



Çanakkale Onsekiz Mart University

Education Information System

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Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Physics Of Semiconductor Devices	FlZ402	8. Semester	3 + 0	3.0	7.0

Prerequisites	None
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Language of Instruction	English
Course Level	Bachelor's Degree (First Cycle)
Course Type	Elective
Mode of delivery	Face to face
Course Coordinator	Assoc. Prof. Dr. Kıvanç SEL
Instructors	Assoc. Prof. Dr. Kıvanç SEL
Assistants	
Course Objectives	This course aims to teach 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
Course Content	Introduction, Fundamentals of quantum physics and the properties of crystal structure, Energy band theory, Theory of electrical conduction, Theory of electrical conduction, Generation-recombination, Generation-recombination, pn junction diode, pn junction diode, Metal-semiconductor contacts, Metal-semiconductor contacts, JFET and MESFET, JFET and MESFET.
Course Learning Outcomes	<ol style="list-style-type: none"> 1) Describe the production methods and structural, electrical and optical characteristics of semiconductor circuit devices. 2) Solve the natural phenomena by physical approach. 3) Relate the knowledge between disciplines. 4) Describe with the recent professional topics 5) Relate the obtained knowledge with technology and industry

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Introduction	Lecture and recitation	
2. Week	Fundamentals of quantum physics and the properties of crystal structure.	Lecture and recitation	
3. Week	Energy band theory	Lecture and recitation	

Quick Access

Physics

- 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

4. Week	Energy band theory	Lecture, recitation and homework	
5. Week	Theory of electrical conduction	Lecture and recitation	
6. Week	Theory of electrical conduction	Lecture and recitation	
7. Week	Generation-recombination	Lecture and recitation	
8. Week	Midterm Exam	Written exam	
9. Week	Generation-recombination	Lecture and recitation	
10. Week	pn junction diode	Lecture and recitation	
11. Week	pn junction diode	Lecture and recitation	
12. Week	Metal-semiconductor contacts.	Lecture, recitation and homework	
13. Week	Metal-semiconductor contacts.	Lecture and recitation	
14. Week	JFET and MESFET	Lecture and recitation	
15. Week	JFET and MESFET	Lecture and recitation	
16. Week	Final Exam	Written exam	

RESOURCES

Recommended Sources
'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
'Introduction to Electronic Devices', M. Shur, Wiley, 0471103489 (ISBN-13: 978-0471103486), 1995

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
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CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

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

*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	28	28
Mid Term Exam Preparation	1	27	27
Further Study	14	3	42
Assignment 1	1	18	18
Final Exam	1	2	2
Mid Term Exam 1	1	2	2
Assignment 2	1	18	18
Total Workload			179
Total Workload / 25.5 (s)			7.02
ECTS Credit of the Course			7