



ESOGÜ Electrical-Electronics Engineering Department

COURSE CODE: 151225335 - 151245335

COURSE TITLE: Electronics I

Semester	Weekly Hours		COURSE			
	Theoretical	Practical	Credits	ECTS	Type	Language
5	3	0	3	5	Compulsory (x) Elective ()	Turkish () English (x)
Write the credit (for non-credit courses weekly hours) below (If necessary distribute the credits.).						
Math and Basic Science		Electrical Engineering [mark (√) if there is high design content]		General Education	Humanities	
		3 (x)				
Assessment		THEORETICAL-PRACTICAL COURSES			LABORATORY COURSES	
		Type	Number	%	Activity Type	Number %
Midterm		Midterm	1	30	Quiz	
		Quiz	2	20	Lab performance	
		Homework	4	10	Report	
		Project			Oral exam	
		Other (.....)			Other (.....)	
Final			1	40		
Makeup exam (Oral/Written)						
Prerequisites		Circuit Analysis I				
Brief content of the course		Introduction to electronics, operational amplifiers, diodes, bipolar junction transistors, field effect transistors, single stage amplifiers at mid frequencies, differential amplifiers				
Objectives of the course		To emphasize the need for amplifiers Introduction of basic amplifier configurations Analysis and design of amplifier circuits				
Contribution of the course towards professional education		The importance of linear amplifiers in the analog signal processing is emphasized in this course. The analysis and design of amplifier circuits are given.				
Outcomes of the course		Students who successfully complete this course will be able to analyze the amplifier circuits for input resistance, output resistance and voltage gain. They could also calculate the current and power gains. Design approaches are also practiced.				
Textbook of the course		A.S. Sedra and K.C. Smith, Microelectronic Circuits, 7 th Ed. OUP, 2016. (Older editions are also welcome)				
Other reference books		R. Jaeger and T. Blalock, Microelectronic Circuit Design, 3 rd Ed. McGraw-Hill, 2006. D. Neamen, Microelectronics Circuit Analysis and Design, 4 th Ed. McGraw-Hill, 2010.				
Required material for the course		An electronic calculator would be helpful				

WEEKLY PLAN OF THE COURSE	
Week	Topics
1	Introduction to electronics, amplifier models
2	Ideal opamp and its applications
3	Real opamp and limitations
4	Diodes and applications
5	BJT principles and bias circuits
6	BJT amplifiers
7	Amplifier design
8	Midterm
9	Midterm
10	FET principles and bias circuits
11	FET amplifiers
12	Amplifier design
13	Differential amplifiers
14	Course review
15,16	Final

NO	OUTCOMES OF THE PROGRAMME	4	3	2	1
1	Adequate knowledge of mathematics, science and Electrical and Electronic Engineering; ability to practice theoretical and practical knowledge of these areas into modeling and solving complex problems of Electrical and Electronic Engineering		X		
2	Ability to identify complex engineering problems in Electrical and Electronic Engineering and related fields, for this purpose having skills to formulate, select and apply appropriate methods.	X			
3	Having skills to apply modern design methods to design a complex system, process, equipment or product that should work under realistic conditions and constraints and satisfy specific requirements concerning the Electrical and Electronic Engineering.		X		
4	Having skills to develop, select and apply modern techniques and tools needed to analyze and solve complex applications in Electrical and Electronic Engineering, skills to use information technology effectively.			X	
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of complex problems in Electrical and Electronic Engineering				
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.				
7	Communicating effectively in oral and written form both in Turkish and English. Effective report writing and understanding written reports, preparing design and manufacturing reports, making effective presentations, skills to give and receive clear and concise instructions.				
8	Awareness of the necessity of lifelong learning, access to information, monitoring developments in science and technology and the ability to self-renewing				
9	Understanding of professional and ethical responsibility				
10	Information on project management, change management and risk management practices, awareness on entrepreneurship and innovation, knowledge on sustainable development.				
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.				

Scale for assessing the contribution of the course to the program outcomes:

4: High 3: Medium 2: Low 1:None

Name of Instructor(s):

Asst. Prof. Dr. Faruk Dirisağlık

Signature(s):

Date: March 02, 2016