



ÇANKAYA UNIVERSITY

Faculty of Engineering

Course Definition Form

This form should be used for either an elective or a compulsory course being proposed and curricula development processes for an undergraduate curriculum at Çankaya University, Faculty of Engineering. Please fill in the form completely and submit the printed copy containing the approval of the Department Chair to the Dean's Office, and mail its electronic copy to deryac@cankaya.edu.tr. Upon the receipt of *both copies*, the printed copy will be forwarded to the Faculty Academic Board for approval. Incomplete forms will be returned to the Department. The approved form is finally sent to the President's office for approval by the Senate.

Part I. Basic Course Information

Department Name	ELECTRONIC AND COMMUNICATION ENGINEERING	Dept. Numeric Code	1 4
Course Code	E C E 2 8 1	Number of Weekly Lecture Hours	2
		Number of Weekly Lab/Tutorial Hours	2
		Number of Credit Hours	3
Course Web Site	ece281.cankaya.edu.tr	ECTS Credit	0 6

Course Name <i>This information will appear in the printed catalogs and on the web online catalog.</i>	
English Name	Electrical Circuits and Instrumentation + Laboratory
Turkish Name	Elektrik Devreleri ve Instrumantasyon

Course Description <i>Provide a brief overview of what is covered during the semester. This information will appear in the printed catalogs and on the web online catalog. Maximum 60 words.</i>	
DC and AC electrical circuits theory, waveforms, capacitors, inductors, 1 st order and 2 nd order transient circuits, power in AC and DC circuits, transformers	

Prerequisites (if any) <i>Give course codes and check all that are applicable.</i>	1 st	2 nd	3 rd	4 th
	<input type="checkbox"/> Consent of the Instructor	<input type="checkbox"/> Senior Standing	<input type="checkbox"/> Give others, if any.	
Co-requisites (if any)	1 st	2 nd	3 rd	4 th
Course Type <i>Check all that are applicable</i>	<input type="checkbox"/> Must course for dept. <input checked="" type="checkbox"/> Must course for other dept.(s) <input type="checkbox"/> Elective course for dept. <input type="checkbox"/> Elective course for other dept.(s)			

Course Classification <i>Give the appropriate percentages for each category.</i>					
Category	Mathematics & Natural Sciences	Engineering Sciences	Engineering Design	General Education	Other
Percentage		100			

Part II. Detailed Course Information**Course Objectives**

Explain the aims of the course. Maximum 100 words.

The aim is to provide the students with preliminary electrical circuit theory and electrical instrumentation knowledge

Learning Outcomes

Explain the learning outcomes of the course. Maximum 10 items.

1. Know how to analyze DC and AC circuits
2. Get to know capacitors and inductors
3. Get familiarized with 1st and 2nd order transient circuits
4. Be able to understand power considerations in DC and AC circuits
5. Understand singularity functions and signal waveforms

Textbook(s)

List the textbook(s), if any, and other related main course materials.

Author(s)	Title	Publisher	Publication Year	ISBN
James W. Nilsson; Susan Riedl	Electric Circuits	Prentice Hall	2010	0136114997

Reference Books

List the reference books as supplementary materials, if any.

Author(s)	Title	Publisher	Publication Year	ISBN

Teaching Policy

Explain how you will organize the course (lectures, laboratories, tutorials, studio work, seminars, etc.)

2 hours of lecturing and 2 hour of laboratory per week

Laboratory/Studio Work

Give the number of laboratory/studio hours required per week, if any, to do supervised laboratory/studio work, and list the names of the laboratories/studios in which these sessions will be conducted.

construct and analyze circuits related to course subjects

Computer Usage

Briefly describe the computer usage and the hardware/software requirements in the course.

-

Course Outline <i>List the topics covered within each week.</i>	
Week	Topic(s)
1	Subjects of Measurement and Errors, Units of Standards, Analog Meters, Potentiometers, DC and AC Bridges, Instruments, Transformers, Electronic Measuring Instruments, Frequency and Phase Measurements, Transducers
2	Introduction (voltage, current, resistance, sources, power, series and parallel connections),
3	Circuit Theorems (Norton, Thevenin, Millmann, Delta/Y Connections), Node Voltage, Mesh Current, Loop Current Methods
4	Unit Step, Unit Ramp, Unit Impulse
5	Waveforms, Root Mean Square Value, Average Value,
6	Recitation
7	Review , 1 st Midterm exam
8	Capacitors , Inductors
9	First Order Transient Circuits,
10	Second Order Transient Circuits
11	AC Circuit Analysis
12	AC Power and Transformers
13	Recitation
14	Review , 2 nd Midterm exam

