Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Thin Film Technology II	FZ 5062		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. Vildan BİLGİN
Instructors	Assoc. Prof. Dr. Vildan BİLGİN
Assistants	
Course Objectives	Understanding of deposition techniques of thin films, analysis techniques and their technological applications
Course Content	Characterization of Thin Films Film Thickness Spectroscopic ellipsometry Scanning electron microscope Atomic force microscope x-ray diffraction current-voltage characteristics Midterm exam Hall effect Haynes-Sckockley experiment Thin film properties for solar cells Semiconductor films, transparent oxide films Conduction properties of metal films Dielectric films Thin film materials and their applications Final
Course Learning Outcomes	1) Explain the importance of the thin film and coating technologies 2) Determine of vacuum science and technology to the for the thin films and coatings 3) Categorize the thin film and coating evaporation processes 4) List of the solution methods used in thin film coating 5) Follow up technological applications of thin films

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Characterization of Thin Films	Lecture, Problem solving, Homework	
2. Week	Film Thickness	Lecture, Problem solving, Homework	
3. Week	Spectroscopic ellipsometry	Lecture, Problem solving, Homework	
4. Week	Scanning electron microscope	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

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

5. Week	Atomic force microscope	Lecture, Problem solving, Homework	
6. Week	x-ray diffraction	Lecture, Problem solving, Homework	
7. Week	current-voltage characteristics	Lecture, Problem solving, Homework	
8. Week	Midterm exam	Exam	
9. Week	Hall effect	Lecture, Problem solving, Homework	
10. Week	Haynes-Sckockley experiment	Lecture, Problem solving, Homework	
11. Week	Thin film properties for solar cells	Lecture, Problem solving, Homework	
12. Week	Semiconductor films, transparent oxide films	Lecture, Problem solving, Homework	
13. Week	Conduction properties of metal films	Lecture, Problem solving, Homework	
14. Week	Dielectric films	Lecture, Problem solving, Homework	
15. Week	Thin film materials and their applications	Lecture, Problem solving, Homework	
16. Week	Final Exam	Exam	

RESOURCES

Recommended Sources
Milton Ohring (2002) Materials Science of Thin Films, Deposition and Structure 2nd Edition, American Press
Donald L. Smith (1995) Thin-Film-Film Deposition, Principles and Practies, McGraw-Hill
Gary S. May and Simon M. Sze (2004) Fundamentals of Semiconductor Fabrication, Wiley

ASSESSMENT

Measurement and Evaluation Methods and Techniques
Midterm exam, Homework, Final exam

COURSE CATEGORY

Course Category	Percentage
Core Courses	% 30
Area of pecialization Courses	% 70

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	4	3	2	3
PY4	4	4	4	4	4	4
PY5	3	3	3	3	3	3
PY6	3	3	3	3	3	3
PY7	0	0	0	0	0	0

PY8	3	3	3	3	3	3
PY9	0	0	0	0	0	0
PY10	0	0	0	0	0	0
PY11	2	2	2	2	2	2
PY12	0	0	0	0	0	0
PY13	0	0	0	0	0	0
PY14	0	0	0	0	0	0
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	22	22
Further Study	14	4	56
Assignment 1	2	25	50
Final Exam	1	3	3
Mid Term Exam Preparation	1	15	15
Mid Term Exam 1	1	3	3
		Total Workload	191
		Total Workload / 25.5 (s)	7.49
		ECTS Credit of the Course	7