



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 II	FZ 6036		3 + 0	3.0	7.5

Prerequisites	None
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Language of Instruction	Turkish
Course Level	Third 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	MOS transistor, bi-polar transistor, hetero-junction devices, photonic devices, quantum effect devices, nano-devices
Course Content	Introduction, Fundamentals of kuantum 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 Learning Outcomes	1) Describe the methods and structural, electrical and optical characteristics of semiconductor circuit devices. 2) Define the natural phenomena by physical approach. 3) Associate the obtained information with technology and industry. 4) Analyze the properties of recent electronic devices 5) Describe the production methods of elektronik devices

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Introduction	Lecture and recitation	
2. Week	MOS transistors	Lecture and recitation	
3. Week	MOS Transistors	Lecture and recitation	
4. Week	MOS transistors	Lecture, recitation and homework	

Quick Access

Physics (PhD)

- 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
- Course Category
- CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES
- ECTS credits and course workload

5. Week	Bipolar transistors	Lecture and recitation	
6. Week	Bipolar transistors	Lecture and recitation	
7. Week	Hetero-junction circuit elements	Lecture and recitation	
8. Week	Midterm Exam	Written exam	
9. Week	Hetero-junction circuit elements	Lecture and recitation	
10. Week	Hetero-junction circuit elements	Lecture and recitation	
11. Week	Photonic circuit elements	Lecture and recitation	
12. Week	Quantum effect circuit elements	Lecture, recitation and homework	
13. Week	Quantum effect circuit elements	Lecture and recitation	
14. Week	Nano-circuit elements	Lecture and recitation	
15. Week	Nano-circuit elements	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
'Physics of Semiconductor Devices' J. Colinge, C.A. Colinge, Springer, 0387285237 (ISBN-13: 978-0387285238), 2005

ASSESSMENT

Measurement and Evaluation Methods and Techniques
Written exam, homework and presentations. (60% Final, 30% midterm, 10% homework and presentation)

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
<u>PY1</u>	3	3	3	3	3	3
<u>PY2</u>	4	4	4	3	4	4
<u>PY3</u>	3	3	3	3	3	3
<u>PY4</u>	5	5	5	5	5	5
<u>PY5</u>	2	2	2	2	2	2
<u>PY6</u>	4	4	4	4	4	4
<u>PY7</u>	2	2	2	2	2	2

<u>PY8</u>	4	4	4	4	4	4
<u>PY9</u>	4	4	4	4	4	4
<u>PY10</u>	1	1	1	1	1	1
<u>PY11</u>	3	3	3	3	3	3
<u>PY12</u>	3	3	3	3	3	3
<u>PY13</u>	3	3	3	3	3	3
<u>PY14</u>	3	3	3	3	3	3
<u>PY15</u>	3	3	3	3	3	3

*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)	16	3	48
Final Exam Preparation	1	34.2	34.2
Mid Term Exam Preparation	1	33	33
Assignment 1	1	15	15
Final Exam	1	2	2
Further Study	14	3	42
Mid Term Exam 1	1	2	2
Assignment 2	1	15	15
Total Workload			191.2
Total Workload / 25.5 (s)			7.50
ECTS Credit of the Course			8