

SYLLABUS :-

Introduction to Instrumentation systems, Static and Dynamic characteristics of Instruments. Displacement and proximity measurement: Inductive and Capacitive Pick-ups, Linear Variable Differential Transformer (LVDT), Synchro, Phase Sensitive Detection. Measurement of Temperature: Thermocouple and its cold junction compensation, Resistance Temperature Detector (RTD)- three and four wire methods, Thermistor, Radiation Pyrometer. Measurement of strain: Strain Gauge, unbalanced Wheatstone bridge, Load Cell (both column and beam type), Torque transducer. Measurement of Pressure: Elastic transducers (Bourdon Gauge, Bellow and Diaphragm gauge), MEMS pressure sensor, Low pressure measurement. Flow: Differential Pressure flowmeter, Variable area flowmeter, Turbine flow meter, Ultrasonic flowmeter (Both transit time and Doppler shift), Electromagnetic flowmeter, Positive displacement flowmeter and Mass flowmeter. Measurement of level: Capacitance based and Float based methods. Measurement of pH, Conductivity and Humidity. Instrumentation Amplifier, Methods for improvement of linearity, sensitivity and speed of response.