CIRCUIT THEORY I

1	Course Title:	CIRCUIT THEORY I
2	Course Code:	EEM2101
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	2
6	Semester:	3
7	ECTS Credits Allocated:	7.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Doç. Dr. FIGEN ERTAŞ
15	Course Lecturers:	Yrd. Doç. Dr. Uğur Yalçın
16	Contact information of the Course Coordinator:	E-posta:fertas@uludag.edu.tr Tel: (224) 294 2017 Adres: Elektronik Mühendisliği Bölümü 5. Kat, No:512
17	Website:	http://home.uludag.edu.tr/~fertas
18	Objective of the Course:	To provide a good understanding of the basic concepts of DC circuit behavior, develop and solve mathematical representations for simple RLC circuits, understand the use of circuit analysis theorems and methods.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	Gain sufficient knowledge on circuit elements and their usage in circuits; the ability to model and solve electric circuit problems using theoretical and practical knowledge.
	2	Gain the ability to identify, model, and solve complex electric circuit problems; the ability to select and apply appropriate analysis and modelling methods for these problems.
	3	Gain the ability to design and conduct complex experiments and to collect, analyze and interpret data for electric circuit problems
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21	Course Content:	

Course Content:	

Week	Theoretical	Practice

1	General circuit element, charge, current; Voltage, sources, power; Resistance, Ohm's Law			
2	Kirchhoff's Laws, single loop/node circuits; R combinations, V & I division; Dependent sources			
3	Nodal analysis; Mesh analysis			
4	Superposition; Source transformations			
5	Thevenin's & Norton's Theorems; Maximum power transfer			
6	Circuits with ideal operational amplifiers			
7	Inductance; Capacitance; L and C combinations, duality			
8	Midterm Exam + Review of Past Lecturers			
9	RC Op-amp circuits, Intro 1st order circuits			
10	Source free/zero-input response; Step response			
11	Intro 2nd order circuits: LC undamped case; Source free case: real characteristic roots; Source free case: complex roots			
12	2nd order circuits with constant inputs; Further examples/ Applications			
13	Sinusoidal forcing function			
14	Review			

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	3.00	42.00
Homeworks	7	2.00	14.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	26.00	26.00
Others	0	0.00	0.00
Final Exams	1	26.00	26.00
Total Work Load			150.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			7.00

3. J. W. Nilsson & S. A. Riedel, Prentice-Hall, 2001 Principles of Electric Circuits, 7th Edition

4. Engineering Circuit Analysis, 6th Edition, W. H. Hayt, Jr., J. E. Kemmerly & S. M. Durbin.

5. Elektrik Devreleri, 3. Baskıdan Çeviri, Dr. M. T. Aydemir, Dr. K. C. Nakiboğlu, Schaum's

22	Assessment		
	TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
	Final Exam	1	60.00
	Total	2	100.00

Contribution of Term (Year) Learning Activities to Success Grade	40.00
Contribution of Final Exam to Success Grade	60.00
Total	100.00
Measurement and Evaluation Techniques Used in the Course	

24	**ECTS / WORK LOAD TABLE**

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low		3 Medium		4 High			5 Very High						