



Çanakkale Onsekiz Mart University

Education Information System

[DEGREE PROGRAMMES](#)

[BOLOGNA](#)

[THE INSTITUTION](#)

[INFO FOR STUDENTS](#)

You are here : [Home](#) [Master's Degree& Doctorate Degree](#) [Physics \(Master\)](#) [Advanced Solid State Physics I](#) **Course Information**

Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Advanced Solid State Physics I	FZ5027		3 + 0	3.0	7.5

Prerequisites	None
----------------------	------

Language of Instruction	Turkish
Course Level	Second Cycle
Course Type	Elective
Mode of delivery	Face to face
Course Coordinator	Assoc. Prof. Dr. Kıvanç SEL
Instructors	Assoc. Prof. Dr. Kıvanç SEL Prof. Dr. Serhat ÖZDER Assoc. Prof. Dr. Vildan BİLGİN
Assistants	
Course Objectives	Learning the theory of the solid state physics
Course Content	Symmetry in crystals, crystal structure, vibrations of crystal structure and phonons, Green functions, local modes, electron energy bands, electronic density of states, states of the electrons, dynamics of electrons, transport properties, optical properties.
Course Learning Outcomes	1) Apply the basic science knowledge. 2) Define the structural properties of the solid materials 3) Describe the energy band structure of the solid materials. 4) Explain the natural phenomena. 5) Identify the physical properties of semiconductor materials. 6) Describe the topics of superconductivity, diamagnetism, ferromagnetism, paramagnetism. 7) Associate the obtained information with technology and industry.

Quick Access

Physics (Master)

- Qualification Awarded
- Level of Qualification
- Qualification Requirements and Regulations
- Specific Admission Requirements
- Recognition of Prior Learning
- Profile of the Program
- Program Key Learning Outcomes
- Occupational Profile of Graduates
- Access to Further Studies
- Course Structure & Credits
- Exam Regulations & Assessment & Grading
- Graduation Requirements
- Mode of Study
- Programme Director(or Equivalent)
- Evaluation Questionnaire
- TYYÇ

Course Information

- Course Information
- Weekly Course Content
- Resources
- Assessment
- Course Category
- CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES
- ECTS credits and course workload

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Symmetry in crystals and crystal structure	Lecture and recitation	
2. Week	Symmetry in crystals and crystal structure	Lecture and recitation	
3. Week	Vibrations of crystal structure and phonons	Lecture and recitation	

4. Week	Phonons	Lecture and recitation	
5. Week	Green functions	Lecture, recitation and homeworks	
6. Week	Local modes	Lecture and recitation	
7. Week	Midterm exam	Written exam	
8. Week	Electron energy bands	Lecture and recitation	
9. Week	Electron energy bands	Lecture and recitation	
10. Week	Electron density of states	Lecture and recitation	
11. Week	States of the electrons	Lecture and recitation	
12. Week	Dynamics of the electrons	Lecture, recitation and homeworks	
13. Week	Dynamics of the electrons	Lecture and recitation	
14. Week	Transport properties	Lecture and recitationLecture	
15. Week	Optical properties	Lecture and recitation	
16. Week	Final exam	Written exam	

RESOURCES

Recommended Sources
'Introduction to Solid State Physics', Kittel Charles, John Wiley & Sons, Inc., 047141526X (ISBN-13: 978-0471415268), 2004
'Katıhal Fiziğine Giriş', Karaoğlu, B. İstanbul, Güven Kitap Yayın Dağıtım, 1996, 9750203305
'Katıhal Fiziğine Giriş', Tahsin N. Durlu, Bilim Yayıncılık, 1996, 9755560009

ASSESSMENT

Measurement and Evaluation Methods and Techniques		
Written exam, homework and presentations. (60% Final, 30% midterm, 10% homework and presentation)		
In-Term Studies	Quantity	Percentage
Mid Term Exam 1	1	40
Total	1	40
End-Term Studies	Quantity	Percentage
Final Exam	1	60
Total	1	60
Contribution Of In-Term Studies To Overall Grade		40
End-Term Studies		60
Total		100

COURSE CATEGORY

Course Category	Percentage
Core Courses	% 100

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4	DK5	DK6	DK7
PY1	4	4	4	4	4	4	4	4
PY2	2	2	2	2	2	2	2	2
PY3	2	2	2	2	2	2	2	2
PY4	3	3	3	3	3	3	3	3
PY5	3	3	3	3	3	3	3	3
PY6	3	3	3	3	3	3	3	3
PY7	2	2	2	2	2	2	2	2
PY8	5	5	5	5	5	5	5	5
PY9	4	4	4	4	4	4	4	4
PY10	2	2	2	2	2	2	2	2
PY11	2	2	2	2	2	2	2	2
PY12	3	3	3	3	3	3	3	3
PY13	2	2	2	2	2	2	2	2
PY14	4	4	4	4	4	4	4	4
PY15	2	2	2	2	2	2	2	2

*DK = Course's Contribution.

	0	1	2	3	4	5
Level of contribution	None	Very Low	Low	Fair	High	Very High

ECTS CREDITS AND COURSE WORKLOAD

Event	Quantity	Duration (Hour)	Total Workload (Hour)
Class Hours (14 weeks)	14	3	42
Final Exam Preparation	1	34.2	34.2
Mid Term Exam Preparation	1	33	33
Further Study	14	3	42
Final Exam	1	2	2
Mid Term Exam 1	1	2	2
Assignment 1	1	18	18
Assignment 2	1	18	18
Total Workload			191.2
Total Workload / 25.5 (s)			7.50
ECTS Credit of the Course			8