

Subject : CoE 237 Instrumentation

Units “Credit Hours”: 3

Pre-requisite: CoE 131, CoE 211

Theoretical : 3 Hr/wk

Practical :

Tutorial :

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Course Description

Principle of measurement, measuring electrical quantities, analogue and digital transducers, measurement of level, pressure, flow, temperature and other industrial measurements.

Course Topics

- 1. Introduction:** Instrumentation applications, SI Units, Fundamental and derived units , Elements of measuring instrument, Feedback system. Types of instruments , precision and accuracy. Primary measurement and secondary measurement.
- 2. Electrical Measurements:** Galvanometer, Voltage measurement, Current measurement, Resistance measurements. Electronic measurement devices. D.C. and A.C. Bridges.
- 3. Electrical Transducers:** Resistive, Inductive and Capacitive transducers, measurement of transducer output, modulation and demodulation in transducers.
- 4. Industrial measurements:** Level measurement, Pressure measurement: Burden tube, Bellows, Diaphragms, Differential pressure measurement, Flow measurement, Temperature measurement, Force, Load cell.
- 5. Digital Transducers:** Opt couplers and OID, optical detection, magnetic pickups, Speed measurement, Position measurement, principle of mouse. Other digital transducers.