



MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering



Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0401582	Power Transmission and Distribution: Planning and Design	3	3T

INSTRUCTOR/COORDINATOR

Name	Dr. Ziyad S. Almajali
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Office Hours	9:00-10:00 (Sun, Tues, Thur)

TEXTBOOK

Title	Electric Power Distribution System Engineering
Author/Year/Edition	Turan Gonen/ 2014 /3rd
Other Supplemental Materials	
Title	Distribution System Modeling and Analysis,
Author/Year/Edition	William H. Kersting/ 2018 / 4th

SPECIFIC COURSE INFORMATION

A. Brief Description of the Content of the Course (Catalog Description)

Introduction to power systems; load expectation and characteristics; planning of transmission and distribution network; substations; primary and secondary systems design; voltage regulation; reliability calculations in power systems;

B. Pre-requisites (P) or Co-requisites (C)

Power systems (2) (0401482) (P)

C. Course Type (Required or Elective)

Required

SPECIFIC GOALS

A. Course Learning Outcomes (CLOs)

By the end of this course, the student should be able to:

CLO1: Know the load characteristics modeling for power distribution [1].

CLO2: Know and solve exercises for power distribution system operation using Approximate Methods of Distribution Systems Analysis for Voltage drop, Power losses [1]

CLO3: Know and solve exercises for distribution system design, location, and rating [2].

CLO4: Differentiate between various Switching configuration and bus schemes [1].

CLO5: Know and solve exercises for grounding system design [2].

CLO6: Know and solve exercises for distribution system reliability [1].

B. Student Learning Outcomes (SOs) 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
Introduction	1	3
Load characteristics & Load modeling of distribution networks	2	6
<ul style="list-style-type: none"> Approximate Methods of Distribution Systems Analysis, Voltage drop, Power losses 	2	6
<ul style="list-style-type: none"> The rating of substation, Location and Sizing 	1	3
<ul style="list-style-type: none"> Distribution system voltage regulation 	2	6
Switching configuration and bus schemes	2	6
substation grounding and earthing	2	6
<ul style="list-style-type: none"> Distribution system Reliability 	2	6
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)

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Relationship to program outcomes		
ABET 1-7		Engineering Student Outcomes
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.