

EE 545- High Voltage Engineering

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2

COURSE COORDINATOR

Dr Rania El Sharkawy

TEXT BOOK:

M. Khalif, "High Voltage Engineering", Marcel Dekker Inc, New York, latest edition

COURSE DESCRIPTION:

Generation of D. C. high voltage. Generation of A. C. high voltage. Generation of impulse voltage and currents. Measurements of high voltages. Sources of transient in power system. Travelling waves. Lattice diagram. Gaseous, liquid and solid Insulations study. Surge arresters. High voltage circuit breakers. Gas insulated switcher (GIS). Insulation coordination. Testing and HVDC studies.

PREREQUISITE:

EE441

RELATION OF COURSE TO PROGRAM:

Elective

COURSE INSTRUCTION OUTCOMES:

The student is capable of demonstrating the elements, operation and control oh HVDC systems

TOPICS COVERED:

- Generation and measurement of high voltage AC and DC.
- Sources of transients in power system.
- Travelling waves.
- Insulations, lattice diagram and surge arresters.
- High voltage switchgears

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.	✓