

Identification	Subject (code, title, credits)	ETR 234 Analog Electronics- 6 ECTS credits	
	Department	Physics and Electronics	
	Program (undergraduate, graduate)	Undergraduate	
	Term	Spring, 2023	
	Instructor	Ahmad Asimov ph.D	
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	Classroom/hours	302N Monday/Wednesday	
	Office hours	Tuesday: 15:00-16:00/ Thursday: 15:00-16:00	
Prerequisites			
Language			
English			
Compulsory			
Compulsory			
Required textbooks and course materials			
Microelectronic Circuits, Adel S. Sedra and Kenneth C. Smith, Oxford University Press, 5th Edition,2004 Electronic Devices and Circuit Theory, Robert L. Boylestad <i>and</i> Louis Nashelsky, Pearson Higher Education,10thEdition2009 Electronic devices: Conventional current version (9th ed.), Floyd, T. L.,Pearson Education, Prentice Hall,2012 (Other references are provided is class as well) Introduction to Electrical Engineering,MutukulaSarma,Oxford			
Course Description			
This course develops a basic understanding of the fundamentals and principles of analog circuits and electronic devices in electrical and electronic engineering. This understanding is a critical step towards being able to design new electronic circuits or use them appropriately as part of a larger engineering system.			
Course objectives			
The aims of this course are to: - Introduce students to concept of semiconductor materials and semiconductor devices - Provide students with the working knowledge of diodes and their applications - Provide students with the working knowledge of transistors and their applications			
Learning outcomes			
Upon successful completion of this course, students will be able to: 1. Explain basic concepts of semiconductor materials and semiconductor devices. 2. Analyse diodes and transistors circuits and their biasing 3. Analyse various BJTs and FETs amplifier circuits 4. Use the theory and applications of semiconductor devices for creating useful electronic circuits 5. Understand the operation principle of oscillators. Learn to calculate the start-up condition and oscillation frequency of different oscillator types. 6. Use software packages and lab experiments for testing and analyzing different electronics circuits			
Teaching methods			
Lecture		<input checked="" type="checkbox"/>	
Group discussion		<input checked="" type="checkbox"/>	
Experiential exercise		<input checked="" type="checkbox"/>	
Quizzes and Homework		<input checked="" type="checkbox"/>	
Evaluation			
	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		30
	Case studies		
	Class Participation	At each lesson	5
	Quizzes	During the semester	20
	Activity	During the semester	5
	Presentation		
	Final Exam		40
	Others		
	Total		100

Policy	<ul style="list-style-type: none"> ▪ Preparation for class The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems and cases from the end of the chapter and sample exam questions. • Withdrawal (pass/fail) This course strictly follows grading policy of the School of Science and Engineering. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year. ▪ Cheating/plagiarism Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations. ▪ Professional behavior guidelines The students shall behave in the way to create favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly prohibited. <p>Quizzes</p> <ul style="list-style-type: none"> ▪ There will be a quiz examination per two weeks. The quizzes will be announced in the classroom two weeks before. Quiz is from homework problems. The homework problems will be selected from questions and problems in the end of each chapter. The No. of homework problems will be announced after finishing each chapter. <ul style="list-style-type: none"> • Attendance Students who attend the whole classes will get 5 marks. for two absence student loses 1 mark. • Activity Students who will be active during discussion of past lessons will be awarded with one activity mark.
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Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook
1	14.02.23 16.02.23	Introduction, semiconductor materials and diodes.	Chapter 1
2	21.02.23 23.02.23	Diodes and Diodes Circuits	Chapter 2
3	28.02.23 01.03.23	Diodes and Diodes Circuits	Chapter 3
4	7.03.23 9.03.23	The Bipolar Junction Transistor	Chapter 4
5	14.03.23 16.03.23	BJTs circuits	Chapter 5
6	28.03.23 30.03.23	BJTs circuits	Chapter 5
7		Midterm exam	
8	04.04.23 06.04.23	Transistor Amplifiers	Chapter 6
9	11.04.23	FETs Transistors	Chapter 7

	13.04.23		
10	18.04.23 20.04.23	FETs Transistors	Chapter 8
11	25.04.23 27.04.23	FETs circuits	Chapter 9
12	02.05.23 04.05.23	FETs circuits	Chapter 9
13	11.05.23 16.05.23	FETs circuits	Chapter 10
14	18.05.23 23.05.23	OP-AMPs	Chapter 10
15	25.05.23 30.05.23	OP-AMPs OP-AMP applications	Chapter 11
		Final Exam	

