

ELEC3303 COURSE CATALOG INFO

Course Code : ELEC3303				Course Name : Electronics Laboratory			
Semester	Lecture (Le+T+L)	Local Credit	ECTS	Language	Category	Instructional Methods	Prerequisites
6	(0+0+2)	1	2	English	Core	Lecture	Corequisite: ELEC3302
Course Content	Diode characteristics and applications. Transistor biasing. Measurement of transistor parameters. Single and multistage transistor amplifiers. Amplifier frequency response. Design and simulation of differential amplifiers. Design and realization of active filters, oscillator circuits, power amplifiers.						
Course Outcomes	<p>CO 1. Use measurement devices and simulation software, analyze and interpret the measured data.</p> <p>CO 2. Measure the semiconductor diode characteristics, test and report the operation of diode application circuits.</p> <p>CO 3. Measure the transistor characteristics, test and report the operation of BJT and FET transistor amplifier circuits.</p> <p>CO 4. Measure the OPAMP parameters, test and report the operation of OPAMP application circuits.</p> <p>CO 5. Analyze differential amplifier and power amplifiers circuits using simulation tools, compare and report the simulated and measured responses.</p> <p>CO 6. Realize a basic analog electronic design project: Design, simulate, develop the experiment set-up and report.</p> <p>CO 7. Acquire teamwork skills by working in groups.</p>						

COURSE PLAN	
W1	Introduction to Lab and Measurement Devices
W2	Introduction to Proteus
W3	Semiconductor Junction Diodes & Characteristics
W4	Diode applications: Clamping, Clipping and Rectifier Circuits
W5	Bipolar Junction Transistor (BJT) Characteristics
W6	Common Emitter Transistor (BJT) Amplifiers
W7	Junction Field Effect Transistor (JFET) Characteristics
W8	Common-Source JFET Amplifiers
W9	Power Amplifiers
W10	BJT Differential Amplifiers

W11	Introduction to OPAMPs
W12	Project work
W13	Experiment makeups
W14	Project presentations

COURSE ASSESMENT AND ECTS WORK LOAD			
Type of Work	Count	ECTS WORK LOAD	
		Time (Hour)(Including prep. time)	Work Load
Attendance		0	0
Final Exam	1	5	5
Quizzes			0
Term project			0
Reports	10	1	10
Final Project			0
Seminar			0
Assignments			0
Presentation	1	1	1
Midterms			0
Project	1	4	4
Laboratory	14	2	28
Tutorial		0	0
Other(Self study, Paper reviews)	10		2
		Total work load	50
		Total work load/25	2
		ECTS Credit	2

COURSE ASSESMENT AND ECTS WORK LOAD

PO	Program Outcomes	CO
1	1.1. Adequate knowledge in fundamentals of mathematics (algebra, differential equations, integrals, probability etc), science (physics, chemistry, biology etc.) and computer science (programming and simulation);	
	1.2. ability to use theoretical and applied knowledge in these areas in complex engineering problems.	
2	2.1. Ability to identify, formulate, and solve complex engineering problems;	5
	2.2. ability to select and apply proper analysis and modeling methods for this purpose.	5
3	3.1. Ability to design and integrate components of a complex system or process, as they relate to Electrical and Electronics Engineering discipline, under realistic constraints and conditions, in such a way as to meet desired requirements;	6
	3.2. ability to apply modern design methods.	6
4	4.1. Ability to devise, select, and use techniques and tools needed for analyzing and solving complex problems encountered in engineering practice;	1,..,6
	4.2. ability to employ information technologies effectively.	
5	5.1. Ability to design experiments,	6
	5.2. ability to conduct experiments, gather, analyze and interpret data.	1,..,6
6	6.1. Ability to work in intra-disciplinary teams;	7
	6.2. ability to work in multi-disciplinary teams;	
	6.3. ability to take individual responsibilities.	7
7	7.1. Ability to effectively communicate via written and oral means;	
	7.2. knowledge of at least one foreign language;	
	7.3. ability to write effective reports and comprehend written reports;	2,..,5
	7.4. ability to write design and manufacturing reports	6
	7.5. ability to present effectively,	
	7.6. ability to give and follow clear instructions.	
8	8.1. Recognition of the need for lifelong learning;	

	8.2. ability to access information, to follow developments in science and technology, and to continue to educate him/herself.	
9	9.1. Consciousness to behave according to ethical principles, and about professional and ethical responsibility;	
	9.2. knowledge on standards used in engineering practice.	
10	10.1. Knowledge about business life practices such as project management, risk management, and change management;	
	10.2. awareness in entrepreneurship, innovation;	
	10.3. knowledge about sustainable development.	
11	11.1. Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering;	
	11.2. awareness of the legal consequences of engineering solutions.	

Revision Date	Prepared by	Approved by
1.9.2019	Dr..Ebru Gürsu Çimen	Prof.Dr. Ahmet Aksen
1.6.2021	Doç. Dr. Ramazan Köprü	