TOROS ÜNİVERSİTESİ

Faculty Of Engıneerıng
Electrıcal And Electronıcs Engıneerıng (Englısh)

Course Information

ELECTRIC CIRCUITS II					
Code	**Semester**	**Theoretical**	**Practice**	**National Credit**	**ECTS Credit**
		Hour / Week			
EEE202	Spring	3	2	4	6

Prerequisites and co-requisites	EEE201 Electric Circuits I
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)	Available
Objectives of the Course	Introduce the analysis of the ac circuit in phasor domain. Comprehend the ac power components. Introduc the concepts of the linear and ideal transformers. Give the concepts of the transfer function and filters. Comprehend the circuit analysis using Laplace transfpormation. Develop the concepts of the two terminal networks.
Contents of the Course	The analysis of ac circuits in phasor domain. Power analysis in ac circuits. Mutual inductance, lineear and ideal transformers. Transfer functions and filters. Circuit analysis using Laplace transform technique. Two-port network and two- port network parameters.

Learning Outcomes of Course

#	Learning Outcomes
1	Getting knowledge about Sinusoidals, phasors, terminal equations of circuit elements in phasor domain, impedance and atmittance, Basic laws in phasor domain, Equivalent impedance.
2	Getting knowledge about Instantaneous and average power, maximum average power transfer theorem, effective value, apparent power and power factor.
3	Getting knowledge about Balanced three-phase voltages, Analysis of the Wye-Why circuits, Analysis of the Wye-delta circuits.
4	Getting knowledge about Analysis of the delta-delta circuits, Analysis of the delta-Wye circuits, Power analysis in three-phase circuits.

Course Syllabus

#	Subjects	Teaching Methods and Technics
1	Sinusoidals, phasors, terminal equations of circuit elements in phasor domain, impedance and atmittance, Basic laws in phasor domain, Equivalent impedance.	lecture
2	Nodal analysis, Mesh analysis, superposition, source tranformations, Thevenin´s asnd Norton theorems in phasor domain.	lecture
3	Instantaneous and average power, maximum average power transfer theorem, effective value, apparent power and power factor.	lecture
4	Complex power, conservation of ac power, power factor correction.	lecture
5	Balanced three-phase voltages, Analysis of the Wye-Why circuits, Analysis of the Wye-delta circuits.	lecture
6	Analysis of the delta-delta circuits, Analysis of the delta-Wye circuits, Power analysis in three-phase circuits.	lecture

7	Midterm examination	
8	Mutual inductance, energy in coupled coils, linear transformers, ideal transformers, ideal autotransformers.	lecture
9	"Transfer functions, Series and parallel resonance circuits, Passive filters "	lecture
10	Bandwidth, quality factor, Determination of the characteristics of a general circuit.	lecture
11	Active filters; first order low-pass filter, first order high-pass filter, band-pass filter, band-stop filter.	lecture
12	Definition of the Laplace transform, properties of the Laplace transform, inverse Laplace transform.	lecture
13	The application of the Laplace transform to the electrical circuits, network stability and network synthesis in s-domain.	lecture
14	Impedance parameters, admittance parameters, hybrid parameters, transmission parameters.	lecture
15	Relationships between the parameters, interconnections of the two-port networks, Analysis of the networks including two-port networks with knowing parameters.	lecture
16	Final Exam	

Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	Elektrik Devre Analizi II Turgut İkiz, Nobel Kitabevi, 2011		
2	Fundamentals of Electric Circuits, Charles K. Alexander, McGraw-Hill		
3	Electric Circuits, James W. Nilsson, Addison-Wesley		

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 Sinusoidals, phasors, terminal equations of circuit elements in phasor domain, impedance and atmittance, Basic laws in phasor domain, Equivalent impedance.	1	1,2
2	Getting knowledge about Instantaneous and average power, maximum average power transfer theorem, effective value, apparent power and power factor.	3	1,2
3	Getting knowledge about Balanced three-phase voltages, Analysis of the Wye-Why circuits, Analysis of the Wye-delta circuits.	3	1,2
4	Getting knowledge about Analysis of the delta-delta circuits, Analysis of the delta-Wye circuits, Power analysis in three-phase circuits.	3	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	5	70
2	Course Duration Except Class (Preliminary Study, Enhancement)	14	4	56
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	9	9
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	1	10	10
14	Final Exercise	0	0	0
15	Preparation for Final Exam	1	5	5
16	Final Exam	1	3	3
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