MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering

Course Code	Course Name	Credits	Contact Hours
0401584	Reliability and Economics of power Systems	3	3 T

INSTRUCTOR/COORDINATOR	
Name	Prof. Hussein Al-Majali
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Office Hours	11:00-12:00 (Sun, Tues, Thur)

TEXTBOOK	
Title	Fundamentals of Power System Economics, 2nd Edition
Author/Year/Edition	Daniel S. Kirschen, Goran Strbac, Wiley/2018/ 2nd Ed
Other Supplemental Materials	
Title	The Economics of Power System Reliability and Planning
Author/Year/Edition	Walter **G.** Scott *and* Mark Gellerson, Johns Hopkins University Press,1979/

SPECIFIC COURSE INFORMATION
A. Brief Description of the Content of the Course (Catalog Description)
Deterministic techniques for reliability evaluation; Probabilistic techniques for reliability evaluation of generation, transmission and distribution subsystems; cost of outages; reliability versus economics.
B. Pre-requisites (P) or Co-requisites (C)
……..
C. Course Type (Required or Elective)
Elective

SPECIFIC GOALS

A. Course Learning Outcomes (CLOs)

By the end of this course, the student should be able to:
CLO1: Learn the basics of the reliability techniques [1]
CLO2: Evaluation of generation, transmission and distribution subsystems [2]
CLO3: Be able to analysis the reliability versus economics [4]

B. Student Learning Outcomes (SLOs) Addressed by the Course

1	2	3	4	5	6	7
✓	✓		✓			

BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Chapter 1: Introduction to reliability	1	3
Chapter 2: Reliability evaluation techniques	2	6
Chapter 3: Probabilistic techniques for reliability	2	6
Chapter 4: Evaluation of generation	1	3
Chapter 5: Evaluation of transmission	1	3
Chapter 6: Evaluation of distribution subsystems	2	6
Chapter 7: Cost of outages	3	9
Chapter 8: Reliability versus economics.	2	6
Tutorial classes if needed.		
Total	*14*	*42*

EVALUATION

Assessment Tool	Due Date	Weight (%)
Mid Exam	According to the university calendar	30
Course Work (Homeworks, Quizzes, Projects, …etc.)	One week after being assigned	20
Final Exam	According to the university calendar	50

ABET's Students Learning Outcomes (Criterion # 3)

	Relationship to program outcome	
ABET 1-7		
1.	✓	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2.	✓	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3.		an ability to communicate effectively with a range of audiences.
4.	✓	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5.		an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6.		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7.		an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.