

**UNIT I****Chapter 1 : Applications of Transducers 1-1 to 1-22**

**Syllabus** : Function of each block of Instrumentation System, Transducer : Need, Classification-Active and Passive, Analog and Digital, Primary and Secondary, Mechanical and Electrical, Electrical Transducers : Resistive transducers - Linear and Angular potentiometers, strain gauge, types, gauge factor. Capacitive transducer, Inductive transducer : LVDT, RVDT. Piezoelectric transducer, photoelectric transducer, photovoltaic cell. Selection criteria of transducer.

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**UNIT II****Chapter 2 : Pressure Measurement 2-1 to 2-29**

**Syllabus** : Pressure and its units, Types - Absolute, Gauge, Atmospheric, Vacuum, Classification of pressure measuring devices : (a) Manometer - U tube, Inclined Tube, Well type manometer (b) Elastic pressure transducer : Bourdon Tube Bellows, Diaphragm, Capsule (c) Electrical pressure transducers : Bourdon tube with LVDT, Bellow with LVDT Diaphragm with strain gauge, Specification of electrical pressure transducer, Calibration of pressure gauge using dead weight tester.

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### UNIT III

#### Chapter 3 : Flow Measurement 3-1 to 3-31

**Syllabus** : Flow and its units, Types of flow - Laminar, Turbulent, Reynolds number. Classification of flow measuring transducers : (a) Variable head flow meter - Venturimeter, Orifice plate meter, Flow nozzle, Pitot tube, (b) Variable area flow meter - Rotameter, (c) Electrical flow meter - Turbine flow meter, Electromagnetic flow meter, Ultrasonic flow meter - Time difference and Doppler type, Hot wire anemometer, Vortex flow meter, Positive displacement meter - Nutating disc type, Typical specifications of various flow meters.

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**UNIT IV****Chapter 4 : Level Measurement 4-1 to 4-19**

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**UNIT V****Chapter 5 : Temperature Measurements 5-1 to 5-25**

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