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:	6.00	
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. FİGEN ERTAŞ	
15	Course Lecturers:	Doç. Dr. Neyir Özcan SEMERCİ	
16	Contact information of the Course Coordinator:	E-posta:fertas@uludag.edu.tr Tel: (224) 294 2017 Adres: Elektrik-Elektronik Mühendisliği Bölümü, 5.Kat, No:524	
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:	To help students gain ability of modelling, analysing, and solving in application to electriccal circuits.	
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	
4	Mesh analysis	
5	Superposition; Source transformations	
6	Thevenin's & Norton's and Maximum power transfer Theorems;	
7	Circuits with ideal operational amplifiers	
8	Energy Storage Elements, Energy Storage in L&C, Series-Parallel Connection	
9	Initial conditions of Switched Circuits	
10	The Complete Responde of RL and RC Circuits	
11	Natural response of 2nd order circuits	
12	Forced response of 2nd order circuits	
13	Complete response of 2nd order circuits	
14	Roots in Complex Plane	

22	Textbooks, References and/or Other Materials:	1. Introduction to Electric Circuits, 5th Edition, R.C.Dorf & J.A.Svoboda, John Wiley & Sons, 2001 2. Electric Circuits, 6th Edition, J. W. Nilsson & S. A. Riedel, Prentice-Hall, 2001 3. Engineering Circuit Analysis, 6th Edition, W. H. Hayt, Jr., J. E. Kemmerly & S. M. Durbin, McGraw-Hill, 2002
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
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		Measurement and evaluation are performed according to the Rules & Regulations of Bursa Uludağ University on Undergraduate Education.

24	**ECTS / WORK LOAD TABLE**

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	10	2.00	20.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	36.00	36.00
Others	0	0.00	0.00
Final Exams	1	40.00	40.00
Total Work Load			216.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

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**				