



**OSTİM TECHNICAL UNIVERSITY
FACULTY OF ENGINEERING
ELECTRICAL ELECTRONICS ENGINEERING DEPARTMENT
ELECTRICAL CIRCUITS LABORATORY
COURSE SYLLABUS FORM
2022-2023**

Course Name	Course Code	Period	Hour	Application Hour	Lab Hour	Credit	ECTS
Electrical Circuits Lab.	EEE 211	3	1	2	0	2	3

Prerequisite	
Language of Instruction	English
Course Status	Compulsory
Course Level	Bachelor
Method of Teaching	Face to face
Learning and Teaching Techniques of the Course	Theoretical and practical

Course Objective
At the end of this course, the student will learn: <ul style="list-style-type: none"> • basic circuit components • how to set up simple circuits and take measurements • design and implement a simple circuit in order to solve a given problem.

Learning Outcomes	
Student, who passed the course satisfactorily will be able to:	
1.	construct basic circuits
2	understand how a circuit that may consist of resistors, capacitors, inductors and operational amplifier works
3	use voltmeter and ampermeter to take measurements
4	analyze AC circuits using function generator and oscilloscope
5	design, implement and present a simple circuit in order to solve a given problem

Course Outline
Safety Issues. Voltage, current, resistance and power measuring instruments; signal generators; oscilloscopes. Terminal characteristics of linear and nonlinear resistors, capacitors and inductors. Experiments on resistive operational amplifier, RC RL and RLC circuits, impedance measurement.

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Weekly Topics and Related Preparation Studies		
Weeks	Topics	Preparation Studies
1	Ohm's Law	
2	Kirchhoff's Voltage Law (KVL) and Kirchhoff's Current Law (KCL) in a Passive Resistive Network.	
3	Mesh Analysis	
4	Nodal Analysis	
5	Average Value, Rms Value, Form Factor, Peak Factor of Sinusoidal Wave, Square Wave	
6	Superposition	
7	Verification of Thevenin's Theorem	
8	Midterm Exam	
9	Non-Inverting and Inverting Amplifier Circuits	
10	Differential Amplifier Circuits	
11	AC analysis of Series RC Circuits	
12	RC Low pass Filter	
13	RLC	
14	Recitation	
15	Final Exam	

Textbook(s)/References/Materials:
TextBook: EEE 203 Laboratory Manual, Orkun Can Dinçer, Ankara, 2020, OTÜ Reference: Devre Analizi ve Ölçme Bilgisi Laboratuvarı deneyleri, M.E.Şahin, OTÜ-Library: TK.454.S34, 2017 Electric Circuits, Global Edition, 11th Edition Susan Riedel, James W. Nilsson-2019

Assessment		
Studies	Number	Contribution margin (%)
Attendance		
Lab Reports	13	25
Application		
Field Study		
Course-Specific Internship (if any)		
Quizzes / Studio / Critical		
Homework		
Presentation		
Projects		
Report		
Seminar		
Midterm Exams / Midterm Jury	1	25
Practical Final	1	25
General Exam / Final Jury	1	25
	Total	100
Success Grade Contribution of Semester Studies		
Success Grade Contribution of End of Term		
	Total	

Course Category	
Basic Vocational Courses	
Specialization/Field Courses	
Support Courses	
Communication and Management Skills Courses	
Transferable Skills Courses	

Relationship Between Course Learning Outcomes and Program Competencies						
No	Learning Outcomes	Contribution Level				
		1	2	3	4	5
1	Foundations: understanding of and ability to apply fundamental science and engineering of permanent				x	
2	Breadth: familiarity with the diverse areas of Electrical and Electronics Engineering				x	
3	Depth: ability to apply in depth knowledge of one or more specializations within the diverse fields of Electrical and Electronics Engineering				x	
4	Design: ability to participate in creative, synthetic, integrative activities of EE design					x
5	Life-long learning: desire and ability to keep learning throughout life					X
6	Communication skills: ability to express ideas persuasively, in written and oral form					X

7	Social skills: ability to work with others, in professional and social settings				X	
8	Global view: appreciation of diversity in the world and in intellectual areas		X			
9	Professional ethics: ability to recognize and appreciate importance of ethical standards in professional work			x		

ECTS / Workload Table			
Activities	Number	Duration (Hours)	Total Workload
Course hours (Including the exam week: 16 x total course hours)	14	1	14
Laboratory	14	2	28
Application			
Course-Specific Internship			
Field Study			
Study Time Out of Class			
Presentation / Seminar Preparation			
Projects			
Reports	14	1	14
Homeworks			
Quizzes / Studio Review			
Preparation Time for Midterm Exams / Midterm Jury	1	2	2
Preparation Period for the Final Exam / General Jury	1	2	2
Total Workload			60