Laboratory	**Lab Equipments Calibration Centre, 1st Floor, B-XXX,1720/B, Focal Point, Ludhiana, Punjab**			
Accreditation Standard	**ISO/IEC 17025: 2005**			
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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	ELECTRO TECHNICAL CALIBRATION			
I.	**SOURCE**			
1.	DC Resistance[#] 4 wire	1Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to1000 Ω 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1000 kΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ 100 MΩ to 1 GΩ	0.1 Ω to 1.2 Ω 1.2 Ω to 0.14 Ω 0.14 Ω to 0.002 kΩ 0.013 kΩ to0.13 kΩ 0.13 kΩ to 0.0013 MΩ 1.3 kΩ to 13 kΩ 13 kΩ to 580 kΩ 580 kΩ to 4640 kΩ	Using Standard Decade Resistance Box
2.	Temperature Simulation[#]			
	Thermocouple 'J' Type 'K' Type 'R' Type 'S' Type	 50^0C to 750^0C 50^0C to 1300^0C 200^0C to 1700^0C 200^0C to 1700^0C	 0.2^0C to 2.9^0C 0.8^0C to 5.1^0C 1.2^0C to 5.4^0C 1.5^0C to 6.3^0C	Using Universal Calibrator Radix by Simulation Method
3.	Frequency[#]	50 Hz to 500 Hz	0.0239 Hz to 0.312 Hz	Using Multifunction Calibrator Zeal By Direct Method
II.	**MEASURE**			
1.	DC Voltage[#]	5 mV to 180 mV 180 mV to 1 V 1 V to 1000 V	0.06 mV to 0.11mV 0.11 mV to 0.001 V 0.001 V to 0.7 V	Using Digital Multimeter 6 ½ Fluke 8846A By Direct/ Comparison Method

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Convenor

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Program Manager

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
2.	AC Voltage#	**50 Hz** 10 mV to 1V 1 V to 1000 V	 1.63 mV to 0.001 V 0.001 V to 1.25 V	Using Digital Multimeter 6 ½ Fluke 8846A By Direct/ Comparison Method
3.	DC Current#	100 µA to1000 µA 1 mA to 100 mA 100 mA to 1 A 1 A to 10 A	0.12 µA to 0.006 mA 0.006 mA to 0.11 mA 0.11 mA to 0.009 A 0.009 A to 0.11 A	Using Digital Multimeter 6 ½ Fluke 8846A By Direct/ Comparison Method
4.	AC Current#	**50 Hz** 100 µA to 1 mA 1 mA to 100 mA 100 mA to 1 A 1 A to 10 A	 5.8 µA to 0.02 mA 0.2 mA to 0.19 mA 0.19 mA to 0.02 A 0.02 A to 0.03 A	Using Digital Multimeter 6 ½ Fluke 8846A By Direct/ Comparison Method
5.	DC Resistance#	1 Ω to 1000 Ω 1 kΩ to 1000 kΩ 1 MΩ to 100 MΩ 100MΩ to 1 GΩ	0.001 Ω to 0.13 Ω 0.13 Ω to 0.13 kΩ 0.13 kΩ to 0.94 kΩ 0.94 kΩ to 2.2 MΩ	Using Digital Multimeter 6 ½ Fluke 8846A By Direct Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	MECHANICAL CALIBRATION			
I.	**DIMENSION (BASIC MEASURING INSTRUMENT, GAUGES ETC.)**			
1.	Vernier Caliper[$] L.C.: 0.01 mm[Φ]	0 to 300 mm 0 to 600 mm	14.50 µm 21.00 µm	Using Caliper Checker, Slip Gauge Set
2.	External Micrometer[$] L.C. : 0.001 mm	0 to 100 mm	5.9 µm	Using Slip Gauge Set
3.	Plunger Type Dial Gauge[$] L.C. : 0.01 mm	0 to10 mm	7.0 µm	Using Slip Gauge Set & Comparator Stand
4.	Height Gauge[$] L.C. : 0.02 mm	0 to 600 mm	17.80 µm	Using Caliper Checker & Puppy Dial
5.	Dial Thickness Gauge[$] L.C. : 0.01 mm	0 to 25 mm	9.0 µm	Using Slip Gauge Set
6.	Feeler Gauge[$]	0 to1 mm	3.10 µm	Using Digital Micrometer
7.	Depth Gauge Vernier[$] L.C.: 0.02 mm	0 to 200 mm	18.10 µm	Using Slip Gauge Set
8.	Coating Thickness Gauge[$]	0 to 800 µm	13.10 µm	Using Standard Thickness Foils

