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

EE730 Advanced Power System Analysis - JNQF Level: 9
First Semester 2023-2024

Course Catalog
3 Credit Hours. Advanced Power Systems Analysis: 3 Credit hours (3 h lectures). Power Flow, Economic Dispatch, Introduction to Optimization, State Estimation in Power Systems, Optimal Power Flow, Power system Security, Unit Commitment.
Teaching Method: On Campus

Text Book	
Title	Power Generation, Operation and Control
Author(s)	Allen. J. Wood and Bruce F. Wollenberg
Edition	1st Edition
Short Name	Textbook
Other Information	

Instructor	
Name	**Dr. AHMAD ABU ELRUB**
Office Location	E1L2
Office Hours	Mon : 08:30 - 10:00 Tue : 13:00 - 14:30 Wed : 08:30 - 10:00 Thu : 08:30 - 10:00
Email	amabuelrub@just.edu.jo

Class Schedule & Room

Section 1:
 Lecture Time: Tue : 14:30 - 17:30
 Room: LAB

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Weeks 1, 2	Review of power flow	
Weeks 3, 4	Review of economic dispatch	
Weeks 5, 6	Introduction to optimization	
Weeks 7, 8	State estimation in power systems	
Weeks 9, 10	Power system security	
Weeks 11, 12	Optimal power Flow	
Weeks 13, 14, 15	Unit commitment	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	**Course Outcome Weight (Out of 100%)**	**Assessment method**
Apply numerical methods for solving power flow equations. [1L9K1]	10%	
Formulate and solve economic dispatch optimization problems. [1L9K1]	10%	
Develop a solid understanding of optimization techniques applicable to power systems. [1L9K1]	10%	
Understand the importance of state estimation in real-time power system operation and implement and analyze state estimation algorithms. [1L9K1]	15%	
Identify and evaluate potential security threats to power systems. [1L9K1]	10%	
Formulate and solve optimal power flow problems. [1L9K1]	10%	
Formulate and solve unit commitment optimization problems. [1L9K1]	10%	
Conduct in-depth research on a specific topic related to advanced power system analysis. [1L9C1]	25%	

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

Relationship to NQF Outcomes (Out of 100%)	
L9K1	L9C1
75	25

Evaluation	
Assessment Tool	**Weight**
First exam	20%
Second exam	20%
Homework	10%
Final exam	50%

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