



**ESOGU ELECTRICAL - ELECTRONICS ENGINEERING DEPARTMENT
COURSE INFORMATION FORM**

Course Title	Course Code
CIRCUIT ANALYSIS II	151224562

Semester in Program	Number of Course Hours per Week		ECTS
	Theory	Practice	
4	4	0	7

Course ECTS Credit Distribution				
Basic Sciences	Engineering Sciences	Design	General Education	Social
2	5	0	0	0

Language of Instruction	Course Level	Course Type
English	Undergraduate	Required

Prerequisite	Circuit Analysis I
Objectives of the Course	Teaching sinusoidal circuit response and sinusoidal power. Teaching three-phase circuits and transformers. Analysing circuits using Laplace transform. Teaching frequency response of the circuits, active and passive filters.
Brief Course Content	Sinusoidal steady-state response, phasor, sinusoidal power calculations , three-phase circuits, transformers, Laplace transform, applications of Laplace transform in circuit analysis. Frequency response, passive and active filters, Bode diagrams.

Learning Outcomes of the Course	Contributed POs	Teaching Methods *	Assessment Methods **
1 Analyse sinusoidally-driven circuits	1,2,4a,6a	1,5,10	A,B,D
2 Analyse three-phase circuits and transformers	1,2,4a,6a	1,5,10	A,B,D
3 Know how to use laplace transform in circuit analysis	1,2,4a,6a	1,5,10	A,B,D
4 Analyse and design passive and active filters	1,2,4a,6a	1,5,10	A,B,D
5			
6			
7			
8			

*Teaching Methods 1:Lecture, 2:Discussion, 3:Experiment, 4:Simulation, 5:Question-Answer, 6:Tutorial, 7:Observation, 8:Case Study, 9:Technical Visit, 10:Problem Solving, 11:Individual Work, 12:Team/Group Work, 13:Brain Storm, 14:Project Design / Management, 15:Report Preparation and/or Presentation
 **Assessment Methods A:Exam, B:Quiz, C:Oral Exam, D:Homework, E:Report, F:Article Examination, G:Presentation, I:Experimental Skill, J:Project Observation, K:Class Attendance; L:Jury Exam

Main Textbook	Nilsson, J. W. and S. A. Riedel, Electric Circuits, Pearson Prentice Hall Inc., 10 th Ed. 2008.
Supplementary Resources	1) Hayt, W.H., Jack E. Kemmerly, Steven M. Durbin, Engineering Circuit Analysis, Mc Graw Hill, 8 th Ed. 2011 2) Richard C. Dorf, James A. Svoboda Introduction to Electric Circuits, Wiley, 7 th Ed. 2006 3) Charles K. Alexander, Matthew N.O. Sadiku, Fundamentals of Electric Circuits, Mc Graw Hill, 6 th Ed.
Necessary Course Material	

Course Weekly Schedule	
1	Sinusoidal steady state response. Phasors.
2	Analysis of AC circuits by phasor method.
3	AC power calculations. Average power, reactive power, complex power, power factor.
4	Balanced three-phase circuits. Analysis Y-Y connected circuit.
5	Analysis of Y- Δ connected circuits.
6	Power calculations in 3-phase circuits
7	Transformers
8	Mid-Term Exams
9	Introduction to Laplace transform
10	Application of Laplace transform in circuit analysis
11	Transfer function, sinusoidal steady-state response, impulse response
12	Frequency response, resonance circuits.
13	Passive filters
14	Bode diagrams
15	Active filters
16,17	Final Exams

Calculation of Course Workload			
Activities	Count	Time (Hour)	Total Workload (Hour)
Weekly classroom time	14	4	56
Weekly study time (review, reinforcing, preparation)	14	3	42
Homework	10	3	30
Taking a quiz	2	1	2
Studying for a quiz	2	3	6
Oral exam			
Studying for an oral exam			
Report writing (Preparation and presentation time included)			
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
Mid-Term Exam	1	2	2
Studying for Mid-Term Exam	1	25	25
Final Exam	1	2	2
Studying for Final Exam	1	25	25
		Total workload	190
		Total workload / 30	6,33
		Course ECTS Credit	7

Assessment	
Activity Type	%
Mid-term	30
Quiz	20
Homework	10
Final Exam	40
Total	100

COURSE CONTRIBUTION TO THE PROGRAM OUTCOMES

(5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)

NO	PROGRAM OUTCOMES	Contribution
1	a. Sufficient knowledge of mathematics	4
	b. Sufficient knowledge of basic sciences	4
	c. Sufficient basic engineering and Electrical-Electronics engineering knowledge	5
	d. Skill of applying all these knowledge and experience to complicated Electrical-Electronics engineering problems	5
2	Skill of defining, identifying, formulating and solving the complicated problems in Electrical-Electronics engineering and related areas by applying appropriate analysis and modelling methods.	5
3	Skill of designing a complicated process, system, equipment or product by applying modern design methods under realistic constraints and conditions.	
4	To analyze and solve the complicated engineering problems:	5
	a. skill of developing, selecting and applying the required techniques and devices	
	b. skill of using information technologies effectively	
5	To study the complicated on the complicated Electrical-Electronics engineering problems and research subjects:	
	a. skill of experimental design	
	b. skill of performing the experiments, collecting the data and analyzing and interpreting the results	
6	a. Skill of performing individual studies	5
	b. Skill of performing intra and interdisciplinary and multidisciplinary teamwork and studies	
7	a. Skill of effective oral and writing communication in Turkish	
	b. Skill of improving and using foreign language knowledge	
	c. Skill of effective reporting, understanding the reports and preparing the design and production reports	
	d. Skill of effective presentation and giving and getting clear and understandable instructions.	
8	Awareness of the necessity of life-long learning and skill of accessing to information and following the improvements in contemporary science and technology	
9	a. Awareness of necessity of behaving in accordance with the ethical principles and awareness of the importance of having professional ethical responsibilities	
	b. Knowledge about legal regulations and standards of engineering	
10	a. Knowledge about project management, risk management and change management	
	b. Awareness of the significance of entrepreneurship and innovation	
	c. Knowledge about sustainable development	
11	Knowledge about the effects of engineering applications and practices on the global and social health, ecology and safety, knowledge about the current problems in relation to the working areas of Electrical-Electronics engineering; and awareness of the legal issues resulting from engineering solutions	
12	Knowledge about modern problems in local and universal scale	

LECTURER(S)

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