COURSE CATALOG FORM

Course Code: EE227				**Course Name**: Electrical Circuits Laboratory			
Semester	**Lc + T + L**	**Credit**	**ECTS**	**Language**	**Category**	**Instructional Methods**	**Pre Requisites**
3/4	(0+0+2)	1	2	English	D1	Laboratory	EE225
Course Objectives				The goal of the course is ○ to familiarize the students with the fundamental electrical laboratory equipment such as multimeters, DC power supplies, function generators and oscilloscopes, ○ to teach the students the relationship and differences between theory and practice, ○ to help the students improve their practical skills on the analysis, simulation, experimental setup and measurement of basic electrical circuits.			
Course Content				Introduction to laboratory equipments, oscilloscope and signal generator. Two-terminal passive elements, Experimental verification of the fundamental circuit principles and theorems such as Ohm's, Kirchoff's laws and Thevenin's/Norton's, superposition theorems. Responses of first and second order circuits. Introduction to PSPICE.			
Course Learning Outcomes				At the end of the course, students will gain the following skills: 1. Ability to construct and troubleshoot DC/AC circuits, which are simple series/parallel combinations of linear electrical components, 2. Ability to use multimeters and scopes to correctly measure, record, tabulate and interpret measurements of electrical quantities such as voltage, current, resistance, power etc., 3. Ability to work in a team, to share the group responsibilities of circuit construction, troubleshooting, data measurement, and data presentation, 4. Ability to employ a circuit simulator (such as PSPICE) in solving electrical circuits, 5. Ability to write well-organized technical reports, 6. Professional and ethical responsibility,			
ISCED Category of the course							
Textbook				Laboratory Experiment Handouts (Avaliable on Course-Online).			
Other References				Electric Circuits, James W. Nillson – Susan A. Riedel, 9th Edition, Prentice Hall.			

COURSE PLAN

Week	Topics	Laboratory/Tutorial Work
1		Introduction and orientation
2		Introduction to laboratory equipment and measurement basics
3		Introduction to circuit simulation with PSPICE
4		Exp-1: Introduction to laboratory instruments
5		Exp-2: Two terminal resistive components
6		Exp-3: Ohm’s law and power in DC circuits
7		Exp-4: Kirchhoff’s voltage and current law
8		Exp-5: Superposition theorem
9		Exp-6: Thevenin’s and Norton’s theorem
10		Exp-7: Introduction to oscilloscope and signal generator
11		Exp-8: The capacitor and RC circuits
12		Exp-9: The inductor and RL circuits
13		Exp-10: Second order series RLC circuits
14		Experiment makeups

COURSE ASSESSMENT

	Activities	Quantity	Contribution (%)
Semester Activities	Quizzes		
	Reports	10	50
	Seminars		
	Homework	1	20
	Presentations		
	Midterm Exams		
	Project		
	Other		
FINAL EXAM		1	30
Total		12	100

ECTS - WORK LOAD TABLE

ACTIVITIES	Quantity	Time (h)	Work Load
Lectures			
Final Exam (Preparation included)	1	6	6
Quizzes			
Term Project			
Reports	10	1	10
Preliminary work	10		2
Seminars			
Out class working time			
Homework	1	4	4
Presentations			
Midterm Exams (Preparation included)			
Projects			
Laboratory Work	14	2	28
Total Work Load			50
ECTS Credits of the course (Total Work Load / 25)			50/25=2

Revision / Date	Coordinator / Prepared by	Approved by
05.02.2010 09.2014 08.2016	Dr. Ebru Gürsu ÇİMEN Assist. Prof. Dr. Ramazan KÖPRÜ Dr. Ebru Gürsu ÇİMEN	Prof. Dr. Ahmet Aksen