

TOROS ÜNİVERSİTESİ

Faculty Of Engineering
Electrical And Electronics Engineering (English)

Course Information

COMPUTER AIDED CIRCUIT ANALYSIS					
Code	Semester	Theoretical	Practice	National Credit	ECTS Credit
		Hour / Week			
EEE210	Spring	3	2	4	5

Prerequisites and co-requisites	
Language of instruction	English
Type	Required
Level of Course	Bachelor's
Lecturer	Prof. Dr. C. Cengiz ARCASOY
Mode of Delivery	Face to Face
Suggested Subject	
Professional practise (internship)	None
Objectives of the Course	Widely used in industry today, using a simulation program for the circuit elements of the circuit elements and definitions modellerinin, this circuit elements and models of complex circuits with DC , AC , transient circuit analysis and design by Fourier analysis.
Contents of the Course	Circuit Elements and Model Definitions / Definitions of Various Source Parameters / Model Definitions of Voltage Controlled and Current Controlled Sources / DC Analysis of Voltage Controlled and Current Controlled Switches / DC Analysis of Circuits, Operation Point Analysis and Transfer Function Analysis / AC Analysis of Circuits / Analysis of Transient Regime Behavior of Circuits and Fourier Analysis /Simulation of Circuits Containing Voltage Controlled and Current Controlled Switches / Simulation of Ideal Transformer and Multiphase Transformer Circuits / Simulation of Circuits Containing Voltage Controlled and Current Controlled Switches / Simulation of Ideal Transformer and Multiphase Transformer Circuits /Simulation of Nonlinear Magnetic Circuits / Simulation of Non-sinusoidal Sources and Circuits with Non-Linear Loads

Learning Outcomes of Course

#	Learning Outcomes
1	The students describe circuit components and models.
2	The students analyse transient, Ac and Dc states of electrical circuits via using simulating program.
3	The students recognize simulation program.
4	The students solve the circuit problems by using simulation programme.

Course Syllabus

#	Subjects	Teaching Methods and Technics
1	Models Circuit Elements and Definitions	lecture and practice
2	Definition of Sub-Circuit Models	lecture and practice
3	Source Parameters of Various Definitions	lecture and practice
4	Voltage Controlled and Current-Controlled Resource Type Definitions	lecture and practice
5	Voltage controlled and current-controlled switches Model Definitions	lecture and practice
6	DC Circuits Analysis, Operating Point Analysis and Transfer Function Analysis	lecture and practice
7	Analysis of AC Circuits	lecture and practice

8	Analysis of Transient Behavior of Circuits and Fourier Analysis	lecture and practice
9	Circuits Design, Operation, Output Variables and Functions Interpretation, Simulation of circuits covering the various sources and loads	lecture and practice
10	Midterm	
11	Simulation of Circuits Containing Controlled Voltage and Current Controlled Resources	lecture and practice
12	Simulation of Circuits Containing Controlled Voltage and Current Controlled Switches	lecture and practice
13	Ideal Transformer and Transformer Circuits Simulation of Multiphase	lecture and practice
14	Simulation of Nonlinear Magnetic Circuits	lecture and practice
15	Simulation of Nonlinear Circuits Containing Resources and Non-Sinusoidal Loads	lecture and practice
16	Final Exam	

Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	Muhammed H. Rashid, "Introduction to PSpice Using ORCAD for Circuits and Electronics", 2008,		
2	Franz J. Monssen, "ORCAD PSpice with Circuit Analysis", 2001,		
3	Walter Bazhaf 1 "Computer-Aided Circuit Analysis Using PSpice", 1992		

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	The students describe circuit components and models.	1	1,2
2	The students analyse transient, Ac and Dc states of electrical circuits via using simulating program.	1	1,2
3	The students recognize simulation program.	1	1,2
4	The students solve the circuit problems by using simulation programme.	1	1

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	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	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
				146