Jordan University of Science and Technology

Faculty of Engineering

Electrical Engineering Department

EE739 Special Topics In Power

Second Semester 2020-2021

Course Catalog
3 Credit Hours. Power System Planning: 3 Credit hours (3 h lectures). Quantitative Reliability, Probability Theory, Stochastic Processes, Frequency Balance, Power System Reliability, Generation System Reliability, Multi-Area Power System Reliability, Composite Power System.

Text Book	
Title	System Reliability Modelling and Evaluation, Hutchinson, London, 1977
Author(s)	C. Singh & R. Billinton
Edition	1st Edition
Short Name	Textbook
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #1	Reliability Evaluation of Power Systems, Plenum Press, 1984	R. Billinton & R. Allan	1st Edition	

Instructor	
Name	**Dr. AHMAD ABU ELRUB**
Office Location	E1L2
Office Hours	Sun : 11:00 - 12:30 Mon : 11:30 - 13:00 Tue : 11:00 - 12:30 Wed : 11:30 - 13:00
Email	amabuelrub@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Tue : 14:30 - 17:30 Room: 150 منصة الكترونية

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Introduction to quantitative reliability analysis.	From **Textbook**
Week 2	Probability theory and stochastic processes.	From **Textbook**
Week 3	Frequency balance approach for reliability analysis	From **Textbook**
Week 4	Methods of quantitative reliability analysis	
Weeks 5, 6	Generation system reliability ? single node analysis	From **Textbook**
Week 7	Multi-area power system reliability ? multi node analysis.	
Weeks 8, 9, 10	Composite power system (generation and transmission) reliability evaluation ? expanded multi node analysis.	
Weeks 11, 12	Monte Carlo simulation to assist power system reliability	
Weeks 13, 14	Monte Carlo simulation to assist power system reliability	
Weeks 15, 16	Reliability of energy cyber-physical systems. _____	

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Probability theory	25%	Midterm exam
Reliability analysis	50%	Final exam
Monte Carlo simulation	25%	Project

Relationship to Program Student Outcomes (Out of 100%)						
ABET1	ABET2	ABET3	ABET4	ABET5	ABET6	ABET7

Evaluation	
Assessment Tool	**Weight**

Midterm exam	25%
Project	25%
Final exam	50%

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