TOROS ÜNİVERSİTESİ

Faculty Of Engıneerıng
Electrıcal And Electronıcs Engıneerıng (Englısh)

Course Information

SEMICONDUCTORS					
Code	**Semester**	**Theoretical**	**Practice**	**National Credit**	**ECTS Credit**
		Hour / Week			
EEE206	Spring	3	0	3	4

Prerequisites and co-requisites	
Language of instruction	English
Type	Required
Level of Course	Bachelor's
Lecturer	Asst. Prof. Ali Kemal HAVARE
Mode of Delivery	Face to Face
Suggested Subject	
Professional practise (internship)	None
Objectives of the Course	The purpose of this course, students who are equipped with enough information to basic electronic building blocks of electronic devices and semiconductor technology, which is to comprehend the basic principles.
Contents of the Course	"Crystal structures, Introduction to Quantum Mechanics, Charge transport phenomena, Metal-semiconductor and semiconductor heterostructures, pn junctions, Bipolar transistor, Metal-oxide semiconductor field effect transistor fundamentals of Field-effect transistor junctions, Optoelectronic devices, Semiconductor power devices, Photovoltaic applications, Coding of Optoelectronic Components 1 Coding of Optoelectronic Components 2."

Learning Outcomes of Course

#	Learning Outcomes
1	knowledges about crystal structures
2	Knowledges about quantum mechanics.
3	The students have knowledge about metal semiconductor pn junctions and semiconductor heterojunctions.
4	The students have knowledge and analysis about transistors, optoelectronics and photovoltaic devices.

Course Syllabus

#	Subjects	Teaching Methods and Technics
1	Introduction and Motivation	lecture
2	Crystal structures	lecture
3	Introduction to Quantum Mechanics	lecture
4	Charge transport phenomena	lecture
5	Metal-semiconductor and semiconductor heterostructures	lecture
6	pn junctions	lecture
7	Bipolar transistor	lecture
8	Exam	
9	Fundamentals of Metal-oxide semiconductor field effect transistor	lecture
10	Field-effect transistor junctions	lecture

11	Optoelectronic devices	lecture
12	Semiconductor power devices	lecture
13	Photovoltaic applications	lecture
14	Coding of Optoelectronic Components 1	lecture
15	Coding of Optoelectronic Components 2	lecture
16	Final Exam	

Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	Kaynak Adı:Semiconductor Physics and Devices Basic Principle, Donald A. Neamen, McGraw Hill		
2	Optoelectronic Devices and Properties, Oleg Sergiyenko open source		

Method of Assessment

#	Weight	Work Type	Work Title
1	40%	Mid-Term Exam	Mid-Term Exam
2	60%	Final Exam	Final Exam

Relationship between Learning Outcomes of Course and Program Outcomes

#	Learning Outcomes	Program Outcomes	Method of Assessment
1	knowledges about crystal structures	1	1,2
2	Knowledges about quantum mechanics.	2	1,2
3	The students have knowledge about metal semiconductor pn junctions and semiconductor heterojunctions.	3	1,2
4	The students have knowledge and analysis about transistors, optoelectronics and photovoltaic devices.	3	1,2

PS. The numbers, which are shown in the column Method of Assessment, presents the methods shown in the previous table, titled as Method of Assessment.

Work Load Details

#	Type of Work	Quantity	Time (Hour)	Work Load
1	Course Duration	14	3	42
2	Course Duration Except Class (Preliminary Study, Enhancement)	14	2	28
3	Presentation and Seminar Preparation	0	0	0
4	Web Research, Library and Archival Work	0	0	0
5	Document/Information Listing	0	0	0
6	Workshop	0	0	0
7	Preparation for Midterm Exam	1	10	10
8	Midterm Exam	1	2	2
9	Quiz	0	0	0
10	Homework	0	0	0
11	Midterm Project	0	0	0
12	Midterm Exercise	0	0	0
13	Final Project	1	10	10

14	Final Exercise	0	0	0
15	Preparation for Final Exam	1	20	20
16	Final Exam	1	10	10
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