Grading Policy <i>List the assessment tools and their percentages that may give an idea about their relative importance to the end-of-semester grade.</i>								
Assessment Tool	Quantity	Percentage	Assessment Tool	Quantity	Percentage	Assessment Tool	Quantity	Percentage
Homework			Case Study			Attendance		
Quiz	2	5 (Bonus)	Lab Work	9	25	Field Study		
Midterm Exam	2	40	Class Participation			Project		
Term Paper			Oral Presentation			Final Exam	1	35

ECTS Workload <i>List all the activities considered under the ECTS.</i>			
Activity	Quantity	Duration (hours)	Total Workload (hours)
Attending Lectures (<i>weekly basis</i>)	14	2	28
Attending Labs/Recitations (<i>weekly basis</i>)	14	2	28
Preparation beforehand and finalizing of notes (<i>weekly basis</i>)	14	2	28
Collection and selection of relevant material (<i>once</i>)	1	4	4
Self study of relevant material (<i>weekly basis</i>)	14	2	28
Homework assignments	8	2	16
Preparation for Quizzes	0	0	0
Preparation for Midterm Exams (<i>including the duration of the exams</i>)	2	10	20
Preparation of Term Paper/Case Study Report (<i>including oral presentation</i>)	0	0	0
Preparation of Term Project/Field Study Report (<i>including oral presentation</i>)	0	0	0
Preparation for Final Exam (<i>including the duration of the exam</i>)	1	8	8
TOTAL WORKLOAD / 25			6,4
ECTS Credit			6

Total Workloads are calculated automatically by formulas. To update all the formulas in the document first press CTRL+A and then press F9.

Program Qualifications vs. Learning Outcomes						
<i>Consider the below program qualifications determined in terms of learning outcomes of all the courses in the curriculum and capabilities. Look at the learning outcomes of this course given above. Relate these two using the Likert Scale by marking with X in one of the five choices at the right..</i>						
No	Program Qualifications	Contribution				
		0	1	2	3	4
1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems.		x			
2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.		x			
3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose. (Realistic constraints and conditions may include factors such as economic and environmental issues, sustainability, manufacturability, ethics, health, safety issues, and social and political issues, according to the nature of the design.)		x			
4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.			x		
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.				x	
6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.			x		
7	Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language.		x			
8	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.		x			
9	Awareness of professional and ethical responsibility.		x			
10	Information about business life practices such as project management, risk management, and change management; awareness of entrepreneurship, innovation, and sustainable development.	x				
11	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety; awareness of the legal consequences of engineering solutions.	x				

Contribution Scale to a Qualification: 0-None, 1-Little, 2-Medium, 3-Considerable, 4-Largest

Part III New Course Proposal Information

State only if it is a new course

Is the new course replacing a former course in the curriculum?		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Former Course's Code E C E 2 3 1			Former Course's Name Electrical Circuit Instrumentation + Lab.		
Is there any similar course which has content overlap with other courses offered by the university?		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Most Similar Course's Code			Most Similar Course's Name		
Frequency of Offerings <i>Check all semesters that the course is planned to be offered.</i>				<input checked="" type="checkbox"/> Fall <input type="checkbox"/> Spring <input type="checkbox"/> Summer					
First Offering	Academic Year	2 0 0 1 / 2 0 0 2			Semester <input checked="" type="checkbox"/> Fall <input type="checkbox"/> Spring				
Maximum Class Size Proposed	<input type="checkbox"/>	Student Quota for Other Departments	<input type="checkbox"/>	Approximate Number of Students Expected to Take the Course			<input type="checkbox"/>		
Justification for the proposal <i>Maximum 80 words</i>									

Part IV Approval

Proposed by	Faculty Member <i>Give the Academic Title first.</i>	Signature	Date
	Asst. Prof. Dr. İbrahim Baran USLU		

Departmental Board Meeting Date		Meeting Number		Decision Number	
Department Chair	Dr. Öğr. Üyesi Özgür ERGÜL	Signature		Date	

Faculty Academic Board Meeting Date		Meeting Number		Decision Number	
Dean	Prof. Dr. S. Kemal İDER	Signature		Date	

Senate Meeting Date		Meeting Number		Decision Number	
------------------------	--	-------------------	--	--------------------	--