



CHEMICAL INDUSTRIES EDUCATION & TRAINING AUTHORITY
 PO BOX 961 AUCKLAND PARK 2006 • 2 CLARMART ROAD RICHMOND 2092 JOHANNESBURG
 Telephone (011) 726-4026 • Fax (011) 726-7777 • info@chieta.org.za • www.chieta.org.za

SD - 006: INSTRUMENT MECHANICIAN EQUIPMENT AND TOOL LIST

SECTION A: TOOL LIST

To be completed by applicant during self evaluation

No	TOOLS	RATIO TO APPIE/LEARN	YES	NO
1.	KEY – ALLEN ARNDT 911 ETZ 162 1/16 – 0.05	1 : 1		
2.	KEY – ALLEN ARNDT 911 ETM 1.5 – 12MM	1 : 1		
3.	PLIER – LONGNOSE WILL 35/BS 200	1 : 1		
4.	PLIER – COMBINATION WILL 62/A3 200	1 : 1		
5.	PLIER – SIDECUT HD SKILLCRAFT M200	1 : 1		
6.	PLIER – WATERPUMP GEDORE 141 250 MM	1 : 1		
7.	PLIER – CIRCLIP O/S STR WILL 141 160	1 : 1		
8.	PLIER – CIRCLIP INS STR WILL 143 180	1 : 1		
9.	VICE GRIP – GEDORE 137 250MM	1 : 1		
10.	SCREWDRIVER – WERALIT 10001 BLK PT	1 : 1		
11.	FRAME HACKSAW – MITCO PROFESSIONAL	1 : 1		
12.	FRAME HACKSAW – ECLIPSE JUNIOR 14J	1 : 1		
13.	KNIFE TRIMM – STANLEY 2-10-099 RET	1 : 1		
14.	HAMMER – BALLPEIN AMBIKA 500G	1 : 1		
15.	HAMMER – BALLPEIN GEDORE 300G	1 : 1		
16.	HAMMER – CLUB DIAMOND 1.8KG	1 : 1		
17.	NYLON MALLET - THORN	1 : 1		
18.	WRENCH ADJUSTABLE – GEDORE 62 300MM	1 : 1		
19.	WRENCH ADJUSTABLE – IREGA 99 150MM	1 : 1		
20.	SPANNER – GEDORE 1B/18M 6 – 30MM	1 : 1		
21.	SPANNER – GEDORE 1B COMB. 23MM	1 : 1		
22.	SOCKET SET – GEDORE C19 TM97U-10T	1 : 1		
23.	DIVIDER SPRING – GROZ DD/6150MM	1 : 1		
24.	TINSNIP – GEDORE 8531 300MM	1 : 1		
25.	CHISEL & PUNCH SET – MITCO 2 6 PCE	1 : 1		
26.	SIDE CUTTERS – CRESCENT 180MM	1 : 1		
27.	TOOLBOX SET – GEDORE # 1262 46 X 26 X 21 M	1 : 1		
28.	BRASS LOCK – VIRO 302 40MM	1 : 1		
MEASURING EQUIPMENT				
29.	CALIPER VERNIER – MIT 530101 150 1/20	1 : 1		
30.	CALIPER VERNIER 0 - 150	1 : 1		
31.	GAUGE – FEELER VOGEL GV16C M100	1 : 1		
32.	TAPE MEASURE – STANLEY 33 – 194 5M	1 : 1		
33.	STEEL RULE – GROZ 150MM	1 : 1		
34.	STEEL RÙLE – GROZ 300MM	1 : 1		
WORKSHOP EQUIPMENT				
35.	PORTABLE DRILLING MACHINE	One per w.shop		
36.	PORTABLE GRINDING MACHINE	One per w.shop		
37.	PORTABLE JIG-SAW	One per w.shop		

No	Tools	RATIO TO APPIE/LEARN	YES	NO
ARC WELDING				
38.	AC/DC WELDING MACHINES	5:1		
39.	WELDING SCREENS	5:1		
40.	ELECTRODE HOLDER	5:1		
41.	EARTH CLAMPS	5:1		
42.	CABLES	5:1		
43.	WIRE BRUSH	5:1		
44.	CHIPPING HAMMER	5:1		
45.	ARC WELDING HELMET	5:1		
46.	CONSUMABLE MATERIALS	5:1		
GAS WELDING/BRAZING				
47.	OXYGEN CYLINDER	5:1		
48.	ACETYLENE CYLINDER	5:1		
49.	CYLINDER TROLLEY	5:1		
50.	PRESSURE REGULATORS	5:1		
51.	HOSES AND COUPLINGS	5:1		
52.	FLASHBACK ARRESTERS	5:1		
53.	TORCHES	5:1		
54.	NOZZLES (ASSORTMENT OF SIZES)	5:1		
55.	TIP CLEANERS	5:1		
56.	SPARK LIGHTER	5:1		
57.	CONSUMABLE MATERIAL (APPLICABLE)	5:1		
58.	GOGGLES (WELDING)	5:1		
BASIC LIFTING EQUIPMENT				
59.	CHAIN BLOCK: 2 TON MAX	One per w.shop		
60.	COFFING BLOCK: 2 TON MAX	One per w.shop		
61.	SHACKLES: 2 TON MAX	One per w.shop		
62.	CHAIN CLINGS: 2.5 TON MAX	One per w.shop		
63.	WIRE ROPE SLINGS: 20MM DIAMETER	One per w.shop		
	COUPLINGS			
64.	FLEXIBLE TYRE COUPLINGS	One per w.shop		
65.	RIGID FLANGE COUPLINGS	One per w.shop		

