

CC - VII : INDUSTRIAL INSTRUMENTATION

UNIT - I: MEASUREMENTS OF MOTION

Motion measurements – Relative motion measuring devices – Absolute motion measuring devices.

UNIT - II : PRESSURE MEASUREMENTS

Force and torque measurements – Pressure measurements – Moderate, high and low pressure measurements – Calibration.

UNIT - III: TEMPERATURE MEASUREMENTS

Measurements of temperature – Non electrical methods – Electrical methods – Pyrometry

UNIT - IV: ACOUSTIC MEASUREMENTS

Acoustic measurements – Sound measuring system – Phon-Acoustic filters – Equalizers – Types – Microphones.

UNIT - V: MEASUREMENT OF FLOW

Mechanical flow meters – Displacement type – Reciprocating piston type – Nutating disc – Oscillating piston – Helix and gear meters – Inferential type – Propeller types – Propeller types with electronic counter combination meters – Calibration set up.

Differential type – Orifice plate – Venturi type – Dall tube – Flow nozzle – Pitot tube – Annular flow element manometers – Magnetic flow meters – Principles of operation – Construction details – Characteristics – Application.

Ultrasonic flow meters – Principles of operation.

Dopler flow meter in characteristic application and advantages.

Shunt flow meter – Target flow meter – Turbine flow meter.

BOOK FOR STUDY:

Instrumentation: Measurements and Analysis – Nakra and Choudry – T M H –1988

BOOKS FOR REFERENCE:

1. Measurement system – E.D. Doebelin – McGraw Hill – International Student Edition – 1990.
2. Mechanical and Industrial Instrumentation – R.K.Jain – Khanna Publishers – 1992.
3. Industrial Instrumentation – Donald D Eckmer – Wiley Eastern Ltd., 1983.