

EE 211- Electrical Measurements and Instrumentation (1)

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2; Lab: 2

COURSE COORDINATOR

Prof. Hassan Ibrahim

TEXT BOOK:

J.B. Gupta, "A Course in Electronic and Electrical Measurements and Instrumentation",
Prentice- Hall

COURSE DESCRIPTION:

Accuracy of measurement and error analysis. Absolute and secondary instruments and indicating instrument. Moving coil and moving iron instruments. Dynamometer type instruments. Induction type instruments. Wattmeter of Measuring of power and power factor. Bridges (DC). Bridges (AC). Current and potential transformers. Oscilloscopes.

PREREQUISITE:

EE 231

RELATION OF COURSE TO PROGRAM:

Required

COURSE INSTRUCTION OUTCOMES:

The student will be able to perform experiments to determine various types of errors in measurements.

The students will be familiar with various measuring instruments used to detect electrical quantities.

TOPICS COVERED:

- Accuracy of measurement and error analysis
- Absolute & secondary
- Moving coil
- Dynamometer
- Induction instruments
- Measurement of active power and power factor
- DC and AC bridges
- Current and potential transformers
- Oscilloscope.

**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.	