



Çanakkale Onsekiz Mart University

Education Information System

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Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Material Science And Optoelectronics	FZ5041		3 + 0	3.0	7.5

Prerequisites	None
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Language of Instruction	Turkish
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Course Level	Second Cycle
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Course Type	Elective
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Mode of delivery	Face to face
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Course Coordinator	Assoc. Prof. Dr. Vildan BİLGİN
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Instructors	Assoc. Prof. Dr. Vildan BİLGİN Prof. Dr. Serhat ÖZDER Assoc. Prof. Dr. Kıvanç SEL
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Assistants	
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Course Objectives	To apply properties of materials in device fabrication
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Course Content	Optoelectronic materials, Inorganic materials, Optoelectronic semiconductor materials, Layer structures, Multiquantum wells, Organic materials, Description of molecule and crystal structures and their optical properties, Lasers, Digital optic, Quantum wells in optoelectronic equipments, Source performance
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Course Learning Outcomes	1) Recognize the physical properties and applications of light 2) Apply properties of materials to device fabrication 3) Use basic working principles of new generation analytic devices 4) Explain the effect of electronic and photonic properties on general material structure 5) Associate the obtained information with technology and industry
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WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Optoelectronic materials	Lecture, Problem solving, Homework	
2. Week	Inorganic materials	Lecture, Problem solving, Homework	
3. Week	Optoelectronic semiconductor materials	Lecture, Problem solving, Homework	
4. Week	Layer structures, Multiquantum wells	Lecture, Problem solving, Homework	

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

5. Week	Organic materials	Lecture, Problem solving, Homework	
6. Week	Description of molecule and crystal structures and their optical properties	Lecture, Problem solving, Homework	
7. Week	Lasers	Lecture, Problem solving, Homework	
8. Week	Basic Theory of Lasers	Lecture, Problem solving, Homework	
9. Week	Silicon fiber lasers	Lecture, Problem solving, Homework	
10. Week	CW performances of fiber lasers	Lecture, Problem solving, Homework	
11. Week	Optic fiber lasers	Lecture, Problem solving, Homework	
12. Week	Digital optic	Lecture, Problem solving, Homework	
13. Week	Quantum wells in optoelectronic equipments, Source performance	Lecture, Problem solving, Homework	
14. Week	Linear optic and bi-stability, Fabry-Perot Etalon	Lecture, Problem solving, Homework	
15. Week	Linear optic and bi-stability, Fabry-Perot Etalon	Lecture, Problem solving, Homework	
16. Week	Final Exam	Exam	

RESOURCES

Recommended Sources
Optoelectronics: An Introduction; J. Wilson, J. Hawkes, Prentice Hall PTR., 0136384951, (ISBN-13: 978-0136384953), 1993
E.Uiga ,Optoelectronics,Prentice Hall,Englewood Cliffs,N.J.,1995.
M.Tischler,Optoelectronics:Fiber Optics and Lasers,Macmillan/Mc Graw-Hill(Glencoe), Columbus,Ohio,1992

ASSESSMENT

Measurement and Evaluation Methods and Techniques		
Midterm exam, homework, Final exam		
In-Term Studies	Quantity	Percentage
Mid Term Exam 1	1	30
Assignment 1	1	20
Total	2	50
End-Term Studies	Quantity	Percentage
Final Exam	1	50
Total	1	50
Contribution Of In-Term Studies To Overall Grade		50
End-Term Studies		50
Total		100

COURSE CATEGORY

Course Category	Percentage
Core Courses	% 50

Area of specialization Courses	% 50
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CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4	DK5
PY1	3	3	3	3	3	3
PY2	4	4	4	4	4	4
PY3	3	3	3	3	3	3
PY4	3	3	3	3	3	3
PY5	3	3	3	3	3	3
PY6	4	4	4	5	3	4
PY7	0	0	0	0	0	0
PY8	3	3	3	3	3	3
PY9	4	4	4	4	4	4
PY10	0	0	0	0	0	0
PY11	3	3	3	3	3	3
PY12	3	3	4	2	3	3
PY13	0	0	0	0	0	0
PY14	2	2	2	2	2	2
PY15	0	0	0	0	0	0

*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)
Final Exam	1	3	3
Mid Term Exam 1	1	3	3
Assignment 1	2	25	50
Class Hours (14 weeks)	14	3	42
Final Exam Preparation	1	22	22
Mid Term Exam Preparation	1	15	15
Further Study	14	4	56
Total Workload			191
Total Workload / 25.5 (s)			7.49
ECTS Credit of the Course			7

