

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-3032	Semiconductor Physics	3.00	0.00	0.00	3.00	6.00
Course Detail						
<b>Course Language</b>	: Turkish					
<b>Qualification Degree</b>	: Bachelor					
<b>Course Type</b>	: Optional					
<b>Preconditions</b>	: Not					
<b>Objectives of the Course</b>	: Learning the physics of semiconductors					
<b>Course Contents</b>	: Crystal structures, classification of solids, fundamentals of semiconductors, intrinsic and doped semiconductors, conduction mechanisms in semiconductors, energy band structures of metals, semiconductors and insulators, electron transitions between bands and energy levels, recombination of charge carriers, statistics of charge carriers in semiconductors, Fermi distribution function, fermi energy of intrinsic and doped semiconductors, diffusion of charge carriers.					
<b>Recommended or Required Reading</b>	: • 'Introduction to Solid State Physics', Kittel, Charles, Seventh Edition, John Wiley & Sons, Inc.. • 'Katihal Fiziğine Giriş', Karaoğlu, B					
<b>Planned Learning Activities and Teaching Methods</b>	: Written exam (60% Final, 40% midterm)					
<b>Recommended Optional Programme Components</b>	: Knowledge of the fundamental physics courses is important.					
<b>Instructors</b>	: Prof. Dr. Kıvanç Sel					
<b>Instructor's Assistants</b>	: Assoc. Prof. Dr. Kıvanç SEL					
<b>Presentation Of Course</b>	: face to face					

## Course Outcomes

## Upon the completion of this course a student :

- 1 Recognize the theoretical knowledge on experimental applications
- 2 Solve the technological problems by using fundamental physics knowledge
- 3 Edinilen bilgileri teknoloji ve endüstri ile ilişkilendirir

## Preconditions

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## Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Crystal structures				*Lecture and recitation
2.Week	*Crystal structures				*Lecture and recitation
3.Week	*Classification of solids				*Lecture and recitation
4.Week	*Fundamentals of semiconductors				*Lecture and recitation
5.Week	*Intrinsic semiconductors				*Lecture and recitation
6.Week	*Doped semiconductors				*Lecture and recitation
7.Week	*Conduction mechanisms in semiconductors				*Lecture and recitation
8.Week	*Energy band structures of metals, semiconductors and insulators				*Lecture and recitation
9.Week	*Energy band structures of metals, semiconductors and insulators				*Lecture and recitation
10.Week	*Electron transitions between bands and energy levels				*Lecture and recitation
11.Week	*Recombination of charge carriers				*Lecture and recitation
12.Week	*Statistics of charge carriers in semiconductors				*Lecture and recitation
13.Week	*Fermi distribution function				*Lecture and recitation
14.Week	*Fermi energy of intrinsic and doped semiconductors				*Lecture and recitation

## Assesment Methods %

1 Md 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

