



Hashemite University
College of Engineering
Department of Electrical Engineering
EE 461-Power Systems (3 Credit Hours/Dept. Compulsory)

Instructor		Grading info		Class Info	
Dr. Mahmood Saadeh		Test 1	25%	Days	Sun/Mon/Tue/Wed
Email:	saadeh_mahmood@yahoo.com	Test 2	25%	Time	12:00-1:00 PM
Office:	Eng. 3043	Popup Oral Quizzes	10%	Location	EE 2010
Office hours:	Wed : 12:30-3:15	Final	40%		

Course

Course Number:	110409461
Prerequisite:	Electrical Machines 1 (110409361), covering the following topics: <ul style="list-style-type: none"> - Basic AC circuit analysis concepts. - Transformers. - Electrical Machines concepts and circuit models
Textbook:	“Power System Analysis and Design” , 5th edition, Glover J. Duncan, Mulukulta S. Sarma, & Overbye J. Thomas, 2011.
Course Description:	Fundamentals of power systems generation, transmission, and distribution. Transformer principles, synchronous machines, transmission line parameters and calculations. Types of conductors, series resistance, series inductance of three-phase transmission lines and capacitances. Short, medium and long models of transmission lines. Introduction to the Jordanian code of practice for construction in terms of internal lighting and electrical wiring and constructions will also be covered.
Specific Outcomes of Instruction (Course Learning Outcomes):	<ol style="list-style-type: none"> 1. Demonstrate general knowledge of power systems (a, e) 2. Calculate the series impedance of the transmission line (a, e) 3. Calculate the shunt admittance of the transmission line.(a, e) 4. Demonstrate knowledge of current and voltage relationships on a transmission line.(a, e, j) 5. Calculate the admittance and impedance models of power systems (a, e, j)
Important material	<ol style="list-style-type: none"> 6. Lecture notes 7. References 8. Internet resources

References:

- **“Power System Analysis”**, Hadi Saadat, McGraw-Hill, 1999.
- **“Power System Analysis”**, Authors: John J. Grainger & William D. Stevenson, McGraw-Hill International Edition, 1994.

Major Topics Covered and Schedule in Weeks:

Topic	# Weeks	# Contact hours*
Basic knowledge of power systems	4	12
Transmission lines and their parameters	3	9
Series impedance of transmission lines	2	6
Shunt admittance of transmission lines	2	6
Voltage-current relationships of transmission lines	2	6
Admittance and impedance models of transmission systems	2	6
Total	15	45

Course Policy

- If you miss class, there won't be a makeup test, quiz, etc. and you WILL get a zero unless you have a valid excuse.
- Cheating and plagiarism are completely prohibited.
- If you miss more than 15% of classes you will automatically fail the class. ¹

Student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
(a)	An ability to apply knowledge of mathematics, science, and engineering	M
(b)	An ability to design and conduct experiments, as well as to 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 multidisciplinary teams	
(e)	An ability to identify, formulate, and solve engineering problems	H
(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 context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	A knowledge of contemporary issues	L
(k)	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	

H=High, M= Medium, L=Low