

EE 218- Instrumentation and Measurements

Hour: Lecture: 2 Hrs.

Tutorial: 2 Hrs.

Credit: 3.

Coordinator: Yasser Galal

Text Book:

- Johnson, Curtis, "Process control Instrumentation technology", Prentice Hall

Specific course information

- a. Introduction to feedback control loop, instrument. Major specifications related to choice of measuring instruments. Measurement of pressure. Measurement of temperature. Level measurement. Flow measurement. Viscosity, PH measurement, oxygen analyzer. Displacement and velocity measurement. Force and torque measurement. Data analysis, measures of centrality, dispersion. Strain gauges and related bridges. Study of comparators, and error detectors. Transducers (Electric / pneumatic / Electro mech). Amplifiers (electric / pneumatic). Actuators (electric / pneumatic)
- b. Prerequisite: EE 238
- c. Designation: Required

Specific goals for the course:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, analyze and interpret data.
- An ability to identify, formulate, and solve engineering problems.
- An ability to use the techniques, skills, and modern engineering tools necessary for Mechanical engineering practice.

Course instruction outcomes:

- The students will be able to investigate different methods for remote measuring.
- The students will be able to know how transducers operate and their characteristics.
- The students will be able to know how to analyze data obtained from measurements.

Student outcomes:

A, B, E

Topics Covered:

- Introduction to feedback control
- Physical measurements
- Level, flow, PH, viscosity, displacement, velocity, force and torque measuring instruments
- Data analysis, electric/pneumatic transducers.

Course / credit hours	Math & Basic Sciences	Engineering Topics	General Education
Instrumentation and Measurements /3		3	