

EE 312- Electrical Measurements and Instrumentation (2)

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2; Lab: 2

COURSE COORDINATOR

Prof. Hassan Ibrahim

TEXT BOOK:

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

COURSE DESCRIPTION:

Displacement, velocity, pressure , temperature sensors. Level , flow torque and other sensors. Signal conditioning. Data acquisition and conversion. Fundamentals of digital voltmeters. Digital voltmeters, Digital multimeters. Accuracy of digital voltmeters.

PREREQUISITE:

EE 211

RELATION OF COURSE TO PROGRAM:

Required

COURSE INSTRUCTION OUTCOMES:

The student will be able to use sensors, transducers and data acquisition systems to present the fundamentals of digital instrumentation.

TOPICS COVERED:

- Primary sensing elements.
- Data acquisition and A/D conversion.
- Digital measurements.
- Signal generators.
- Counter-time interval measurements.
- Magnetic records and self balancing.

**CONTRIBUTION OF COURSE TO MEET THE REQUIREMENTS OF
CRITERION 5:**

Professional Component Content			
Math and Basic Sciences	Engineering Topics	General Education	Engineering Design
	√		

RELATIONSHIP OF COURSE TO STUDENT OUTCOMES:

Student Outcomes		Course Outcomes
a.	An ability to apply knowledge of mathematics, science, and engineering.	√
b.	An ability to design and conduct experiments, analyze and interpret data.	√
c.	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	√
d.	An ability to function on multi-disciplinary teams.	
e.	An ability to identify, formulate, and solve engineering problems.	
f.	An understanding of professional and ethical responsibility.	
g.	An ability to communicate effectively.	
h.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal content	
i.	A recognition of the need for, and an ability to engage in life-long learning.	
j.	A knowledge of contemporary issues within and outside the electrical engineering profession.	
k.	An ability to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice.	