Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Fundamentals Of Silicon Technology I	FZ5031		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 basic knowledge and applications of silicon technology.
Course Content	Basic processes: oxidation, atom implantation, thin film deposition by silicon (natural, polycrystal, single crystal)
Course Learning Outcomes	1) Identify the production methods and structural, electrical and optical characteristics of semiconductor circuit devices. 2) Apply the physics knowledge to technology and industry. 3) Apply the theoretical knowledge on experimental applications. 4) Apply the knowledge of basic science. 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	Basic processes	Lecture and recitation	
3. Week	Basic crystal growth processes	Lecture and recitation	
4. Week	Oxidization	Lecture and recitation	

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	Defects of crystal structure	Lecture, recitation and homeworks	
6. Week	Doping	Lecture and recitation	
7. Week	Atom implantation	Lecture and recitation	
8. Week	Midterm Exam	Written exam	
9. Week	Lithography	Lecture and recitation	
10. Week	Etching	Lecture and recitation	
11. Week	Thin film deposition methods	Lecture and recitation	
12. Week	Thin film deposition methods	Lecture, recitation and homeworks	
13. Week	pn junction production	Lecture and recitation	
14. Week	Bipolar transistor production	Lecture and recitation	
15. Week	MOS technology	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
‘Introduction to Electronic Devices’, M. Shur, Wiley, 0471103489 (ISBN-13: 978-0471103486), 1995
‘Amorphous and Microcrystalline semiconductor devices’ Volume II, J.Kanicki, Artech House Publishers, 0890063796 (ISBN-13: 978-0890063798), 1992

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
PY1	5	5	5	5	5	5
PY2	3	3	3	3	3	3
PY3	4	4	4	4	4	4
PY4	3	3	3	3	3	3
PY5	2	2	2	2	2	2
PY6	4	4	4	4	4	4
PY7	2	2	2	2	2	2
PY8	4	4	4	4	4	4
PY9	4	4	4	4	4	4
PY10	2	2	2	2	2	2
PY11	3	3	3	3	3	3
PY12	3	3	3	3	3	3
PY13	3	3	3	3	3	3
PY14	3	3	3	3	3	3
PY15	3	3	3	3	3	3

*DK = Course's Contrubution.

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

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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