No	TOOLS	RATIO TO APPIE/LEARN	YES	NO
66.	BIBBY TYRE COUPLING	One per w.shop		
67.	INTERNAL GEAR COUPLING	One per w.shop		
*HYDRAULICS				
68.	ELEMENTARY HYDRAULIC CIRCUIT DIAGRAMS	5:1		
69.	HYDRAULIC FLUIDS (PETROLEUM AND EMULSION BASED)	5:1		
70.	TUBING AND FITTINGS	5:1		
71.	PUMPS: VANE, GEAR, PISTON	5:1		
72.	FLOW CONTROL VALVES	5:1		
73.	CYLINDERS	5:1		
74.	ACCUMULATORS	5:1		
* PNEUMATICS				
75.	PNEUMATIC CIRCUIT DIAGRAMS	5:1		
76.	COMPRESSED AIR PIPELINES	5:1		
77.	AIR SERVICE UNITS	5:1		
78.	CYLINDERS	5:1		
79.	PRESSURE VALVES	5:1		
ELECTRONICS				
80.	Resistors - wire wound up to 10 watts - carbon and metal oxides (1 watt) Capacitors - electrolytic and ceramic Diodes Transistors Thyristors Integrated circuits	5:1		
81.	Construct, solder and fault find the following electronic circuits: Bi-stable multi vibrator, A-stable multi vibrator, Mono-stable multi vibrator, Class A amplifier, elementary SCR speed control.	5:1		
82.	Programme P.L.C. systems.	5:1		
ELECTRONIC AND ELECTRONIC TEST INSTRUMENTS				

No	TOOLS	RATIO To APPIE/LEARN	YES	NO
83.	Select and use the following test instruments and interpret the readings: <ul style="list-style-type: none"> - voltmeter - analogue and digital - ammeter - analogue and digital - ohmmeter - analogue and digital - multimeter - analogue and digital - wheatstone bridge - analogue or digital - pulse generator - oscilloscope (analogue dual trace up to 20mHZ) - frequency counter - milli-amp source - milli-volt source - capacitance meter analogue and digital 5 dual power supply 0-30 volt 3 amp (with current limiting)	5:1		
THERMOCOUPLES AND RESISTANCE BULBS				
84.	Different types of thermocouples and resistance bulbs.	5:1		
SOLDERING AND DE-SOLDERING				
85.	Display the ability to Solder and de-solder electronic components from PC boards.	5:1		
ELECTRICAL, ELECTRONIC AND PNEUMATIC APPLICATIONS				
86.	Single variable flow level and pressure control loop using a differential pressure transmitter, controller recorder and control valve.	5:1		
87.	Cascade and ratio control loop using differential pressure transmitters, controller's recorder and control valve. (Pneumatic and or electronic optional square extractor).	5:1		
88.	<ul style="list-style-type: none"> - Pressure switches - Flow switches - Limit switches - Level switches and - Solenoid valve 	5:1		
MICRO PROCESSORS				
89.	Microprocessor with reference to the bus systems keyboard, I/O parts, registers, memory and CPU.			
90.	Various Sensors and transmitters used for pressure; temperature; level; load cell and flow.	5:1		
INSTRUMENT MAINTENANCE				
91.	Test, align, calibrate recording, indication and control instruments.	5:1		
CABLES				
92.	Multi and single core, stranded PVC armoured cable up to 16mm ² 4 core, 1200 volt insulation.	5:1		

No	TOOLS	RATIO TO APPIE/LEARN	YES	NO
AC MACHINES				
93.	AC machines: <ul style="list-style-type: none"> - single phase induction motors - 3 phase slip ring induction motors - 3 phase squirrel cage induction motors - alternators - transformers 	5:1		
SAFETY				
94.	OVERALL	1:1		
95.	SAFETY BOOTS	1:1		
96.	EAR PLUGS	1:1		
97.	SAFETY GOGGLES	1:1		
98.	HARD HAT	1:1		
COMMENTS				
APPLICANT		DATE		

SECTION B: SITE VISIT INSPECTION

To be completed by CHIETA Representative during sit visit

COMMENTS			
CHIETA REPRESENTATIVE		DATE	

*Apprentice must have exposure on these areas