

<b>Identification</b>	<b>Subject (code, title, credits)</b>	ETR234 Analog Electronics 6 ECTS	
	<b>Department</b>	Physics and Electronics	
	<b>Program (undergraduate, graduate)</b>	Undergraduate	
	<b>Term</b>	Spring, 2022	
	<b>Instructor</b>	Ahmad Asimov ph.D	
	<b>E-mail:</b>	<a href="mailto:fizikasimov@gmail.com">fizikasimov@gmail.com</a>	
	<b>Phone:</b>	+994124211093 (daxili255)	
	<b>Classroom/hours</b>	302N Monday / Wednesday	
	<b>Office hours</b>	Tuesday: 15:00-16:00/ Thursday: 15:00-16:00	
<b>Prerequisites</b>			
<b>Language</b>	English		
<b>Compulsory</b>	Compulsory		
<b>Required textbooks and course materials</b>	<p>Microelectronic Circuits, Adel S. Sedra and Kenneth C. Smith, Oxford University Press, 5th Edition,2004</p> <p>Electronic Devices and Circuit Theory, Robert L. Boylestad <i>and</i> Louis Nashelsky, Pearson Higher Education,10thEdition2009</p> <p>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</p>		
<b>Course Description</b>	<p>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.</p>		
<b>Course objectives</b>	<p>The aims of this course are to:</p> <ul style="list-style-type: none"> <li>- Introduce students to concept of semiconductor materials and semiconductor devices</li> <li>- Provide students with the working knowledge of diodes and their applications</li> <li>- Provide students with the working knowledge of transistors and their applications</li> </ul>		
<b>Learning outcomes</b>	<p>Upon successful completion of this course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Explain basic concepts of semiconductor materials and semiconductor devices.</li> <li>2. Analyse diodes and transistors circuits and their biasing</li> <li>3. Analyse various BJTs and FETs amplifier circuits</li> <li>4. Use the theory and applications of semiconductor devices for creating useful electronic circuits</li> <li>5. Understand the operation principle of oscillators. Learn to calculate the start-up condition and oscillation frequency of different oscillator types.</li> <li>6. Use software packages and lab experiments for testing and analyzing different electronics circuits</li> </ol>		
<b>Teaching methods</b>	<b>Lecture</b>		<input checked="" type="checkbox"/>
	<b>Group discussion</b>		<input checked="" type="checkbox"/>
	<b>Experiential exercise</b>		<input checked="" type="checkbox"/>
	<b>Quizzes and Homework</b>		<input checked="" type="checkbox"/>
<b>Evaluation</b>	<b>Methods</b>	<b>Date/deadlines</b>	<b>Percentage (%)</b>
	<b>Midterm Exam</b>		30
	<b>Class Participation</b>	At each lesson	5
	<b>Quizzes and Homework</b>	During the semester	20
	<b>Activity</b>	During the semester	5
	<b>Final Exam</b>		40
	<b>Total</b>		100

<b>Policy</b>	<ul style="list-style-type: none"> <li>▪ <b>Preparation for class</b> 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.</li> <li>• <b>Withdrawal (pass/fail)</b> 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.</li> <li>▪ <b>Cheating/plagiarism</b> 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.</li> <li>▪ <b>Professional behavior guidelines</b> 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.</li> <li><b>Quizzes</b> <ul style="list-style-type: none"> <li>▪ 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.</li> </ul> </li> </ul>
---------------	---

**Tentative Schedule**

Week	Date/Day (tentative)	Topics	Textbook
1	14.02.22 16.02.22	Introduction, semiconductor materials and diodes.	Chapter 1
2	21.02.22 23.02.22	Diodes and Diodes Circuits	Chapter 2
3	28.02.22 01.03.22	Diodes and Diodes Circuits	Chapter 3
4	7.03.22 9.03.22	The Bipolar Junction Transistor	Chapter 4
5	14.03.22 16.03.22	BJTs circuits	Chapter 5
6	28.03.22 30.03.22	BJTs circuits	Chapter 5
7		<b>Midterm exam</b>	
8	04.04.22 06.04.22	Transistor Amplifiers	Chapter 6
9	11.04.22 13.04.22	FETs Transistors	Chapter 7
10	18.04.22 20.04.22	FETs Transistors	Chapter 8
11	25.04.22 27.04.22	FETs circuits	Chapter 9
12	02.05.22 04.05.22	FETs circuits	Chapter 9
13	11.05.22 16.05.22	FETs circuits	Chapter 10

14	18.05.22 23.05.22	OP-AMPs	Chapter 10
15	25.05.22	OP-AMPs OP-AMP applications	Chapter 11
		Final Exam	



Əhməd Asimov