



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Analytical Mechanics							
Course Code		FZK605		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	7	Workload	175 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To teach the fundamentals of classical mechanics at an advanced level.							
Course Content		To teach lagrange Equatios, To teach hamilton Equations, To teach conservation Laws, Integration of equations of motion, To teach scattering theory, to explain concept of classical fields.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Individual Study, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	30
Quiz	2	8
Attending Lectures	14	28
Assignment	14	14

Recommended or Required Reading

1	Classical Mechanics. H. Goldstein, C.P.Poole and J.L.Safko Edinburg 2014
2	Classical Mechanics. T.W. Kibble, F.H. Berkshire London 2004

Week	Weekly Detailed Course Contents	
1	Theoretical	Analysis of Fundamental Principles.
2	Theoretical	Variaitonal Principle and Lagrange Equations of Motion.
3	Theoretical	Central force problem.
4	Theoretical	Kinematics of rigid body motion.
5	Theoretical	Two-body problem.
6	Theoretical	Oscillations.
7	Theoretical	Equations of Motion of Hamilton.
8	Intermediate Exam	Midterm exam
9	Theoretical	Special theory of relativity in classical mechanics.
10	Theoretical	Canonical Transformations.
11	Theoretical	Canonical Transformations.
12	Theoretical	Hamilton-Jacobi theorem.
13	Theoretical	Canonical Perturbation Theorem.
14	Theoretical	Introduction to Lagrange and Hamilton formulation of continuous systems and fields.
15	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	12	3	2	60
Quiz	4	2	1	12
Midterm Examination	1	7	2	9



Final Examination	1	8	2	10
Total Workload (Hours)				175
[Total Workload (Hours) / 25*] = ECTS				7
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	To be able to write the Lagrange equations of motion of giving system
2	To be able to analyze the conservation laws and solve problems by using them.
3	To be able to analyze the energy, momentum, angular momentum center of mass concepts
4	To be able to integrate the equations of motions and express the importance of them in physics.
5	To be able to understand the importance of field concept in 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	5	5	5
P2	5	4	4	4	4
P3	2	3	4	4	5
P4	4	4	4	4	3
P5	3	4	3	3	4
P6	3	4	4	4	4
P7	2	2	2	2	2
P8	4	4	3	3	4

