TOROS ÜNİVERSİTESİ

Faculty Of Engıneerıng
Electrıcal And Electronıcs Engıneerıng (Englısh)

Course Information

INTRODUCTION TO ELECTRICAL ENGINEERING					
Code	**Semester**	**Theoretical**	**Practice**	**National Credit**	**ECTS Credit**
		Hour / Week			
EEE112	Spring	3	0	3	4

Prerequisites and co-requisites	
Language of instruction	English
Type	Required
Level of Course	Bachelor's
Lecturer	Prof. Dr. Cemil Cengiz ARCASOY
Mode of Delivery	Face to Face
Suggested Subject	
Professional practise (internship)	None
Objectives of the Course	Introducing the basic components and fundamental variables of the electrical circuit. Comprehending the fundamental electric laws, circuit theorems and circuit analysis methods. Giving the the behaviors of the fist and second order circuits onder dc conditions.
Contents of the Course	"The relationships between the circuit variables. Ohm’s and Kirchhoff’s Laws. Fundamental circuit analysis methods; nodal and mesh analysis. Circuit theorems; source transformations, superposition, maximum power transfer, Thevenin’s and Norton’s theorems. Analysis of the first and second order circuits including reactive circuit elements onder dc conditions. "

Learning Outcomes of Course

#	Learning Outcomes
1	Getting knowledge about Basic concepts; charge and current, voltage, power and energy. Relationships between the circuit variables. Passive and active circuit elements.
2	Getting knowledge about Ohm’s and Kirchhoff’s laws. Series resistors and voltage dividers, Paralel resistors and current dividers. Wye-delta and delta-wye transformations.DC meters.
3	Getting knowledge about Nodal analysis and mesh analysis, super node and super mesh.
4	Getting knowledge about Superposition theorem, source transformation, Thevenin ve Norton theorems, maxsimum power transfer theorem.

Course Syllabus

#	Subjects	Teaching Methods and Technics
1	Basic concepts; charge and current, voltage, power and energy. Relationships between the circuit variables. Passive and active circuit elements.	lecture, presentation, discussion
2	Ohm’s and Kirchhoff’s laws. Series resistors and voltage dividers, Paralel resistors and current dividers. Wye-delta and delta-wye transformations.DC meters.	lecture, presentation, discussion
3	Nodal analysis and mesh analysis, super node and super mesh.	lecture, presentation, discussion
4	Superposition theorem, source transformation, Thevenin ve Norton theorems, maxsimum power transfer theorem.	lecture, presentation, discussion
5	Operational amplifiers. Ideal operational amplifiers. Inverting and noninverting amplifiers.	lecture, presentation,

		discussion
6	Summing and difference amplifiers. Cascade connection and some applications of operational amplifiers.	lecture, presentation, discussion
7	Review and midterm examination	
8	Capacitors and inductors. The terminal relationships of capacitors and inductors. Series and paralel conections of capacitors and inductors.	lecture, presentation, discussion
9	The behaviors of capacitors and inductors at dc conditions.	lecture, presentation, discussion
10	The analysis of source-free RL and RC circuits at dc conditions. Step responce of RL and RC circuits.	lecture, presentation, discussion
11	Analysis of first order operational amplifier circuits. Switching functions.	lecture, presentation, discussion
12	Finding the initial and final values of capacitor voltage and inductor current. Analysis of series and paralel source-free RLC circuits under dc conditions.	lecture, presentation, discussion
13	Step responce of series and paralel RLC circuits.	lecture, presentation, discussion
14	Analysis of the second order operational amplifier circuits.	lecture, presentation, discussion
15	Analysis of the general second order RLC circuits.	lecture, presentation, discussion
16	Final Exam	

Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	Elektrik Devre Analizi I, Turgut İkiz, Nobel Kitabevi, 2010,		
2	Fundamentals of Electric Circuits, Charles K. Alexander, McGraw-Hill		

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	Getting knowledge about Basic concepts; charge and current, voltage, power and energy. Relationships between the circuit variables. Passive and active circuit elements.	1	1,2
2	Getting knowledge about Ohm’s and Kirchhoff’s laws. Series resistors and voltage dividers, Paralel resistors and current dividers. Wye-delta and delta-wye transformations.DC meters.	3	1,2
3	Getting knowledge about Nodal analysis and mesh analysis, super node and super mesh.	3	1,2
4	Getting knowledge about Superposition theorem, source transformation, Thevenin ve Norton theorems, maxsimum power transfer theorem.	3,5	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	2	28
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	10	10
8	Midterm Exam	1	2	2
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	20	20
16	Final Exam	1	2	2
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