AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Fluid Mechanics						
Course Code		FİZ327		Couse Level		First Cycle (Bachelor's Degree)		
ECTS Credit	6	Workload	152 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To provide the fundamental concepts of fluid mechanics understood and learned with an emphasis on applications.						
Course Content		Fundamental principles of fluid mechanics, Units and conversion factors, Dimensional analysis, Fluid Statics, Pressure, hydrostatic equilibrium and basic equation of fluid statics, Buoyant Force and Archimedes's Principle, mass balances, Conservation of mass and momentum, Newtonian fluids, liquid flow in a pipe, define of friction coefficient, viscosity, Bernoulli equation, Toricelli equation						
Work Placement		N/A						
Planned Learning Activities and Teaching Methods			Explanation (Presentation), Discussion					
Name of Lecturer(s)								

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	2	40
Final Examination	1	70

Recommended or Required Reading

1	Akışkanlar Mekaniği : Bekir Zühtü Uysal
2	Akışkanlar Mekaniğine Giriş : Cahit Çıray
3	Fluid Mechanics: Pijush K. Kundu
4	Fluid Mechanics : Robert A. Granger

Week	Weekly Detailed Course Contents	
1	Theoretical	Fundamental principles of fluid mechanics
2	Theoretical	Units and conversion factors
3	Theoretical	Dimensional analysis
4	Theoretical	Fluid Statics
5	Theoretical	Pressure
6	Theoretical	hydrostatic equilibrium and basic equation of fluid statics
7	Theoretical	Buoyant Force and Archimedes's Principle
8	Theoretical	mass balances
9	Theoretical	Conservation of mass and momentum
10	Theoretical	Newtonian fluids
11	Intermediate Exam	1thMidterm
12	Theoretical	liquid flow in a pipe
13	Theoretical	define of friction coefficient, viscosity
14	Theoretical	Bernoulli equation
15	Intermediate Exam	2thMidterm

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	13	2	2	52
Midterm Examination	2	32	2	68
Final Examination	1	30	2	32
			Total Workload (Hours)	152
			[Total Workload (Hours) / 25*] = **ECTS**	6
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	To gain an understanding of fluid mechanics fundamentals, including concepts of mass and momentum conservation
2	To be able to demonstrate an ability to apply the Bernoulli equation to solve problems in fluid mechanics
3	To be able to demonstrate an ability to use potential flow theory to solve problems in fluid mechanics
4	To be able to apply continuity equation when it is necessary
5	To be able to discuss physical applications based on the fundamental of fluid mechanics.

Programme Outcomes *(Physics)*

1	To understand the importance of physics by understanding the general concepts of physics, matter and energy
2	To be able to define the movements of matter and to distinguish the characteristics of movements under different force (potential)
3	Be able to say the meaning of Lagrange and Hamiltonian formulations of the movement and apply them to simple problems,
4	To be able to express the fundamental concepts such as time, space, force, momentum and energy in the movements of matter close to the speed of light and be able to solve and interpret the simple problems related to
5	To be able to establish the relationship between electric and magnetic forces and to be able to illustrate their applications to technology and solve problems related to the movement of particles in electric and magnetic fields
6	Be able to say the basic laws of electromagnetics and apply them to problems, illustrate their applications to simple technology
7	To be able to tell the reasons of the differences between the classical cases and the quantum scale and explain the reasons
8	Explain the concepts of discontinuity, uncertainty, matter-antimatter, indecisiveness of quantum physics with examples and explain simple problems related to the subject.
9	To be able to solve the problems of micro-particles under different simple potentials and be able to say their meanings
10	To be able to establish the relationship between the movements and properties of multi-particle systems and the laws of probability and solve simple problems
11	To be able to illustrate the laws, meanings and applications of thermodynamics and use them
12	Be able to use their knowledge about quantum physics and mechanics in explaining some properties of atoms and nuclei
13	To be able to show the meanings of some theoretical concepts by experimenting, and develop a strong relationship between thought and the real world, develop analytical thinking
14	To be able to apply the meanings of the basic laws of physics, their comprehension of universality and the relations between them and the unity of the laws of nature.
15	Use computer to solve physics problems
16	To be able to understand the problems by using their analytical knowledge skills and to propose solutions by dealing with the laws of physics
17	Be able to use the knowledge of physics to understand new technologies
18	To be able to tell the relations between symmetry and conservation laws in laws of physics

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

	L1	L2	L3	L4
P1	4	3	3	
P4		4	4	
P5	5			
P13	4			5
P14	3			
P16		5	5	