## 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		ТВА					
Goals	-	The	goal of the cou	rse is to deve	lop a solid unde	rstanding	of analysis
	(	OT II thai	near circuits and	2			
Course	The course content starts	s wi	th introduction of	of basic circuit	elements and a	nalvsis of	the
Content	networks composed of th	hese	e basic linear ele	ements. The u	se of differentia	l equation	s. phasors.
Contone	Laplace and Fourier trans	r transforms in circuit analysis will be presented throughout the course. Not					
	only the analysis but also	out also the design of basic circuits will be taught through class exercises,					
	homework and laboratory	y ac	ctivities				
Learning	- Formulation of ci	ircu	it equations.				
Outcomes	- Network theorems.						
	- iransient response of first and second order circuits						
	<ul> <li>Frequency response</li> </ul>	- Frequency response of linear circuits.					
	- Poles and zeros.						
	- Bode plots.						
	- Two-port network	- Two-port networks.					
	- Laplace transform	ms	and their application	ation to circuit	S.		
	- Fourier transforms and their applications to circuits.						
	- Introduction to ar	nd	design of active	filters			
	This course satisfies proc	grar	m outcomes of a	all except 'd'.			
Teaching	Follow instructor's lectur	res,	Read the assig	ned text, Disc	uss, explain, cor	mpare and	answer
Method(s)	assigned questions, complete laboratory exercises.						
Assessment	Assessment Compo	ner	nt		Weigh	t in Asse	essment
Criteria	Lab	Lab 15%					
	Homework	10%					
	Midterm Exam (2) 40%						5
	Final Exam					35%	

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

## REFERENCES

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

ECTS / WORKING HOUR TABLE							
Activities	Number of Weeks	Duratio n (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				