

EE 331- Electric & Magnetic Field 1

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2

COURSE COORDINATOR

Prof. Yasser Galal

TEXT BOOK:

W. J. Hayt and J.E. Kemmerly, " Engineering Electromagnetics" latest Edition, Mc Gram – Hill , 1989

COURSE DESCRIPTION:

Vector analysis and coordinate systems– Coulomb's law and Electric field intensity– Electric flux density , Gauss's law and Divergence theorem –Energy and potential (Electrostatics)–Conductors, Dielectric , and capacitance– Poisson's and Laplace's equations.

PREREQUISITE:

BA 223

RELATION OF COURSE TO PROGRAM:

Required

COURSE INSTRUCTION OUTCOMES:

The student gain knowledge on the basic theory of electrostatics, coordinate systems and vector analysis, electrical fields, potential, and energy.

TOPICS COVERED:

- Vector analysis
- Coordinate systems
- Coulomb's law
- Electric field intensity
- Electric flux density
- Divergence theorem
- Energy and potential
- Conductors
- Dielectric and capacitances
- Poisson and Laplace equations.

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.	