

ECTS Course Description Form (TENTATIVE)

Course Title		Code	Semester	Hour (T+P)	Credit	ECTS
Circuit Analysis		EE 201	Fall	3+2	4	5
Lecture Hours		Tuesday 15:00-18:00 ACAD BUILD 7 #7203				
Prerequisites		EECS 201, MATH 206				
Language of Instruction		English				
Course Type (Required/ Elective)		Required				
Course Coordinator						
Instructors		Murat Doğruel				
Assistants		TBA				
Goals		The goal of the course is to develop a solid understanding of analysis of linear circuits and their application				
Course Content	The course content starts with introduction of basic circuit elements and analysis of the networks composed of these basic linear elements. The use of differential equations, phasors, Laplace and Fourier transforms in circuit analysis will be presented throughout the course. Not only the analysis but also the design of basic circuits will be taught through class exercises, homework and laboratory activities					
Learning Outcomes	<					

WEEKLY TOPICS		
Weeks	Topics	
1	- Introduction, EECS201 overview, EE201 preview - Voltage, Current, Power, Circuit Elements, Ohm's Law, Kirchoff's Laws	Read the necessary pages of the textbook and come to class prepared. Review the subjects studied and search the related websites afterwards.
2	- Superposition, Thevenin and Norton's theorem - OpAmp circuit	
3	- Capacitors, Inductors. - Source free RC and RL circuits	
4	- Singularity Functions, Step response of RC circuits - First Order Opamp Circuits, Step response of RL circuits	
5	- Step Response of RLC Circuits. - Second order circuits, Second-order OpAmp Circuits	
6	REVIEW and MIDTERM #1	
7	- Sinusoids, Phasors, Impedance, Admittance. - Circuit Analysis with Phasors.	
8	- Instantaneous, average, RMS power; Max. Power Transfer. - Transfer function, Bode plots.	
9	- Passive and Active Filters - Frequency and Magnitude Scaling	
10	- Bilateral and unilateral Laplace transform - LT properties Inverse Laplace Transform	
11	REVIEW and MIDTERM #2	
12	- Circuit analysis with Laplace. Transfer Functions - Poles and zeros of a system	
13	- Fourier Transform, and properties - Circuit applications, Parseval's Theorem	
14	- Two port Networks - Magnetically Coupled Circuit	

REFERENCES	
Main Textbook	Alexander/Sadiku: Fundamentals of Electric Circuits, 4E

ECTS / WORKING HOUR TABLE			
Activities	Number of Weeks	Duration (Hour)	Working Hour
Duration of the classes (Including Exams: 14 Total Weekly Course Hour)	14	3	42
Lab Working Hour (Preparatory Work, and Experiment)	14	2	28
Assignments, Presentations, Internet Studies, Lab Reports	14	4	56
Mid-term Exams	2	10	20
Final Exam	1	14	14
Total Working Hour			160
Total Working Hour / 30			5.33
ECTS Credit of the Course			5