

**SARDAR PATEL UNIVERSITY**  
**Programme & Subject: B.Sc (Instrumentation – Vocational)**  
**Semester: V**  
**Syllabus with Effect from: June-2013**

<b>Paper Code: US05CINV01</b>	<b>Total Credit: 3</b>
<b>Title Of Paper: Process Measurement Technique - I</b>	

Unit	Description in detail	Weightage (%)
I	<b>Temperature Measurement - I</b> Introduction, Definition, Scales used for Temperature measurements, Liquid in glass thermometer, Filled System Thermometer: Liquid filled, Gas filled and Vapour pressure thermometer, Bimetallic strip Thermometer.	25%
II	<b>Temperature Measurement - II</b> Thermo couples: Laws, Materials, Types, Thermocouple Instrumentation, Resistance type Temperature Detectors (RTD), Thermistor, and Pyrometer: Total Radiation pyrometer, Optical pyrometer.	25%
III	<b>Pressure Measurement - I</b> Introduction, Definition, Terminology: Absolute, Atmospheric, Gauge, Vacuum, Static and Dynamic pressure. Manometers: Single column, U-tube, Expanded bulb U-tube, Inclined U-tube Inverted U-tube, Ring balance Manometer.	25%
IV	<b>Pressure Measurement - II</b> Mechanical Gauges: Bourdon tubes, Diaphragm, Bellows. Low pressure gauges: McLeod Gauge, Thermal conductivity, Ionization Gauges. Dead Weight tester.	25%

**Basic Text & Reference Books:-**

- Mechanical Measurement and Control (Metropolitan Books) by D.S.Kumar
- Industrial Instrumentation (Wiley Eastern Limited) by D.P.Eckman.
- Mechanical and Industrial Measurements (Khanna Publishers) by R.K.Jain
- Instrumentation by Krik and Rimboi.
- Process Instrumentation and Control (Nirali Publications) by Kulkarni.
- Industrial Measurements and Control by S.K. Singh.
- Instrumentation Devices and Systems by Rangan, Sharma and Mani.

