



**Jordan University of Science and Technology**  
**Faculty of Engineering**  
**Electrical Engineering Department**

EE582 Power Systems Lab - JNQF Level: 7

Second Semester 2023-2024

**Course Catalog**

1 Credit Hours. Transmission line performance under different operating conditions. Real and reactive power flow and control for a transmission line. Characteristics of different types of relays. Power system protection using relays. Measurement of sequence components. Balanced and unbalanced faults. Power system stability. Alternators paralleling. Voltage and frequency control of power system. Induction generators .

**Teaching Method:** On Campus

**Text Book**

<b>Title</b>	Lab. manual
<b>Author(s)</b>	LabVolt
<b>Edition</b>	1st Edition
<b>Short Name</b>	Text Book
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
Ref#1	Power System Analysis	H. Saadat	2nd Edition	

**Instructor**

<b>Name</b>	<b>Mr. MOHAMMAD AL-SHRIDA</b>
<b>Office Location</b>	E2 L-3
<b>Office Hours</b>	Sun : 11:30 - 12:30 Sun : 13:30 - 14:30 Tue : 11:30 - 12:30 Wed : 12:30 - 14:30 Thu : 11:30 - 12:30
<b>Email</b>	mzshrida@just.edu.jo

<b>Class Schedule &amp; Room</b>
Section 3: Lecture Time: Mon : 14:30 - 17:30 Room: LAB

<b>Tentative List of Topics Covered</b>		
<b>Weeks</b>	<b>Topic</b>	<b>References</b>
Week 1	Introduction	From <b>Text Book</b>
Week 2	Transmission line parameters and constants	From <b>Text Book</b>
Week 3	Sequence Impedances of alternators	From <b>Text Book</b>
Week 4	Alternator control	From <b>Text Book</b>
Week 5	Magnitude Inverse Time current relay & Directional Overcurrent Relay	From <b>Text Book</b>
Week 6	Phase Angle and Voltage Drop Between Sender & Receiver	From <b>Text Book</b>
Week 8	Induction Generators	From <b>Text Book</b>
Week 9	Operation of Generators in Parallel	From <b>Text Book</b>
Week 10	Buck boost and phase shift transformers	From <b>Text Book</b>
Week 11	Parameters which affect real and reactive power flow	From <b>Text Book</b>
Week 12	Differential Protection	From <b>Text Book</b>

<b>Mapping of Course Outcomes to Program Outcomes and NQF Outcomes</b>	<b>Course Outcome Weight (Out of 100%)</b>	<b>Assessment method</b>
Determine transmission line parameters and power flow quantities for different transmission line configurations and settings by performing needed measurements. [1SO6] [1L7S1]	29%	reports, Final, mid term exam, Quizzes
Practice the principles of paralleling alternators and connecting alternators on the grid. [1SO6] [1L7S1]	9%	reports, Final, Quizzes
Practice the principles of controlling the voltage, frequency, and power output of an alternator. [1SO6] [1L7S1]	19%	reports, Final, mid term exam, Quizzes
Practice the principles of power system protection using overcurrent, directional, and differential relays. [1SO6] [1L7S1]	19%	reports, Final, mid term exam, Quizzes
Determine the sequence impedances for fault studies by performing needed measurements. [1SO6] [1L7S1]	19%	reports, mid term exam, Quizzes
Demonstrate effective collaboration and personal responsibility within a team setting. [1SO5] [1L7C3]	5%	Performance

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
				5	95	

Relationship to NQF Outcomes (Out of 100%)	
L7S1	L7C3
95	5

Evaluation	
Assessment Tool	Weight
reports	15%
Final	40%
mid term exam	30%
Quizzes	10%
Performance	5%

Date Printed: 2024-03-03