

## Measurement Systems Basics

- Measurement system structure
- Signals classification
- Sensors, Actuators, and Data Acquisition
- Transducer characteristics and types

## Sensors

- Temperature Sensors
  - RTD, Thermistor ( NTC and PTC ) ,
  - IC Temp sensor & Thermocouples
  - Temperature sensors selection criterion
- Inductive and Capacitive sensors
- Light sensors  
LDR, Photodiodes, Phototransistors, Opto-couplers, IR
- Ultrasound sensors

## Conditioning Circuits

- Operational Amplifier
- Difference Amplifier
- Instrumentation Amplifier
- Scaling circuits
- Voltage -to-current converters
- A/D and D/A converters
- Sampling Rate and Nyquist criterion, Noise and noise margin

## Measurements Techniques

- Temperature Measurements
- Displacement measurements
- Level measurements
- Force measurements
- Pressure measurements
- Flow measurements