

**SARDAR PATEL UNIVERSITY**  
**Programme & Subject: M.Sc (Instrumentation)**  
**Semester: I**  
**Syllabus with Effect from: June - 2010**

<b>Paper Code: PS01CINS01</b>	<b>Total Credit: 4</b>
<b>Title Of Paper: Transducers &amp; Instrumentation</b>	

Unit	Description in detail	Weightage (%)
I	Classification of Transducers, Basic Requirements of Transducer, Principles of Displacement Transduction. Strain: Factors affecting Strain Measurements, Operation of Resistance Gauge, Types of Electrical Strain Gauge, Gauging Techniques, Strain Gauge Circuits & Temperature Compensation.	25%
II	Vibration: Characteristics, Devices, Pressure: Diaphragms, Elastic Elements, Transduction Methods, Solid State, Thin Film, Calibration, Types of Flow Meters.	25%
III	Temperature: Platinum Type Sensors, Thermistors, Thermocouples, IC Temperature Sensors, Radiation Measurement, Optical Pyrometer, Calibration, Force: Load Cell & its Types, Torque Measurement & its Type, Piezoelectric: Phenomenon, Force, Strain, Torque, Pressure & Acceleration Transducers.	25%
IV	Hall - Effect Transducers & Applications, Photoelectric: Phenomenon, Photoconductive, Photovoltaic & Photo-emissive Transducers, Ionization Displacement Transducer, Nuclear Radiation Transducer, Radioactive Transducers, Digital Transducers.	25%

**Basic Text & Reference Books:-**

- Instrumentation Devices & Systems, C. S. Rangan, G. R. Sarma & V. S. V. Mani, Tata McGraw-Hill Publishing Company Limited.
- Transducers and Instrumentation, D. V. S. Murty, Prentice Hall of India Private Limited.
- Instrumentation Measurement and Analysis, B. C. Nakra, & K. K. Chaudhry, Tata McGraw-Hill Publishing Company Limited.
- Principles of Industrial Instrumentation, D. Patranabis, Tata McGraw-Hill Publishing Company Limited.

