

TOROS ÜNİVERSİTESİ

Faculty Of Engineering
Electrical And Electronics Engineering (English)

Course Information

UTILIZATION OF ELECTRICAL ENERGY					
Code	Semester	Theoretical	Practice	National Credit	ECTS Credit
		Hour / Week			
EEE316	Spring	3	0	3	5

Prerequisites and co-requisites	
Language of instruction	English
Type	Required
Level of Course	Bachelor's
Lecturer	Assoc. Prof. Ahmet TEKE
Mode of Delivery	Face to Face
Suggested Subject	
Professional practise (internship)	None
Objectives of the Course	To teach the general concepts and fundamental engineering calculations of electrical energy generation, transmission and distribution.
Contents of the Course	Generation of electrical energy, Distribution of electrical energy; 3-phase systems, transformers, transmission lines and parameters, transmission line equipment, Three phase systems, Active and reactive energy; power factor correction. Choice of voltage levels. Current and voltage transformers. Overcurrent and thermal protection. Earthing Methods, Power Plants.

Learning Outcomes of Course

#	Learning Outcomes
1	To define Electrical Energy Generation, Transmission and Distribution.
2	To indicate analysis of three phase circuits
3	To explain three phase power calculations
4	To explain design and calculate reactive power compensation systems
5	To present fundamental energy calculations of electric generation plants.

Course Syllabus

#	Subjects	Teaching Methods and Technics
1	The Introduction to Electric Generation, Transmission and Distribution	lecture
2	Active and Reactive Power, Complex Power, Power Calculation	lecture
3	The analysis of Three Phase Systems, Y-Y, Y-D Circuits	lecture
4	The analysis of Three Phase Systems, D-Y, D-D Circuits	lecture
5	The Calculation of Active and Reactive Power in Three Phase Systems	lecture
6	The Systems and Calculation of Reactive Power Compensation	lecture
7	Midterm exam	
8	The Systems and Calculation of Reactive Power Compensation	lecture
9	The Electric Energy Generation, Generation Sources and Energy Calculation	lecture
10	Transmission Lines, Transmission Lines Parameters	lecture

11	Short, Medium and Length Transmission Line Calculation	lecture
12	Distribution Systems, The Calculation of Radial, Ring and Network Systems	lecture
13	The Protection in Transmission and Distribution Lines, relays, Current and Voltage Transformers	lecture
14	The Calculation and Methods of Grounding	lecture
15		
16	Final Exam	

Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	Electric Machinery Fundamentals, S. J. Chapman,		
2	Electrical machines and drives, J. Hindmarsh, Electric machines and electromechanics, S. Nasar,		
3	Electrical machines, J. Nagrath, Electrical machinery, A. E. Fitzgerald		

Method of Assessment

#	Weight	Work Type	Work Title
1	40%	Mid-Term Exam	Mid-Term Exam
2	60%	Final Exam	Final Exam

Relationship between Learning Outcomes of Course and Program Outcomes

#	Learning Outcomes	Program Outcomes	Method of Assessment
1	To define Electrical Energy Generation, Transmission and Distribution.	1	1,2
2	To indicate analysis of three phase circuits	1	1,2
3	To explain three phase power calculations	1	1,2
4	To explain design and calculate reactive power compensation systems	1	1,2
5	To present fundamental energy calculations of electric generation plants.	1	1,2

PS. The numbers, which are shown in the column Method of Assessment, presents the methods shown in the previous table, titled as Method of Assessment.

Work Load Details

#	Type of Work	Quantity	Time (Hour)	Work Load
1	Course Duration	14	3	42
2	Course Duration Except Class (Preliminary Study, Enhancement)	14	3	42
3	Presentation and Seminar Preparation	0	0	0
4	Web Research, Library and Archival Work	0	0	0
5	Document/Information Listing	0	0	0
6	Workshop	0	0	0
7	Preparation for Midterm Exam	1	8	8
8	Midterm Exam	1	18	18
9	Quiz	0	0	0
10	Homework	0	0	0
11	Midterm Project	0	0	0
12	Midterm Exercise	0	0	0
13	Final Project	0	0	0

14	Final Exercise	0	0	0
15	Preparation for Final Exam	1	8	8
16	Final Exam	0	0	0
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