


[DEGREE PROGRAMMES](#)
[BOLOGNA](#)
[THE INSTITUTION](#)
[INFO FOR STUDENTS](#)

You are here : [Home](#) [Master's Degree& Doctorate Degree](#) [Physics \(Master\)](#) [Thin Film Technology I](#) **Course Information**

Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Thin Film Technology I	FZ 5075		3 + 0	3.0	7.5

Prerequisites	None
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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	Definition of Thin Films, Methods of Thin Film Deposition, Vacuum Technology, Evaporation Methods Sputter Method, Chemical Vapour Deposition (CVD) Method, Sol-gel Coating Methods, Ultrasonic Spray Pyrolysis Method, Electrodeposition Method, Hydrothermal Method, Chemical Bath Deposition (CBD) Method
Course Learning Outcomes	<ol style="list-style-type: none"> 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	Definition of Thin Films	Lecture, Problem solving, Homework	
2. Week	Methods of Thin Film Deposition	Lecture, Problem solving, Homework	
3. Week	Vacuum Technology	Lecture, Problem solving, Homework	
4. Week	Vacuum Technology	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
- Course Category
- CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES
- ECTS credits and course workload

5. Week	Evaporation Methods	Lecture, Problem solving, Homework	
6. Week	Sputter Method	Lecture, Problem solving, Homework	
7. Week	Chemical Vapour Deposition (CVD) Method	Lecture, Problem solving, Homework	
8. Week	Sol-gel Coating Methods	Lecture, Problem solving, Homework	
9. Week	Spray Pyrolysis Method	Lecture, Problem solving, Homework	
10. Week	Ultrasonic Spray Pyrolysis Method	Lecture, Problem solving, Homework	
11. Week	Electrodeposition Method	Lecture, Problem solving, Homework	
12. Week	Hydrothermal Method	Lecture, Problem solving, Homework	
13. Week	Chemical Bath Deposition (CBD) Method	Lecture, Problem solving, Homework	
14. Week	Technological Applications	Lecture, Problem solving, Homework	
15. Week	Technological 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
<u>PY1</u>	3	4	3	3	2	3
<u>PY2</u>	4	4	3	5	4	4
<u>PY3</u>	4	4	4	4	4	4
<u>PY4</u>	3	3	3	2	4	3
<u>PY5</u>	0	0	0	0	0	0
<u>PY6</u>	4	4	4	4	4	4

<u>PY7</u>	4	4	4	4	4	4
<u>PY8</u>	0	0	0	0	0	0
<u>PY9</u>	0	0	0	0	0	0
<u>PY10</u>	0	0	0	0	0	0
<u>PY11</u>	4	3	4	4	4	5
<u>PY12</u>	0	0	0	0	0	0
<u>PY13</u>	0	0	0	0	0	0
<u>PY14</u>	3	3	3	4	2	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)
Final Exam	1	3	3
Mid Term Exam 1	1	3	3
Assignment 1	2	25	50
Final Exam Preparation	1	22	22
Mid Term Exam Preparation	1	15	15
Further Study	14	4	56
Class Hours (14 weeks)	14	3	42
Total Workload			191
Total Workload / 25.5 (s)			7.49
ECTS Credit of the Course			7

