



**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**

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<b>Office Hours</b>	9:00-10:00 (Sun, Tues, Thur)

**TEXTBOOK**

<b>Title</b>	Electric Power Distribution System Engineering
<b>Author/Year/Edition</b>	Turan Gonen/ 2014 /3rd
<b>Other Supplemental Materials</b>	
<b>Title</b>	Distribution System Modeling and Analysis,
<b>Author/Year/Edition</b>	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"><li>Approximate Methods of Distribution Systems Analysis, Voltage drop, Power losses</li></ul>	2	6
<ul style="list-style-type: none"><li>The rating of substation, Location and Sizing</li></ul>	1	3
<ul style="list-style-type: none"><li>Distribution system voltage regulation</li></ul>	2	6
Switching configuration and bus schemes	2	6
substation grounding and earthing	2	6
<ul style="list-style-type: none"><li>Distribution system Reliability</li></ul>	2	6
<i>Total</i>	<i>14</i>	<i>42</i>

## 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.