375, 116415, 116397, 116406	
<b>The above courses are part of the OTTC Practical Diploma which are necessary to gain the National Trade Test The course below are the OTTC Ammonia Diploma + Design Program recognised by the industry Worldwide.</b>					
<b>9</b>	<b>AM-1 AM-2</b>	Safety Regulation, safety protection on plant, safety valves, safety switches, the dry evaporation system, expansions valve control, oil change and service procedures, cooling tower, evaporative condenser, shell and tube condenser, fault finding Flooded system, ice bank = with HP float valve, LP level control, level switch control, flooded evaporator with hot-gas defrost, liquid pumps, oil filter	2 week	116223, 116334,	
	<b>AM-P1 AM-P2 AM-3 AM-SH</b>	Plant instruction, operating of plant with liquid pump, two air-forced evaporators, hot-gas defrost, evaporator plate heat-exchanger with chiller-water cycle, trouble shooting, diagnoses and identification, oil drainage, air-purging V-belt alignment, charging of plant. Servicing of various compressors, remove pistons, remove cylinders, remove shaft seal, check wear and tear, oil filter, suction filter, oil pump,, servicing of shut of valves, repair and overhaul different valves. Screw compressor for ammonia plant with liquid ammonia pumps, valve station with hot-gas defrost, surge drum for liquid pumps, problem solving, plotting of ammonia plant in the diagram, determining of cooling capacity Safe Handling of Ammonia.	4 week	116355, 116700 116468, 116704, 1166705, 116708, 9246, 9266, 262158	
<b>10</b>	<b>Design and Tender of NH3 Plant</b>	Requirements assessments, Calculate refrigeration capacity, Select equipment and components, Make flow diagram, Compile material list, Price material list, Establish all other expenses, Arrive at final selling price, Commencing with small thermosyphon plant, followed by simple pump re-circulation plant, thereafter more complex plants, Course can be extended to last longer or be continued at later date.	2 week	262159,	
<b>11</b>	<b>OTTC-AM-Diploma</b>	Ammonia Qualification Diploma Project	2 weeks		
<p><b>Quoted prices include: Work Sheets, Material, Lunch, Tea, Coffee.</b></p> <p><b>Pass mark per course 60%, pass mark for diploma test 75% theoretical and practical. Pre-requisites: literacy + numeracy. Courses are presented in English.</b></p> <p><b>OTTC training programmes also cover SAQA unit standards, see "OTTC LEARNERSHIP PROGRAMME". Assessments for NQF learnership qualifications and/or trade test testing can be arranged.</b></p> <p><b>OTTC has full Accreditation for Learners at NQF Level 2,3,4, Certificate No 17-QA/ACC/0333/08</b></p>					
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					Duration 26 weeks