AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Ellipsometry								
Course Code	FZK617		Couse Level	Third Cycle (Doctorate Degree)					
ECTS Credit	7	Workload	178 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	Provide an understanding of the basic principles of the ellipsometry method and polarization states of light								
Course Content	To examine Jones matrix formulation which define to propagation of polarized light through polarizing optical systems and states of polarization of light. Elipsometric measurement techniques are used to determine the optical properties of thin films.								
Work Placement									
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	30
Practice	7	7
Quiz	2	8
Attending Lectures	14	28
Assignment	7	7

Recommended or Required Reading	
1	Ellipsometry and Polarized Light. R.M.A. Azzam
2	Polarized light and optical measurement. David Clarke, John Fraser Grainger
3	Field guide to polarization. Edward Collet
4	Handbook of ellipsometry. Harland G. Tompkins, Eugene A Irene

Week	Weekly Detailed Course Contents	
1	Theoretical	Concept of polarization
2	Theoretical	Polarization states of a monochromatic and white light
3	Theoretical	Uniform transverse plane waves of light
4	Theoretical	Jones vector of uniform plane waves
5	Theoretical	Jones vectors of polarization states
6	Theoretical	Representation of polarization states of light by complex numbers. Poincare sphere
7	Theoretical	Polarized optical elements, Jones-matris formulations
8	Intermediate Exam	Midterm Exam
9	Theoretical	Jones matrices of basic optical devices
10	Theoretical	Polarization dependent intensity transmittance of optical systems
11	Theoretical	Propagation of polarized light in anisotropic media
12	Theoretical	Technique of ellipsometric measurement
13	Theoretical	Modeling and analysis of the ellipsometric measurements data
14	Theoretical	Technique of Null ellipsometry
15	Theoretical	Technique of Null ellpsometry
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	4	3	98
Assignment	12	2	2	48
Quiz	4	1	1	8

Midterm Examination	1	7	5	12
Final Examination	1	7	5	12
			Total Workload (Hours)	178
			[Total Workload (Hours) / 25*] = **ECTS**	7
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To be able to describe the polarization states of light.
2	To be able to describe the any polarization state of a polarized wave of light propagation through the optical systems
3	To be able to use the technique of ellipsometry in determining the optical properties of thin films
4	To be able to understand the null ellipsometry technique and to be able to apply it
5	To be able to construct the relation between the ellipsometry and the other branches of physics

Programme Outcomes *(Physics Doctorate)*	
1	
2	
3	
4	
5	
6	
7	
8	

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	5	5	4	4	4
P2	4	5	4	4	5
P3	4	4	4	4	5
P4	3	4	3	3	4
P5	3	3	2	3	4
P6	4	4	3	3	3
P7	2	3	4	3	3
P8	4	3	4	3	3