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
9.	Radius Gauge[$]	0 to 25 mm	90.7 µm	Using Profile Projector
10.	Thread Pitch Gauge[$]	Up to 6 mm	31.10 µm	Using Profile Projector
11.	Steel Scale[$]	Up to 150 mm	156.0 µm	Using Profile Projector
12.	Wire Gauge[$]	Up to 150 mm	8.30 µm	Using Profile Projector
13.	Test Seive[$]	0.032mm to 4 mm 4 mm to 50 mm	12.50 µm 83.0 µm	Using Profile Projector & Digital Vernier Gauge
II.	**PRESSURE INDICATING DEVICES**			
1.	Hydraulic Pressure Gauges[$] (Digital/ Analog)	0 to 40 bar (g) 0 to 600 bar (g)	0.115 bar 0.03 % rdg.	Using Digital Pressure Gauge with Hydraulic Pump By Comparison Method as per DKDR-6-1
III.	**WEIGHING SCALE AND BALANCE**			
1.	Weighing Balance[♣] Readability L.C.: 10 mg L.C.: 10 g	 Up to 210 g Up to 100 kg	 6 mg 27.2 g	Using F1 Class Standard Weights As per OIMLR-76-1

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	THERMAL CALIBRATION			
I.	**TEMPERATURE**			
1.	RTD, Thermocouple With or without Temperature Indicator/Data Logger/Recorder, Temperature Transmitter, Digital Thermometer#	(-)15 ^{0}C to 100 ^{0}C	0.63 ^{0}C	Using RTD Sensor With Temperature Indicator, DMM & Negative Bath By Comparison Method
2.	RTD, Thermocouple With or without Temperature Indicator/Data Logger/Recorder, Temperature Transmitter, Digital Thermometer#	100 ^{0}C to 250 ^{0}C	1.4 ^{0}C	Using S-Type Thermocouple with Temp. Indicator, RTD With Temperature Indicator With Oil Bath By Comparison Method
3.	Liquid-in-Glass Thermometer#	50 ^{0}C to 100 ^{0}C 100 ^{0}C to 250 ^{0}C	0.78 ^{0}C 1.4 ^{0}C	Using S-Type Thermocouple with Temp. Indicator, RTD with Temperature Indicator With Oil Bath By Comparison Method

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
4.	Thermocouple With or Without Temperature Indicator/ Data Logger/ Recorder, Temperature Transmitter, Digital Thermometer[#]	250 ^{0}C to 1200 ^{0}C	3.2 ^{0}C	Using S-Type Thermocouple with Temp. Indicator, Dry Block Furnace, DMM By Comparison Method
5.	Temperature Indicator with Sensor of Oven, Industrial Furnaces [♣]	200 ^{0}C to 1000 ^{0}C	3.0 ^{0}C	Using S-Type Thermocouple with Indicator, Dry Block Furnace, DMM (Single Position Calibration)
6.	Temperature Indicator with Sensor of Oven, Incubator, Furnace [♣]	(-)15 ^{0}C to 200 ^{0}C	1.3 ^{0}C	Using 4 Wire RTD Sensor Along with Universal Calibrator and Temperature Indicator (Single Position Calibration)
7.	Calibration of Oven, Chamber, Industrial Furnaces Thermal Mapping. [♣]	100^{0}C to 1000^{0}C	4^{0}C	Using K- Type Sensors (minimum 9) with Data Logger (Multi-Point Calibration)

*** Measurement Capability is expressed as an uncertainty (±) at a confidence probability of 95%**
[$] Only in Permanent Laboratory
[♣] Only for Site Calibration
[#] The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.

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