Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Mechanical Engineering Department
2024-2025 Fall Semester
SYLLABUS

Code/Name	MEC 105 / Physics I
Type	Required
Credit/ECTS	5/5
Hour per Week	3 (3+0+1)
Level/Year	Undergraduate/1
Semester	Fall
Classroom	WBA
Content	Vectors. Motion in one and two dimensions. Newton's laws and its applications. Work and energy. Conservation of mechanical energy. Momentum and motion of systems. Static equilibrium of rigid bodies. Rotation and angular momentum. Newton's law of universal gravitation.
Prerequisites	NA
Textbooks	***Primary*** Physics for Scientists and Engineers, Authors: R.A. Serway and J.W. Jewett. ***Supplementary*** Fundamentals of Physics Extended, Authors: D. Halliday & R. Resnick, J. Walker.
Objectives	• To be able to write equations of motion related to simple mechanical problems and integrate these equations. • To make predictions by using conservation laws in cases that cannot be easily integrated. • To provide the ability to apply numerical methods in solving engineering problems.
Course Outcomes	In this course you will be able to: CO1 Learn the concepts of basic physics and their applications in daily life CO2 Apply Newton's laws of motion to one and two-dimensional problems. CO3 Apply conservation laws to different problems. CO4 Explain the basic concepts of dynamics and statics. CO5 Consider single particles and particle systems in the light of Newton's laws.

Weekly Schedule of Topics

W	Topic
1	Physics and Measurements
2	Vectors (addition of vectors, scalar product, vectorial product)
3	Motion in one dimensions: Properties of motion in one dimension
4	Motion in 2 dimensions: Properties of motion in two dimension
5	Newton's Laws
6	Harmonic oscillator. Uniform circular motion
7	Work and Energy
8	Potential energy and conservation of energy
9	Momentum and motion of system of particles
10	Kinematic of rotation of rigid bodies
11	Angular momentum
12	Rotation of rigid bodies
13	Static Equilibrium of Rigid Bodies and Torque
14	Conditions for equilibrium

Professional Contribution	To provide engineering students with an introduction to fundamental engineering topics in order to establish conceptual relationships between mechanics and related engineering sciences.

Contribution to Program Outcomes*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	5	5	5	2	2	1	1	1	1	1	2
CO2	5	5	5	2	2	1	1	1	1	1	2
CO3	5	5	5	2	2	1	1	1	1	1	2
CO4	5	5	5	2	2	1	1	1	1	1	2
CO5	5	5	5	2	2	1	1	1	1	1	2

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

Special Conditions	The consequence of violation of the attendance rule is to receive a grade of **NA.**
Requirements	NA
Evaluation	Midterm Exam 40% Final Exam 60% Total 100%
Rubric	NA
Course Policy	1. You must attend at least 70% of the sessions including add-drop period. 2. Be in the class on time. 3. English should always be used to communicate with one another. 4. Mobile phone should be switched off and put away during the class. 5. You cannot talk to your friends during class no matter what the subject is.
Cheating & Plagiarism	• Copying or letting someone to copy your work on exams, assignments, or reports is cheating. • Cutting and pasting text, figures and tables from the web sources or any other electronic source is plagiarism. • The consequence of academic dishonesty is to receive a grade of **F** for the course.

Instructor

Name/Surname	Mustafa Tokaç	Email	Mustafa.tokac@alanya.edu.tr
Room	A003	Office Hours	Wednesday 09:30 – 11:30

Prepared by Mustafa Tokaç on October 21st, 2024.