

EE 341- Introduction to Power Engineering

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2

COURSE COORDINATOR

Dr Rania El Sharkawy

TEXT BOOK:

J. Glover and M. Sarma "Power system analysis and design", PWS publishers, Boston, latest edition.

COURSE DESCRIPTION:

This course explains the elements of power system. Operating voltage choice. parameters of overhead transmission lines (R, L, and C). Representation of O.H.T.L.(overhead transmission lines) (Short, Medium and Long T.L.). Voltage regulation. Corona phenomenon and its calculations. Mechanical design (sag calculations, at the same level). Mechanical design (sag calculations at different levels). Mechanical design (insulators), types of poles and towers. Under ground cables (construction, types). Under ground cables (electric field & insulation measurements).

PREREQUISITE:

EE 232

RELATION OF COURSE TO PROGRAM:

Required

COURSE INSTRUCTION OUTCOMES:

The student gains general view about power system elements, overhead transmission lines parameters, constants and mechanical design of overhead transmission lines.

TOPICS COVERED:

- Elements of power system.
- Operating voltage choice.
- Parameters of O.H.T.L.
- Corona phenomenon.
- Mechanical design of O.H.T.L.
- String insulators.
- Under ground cables

**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.	