Fizik Bölümü / PHYSICS /

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-4010	Physics Of Semiconductor Devices	3.00	0.00	0.00	3.00	6.00

Course Detail

Course Language	:	Turkish
Qualification Degree	:	Bachelor
Course Type	:	Optional
Preconditions	:	Not
Objectives of the Course	:	Leaning the physics of semiconductor circuit elements of electronic devices.
Course Contents	:	Fundamentals of quantum physics and the properties of crystal structure, energy band theory, theory of electrical conduction, generation-recombination, pn junction diode, metal-semiconductor contacts. JFET and MESFET
Recommended or Required Reading	:	'Physics of Semiconductor Devices S.M.SZE, Wiley-Interscience, 0471143235, (ISBN-13: 978-0471143239), 2006 'Amorphous and Microcrystalline semiconductor devices' Volume II, J.Kanicki, Artech House Publishers, 0890063796 (ISBN-13: 978-0890063798), 1992 'Physics of Semiconductor Devices' J. Colinge, C.A. Colinge, Springer, 0387285237 (ISBN-13: 978-0387285238), 2005
Planned Learning Activities and Teaching Methods	:	Written exam, homeworks and presentations. (60% Final, 30% midterm, 10% homework and presentation)
Recommended Optional Programme Components	:	Knowledge of the fundamental physics courses is important.
Instructors	:	Prof. Dr. Kıvanç Sel
Instructor's Assistants	:	Prof. Dr. Kıvanç SEL
Presentation Of Course	:	Face to face

Course Outcomes

Upon the completion of this course a student :

1 Relate the knowledge between disciplines.

2 Apply the knowledge of basic science

3 Describe the natural phenomenons by physical approach

Preconditions

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Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Fundamentals of quantum physics and the properties of crystal structure.				
2.Week	*Fundamentals of quantum physics and the properties of crystal structure.				
3.Week	*Energy band theory				
4.Week	*Energy band theory				
5.Week	*Theory of electrical conduction				
6.Week	*Theory of electrical conduction				
7.Week	*Generation-recombination mechanism				
8.Week	*Generation-recombination mechanism				
9.Week	*pn junction diode				
10.Week	*pn junction diode				
11.Week	*Metal-semiconductor contacts.				
12.Week	*Metal-semiconductor contacts.				
13.Week	*JFET and MESFET				
14.Week	*JFET and MESFET				

Assesment Methods %

1 Mid Term Exam 1 : 40.000

2 Final : 60.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	1	2.00	2.00
Final	1	2.00	2.00
Attending lectures	14	3.00	42.00

Activities	Count	Time(Hour)	Sum of Workload
Individual study before lecture	14	3.00	42.00
Individual study after lecture	14	3.00	42.00
Preparation for midterm	1	20.00	20.00
Preparation for final	1	25.00	25.00
		Total :	175.00
		Sum of Workload / 30 (Hour) :	6
		ECTS :	6.00

Program And OutcomeRelation

	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24
L.O. 1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 2	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ders/Program Çıktıları İlişkisi

P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24	P.O. 2
3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0