

Faculty of Engineering & Technology

Mechanics 2

Information :

Course Code : MEC 122

Level : Undergraduate

Course Hours : 2.00- Hours

Department : Faculty of Engineering & Technology

Instructor Information :

Title	Name	Office hours
Lecturer	Hamada Galal Taha Mohamed Askar	5
Lecturer	Hamada Galal Taha Mohamed Askar	5
Lecturer	Hamada Galal Taha Mohamed Askar	5
Assistant Lecturer	SHEROUK SOBHI ABDELSALAM FOUDA	
Teaching Assistant	Ahmed Abdelfattah Abdelaziz Abdelfattah	
Teaching Assistant	Ahmed Muhammed Elmasbahy Abdel Samed	7
Teaching Assistant	Ahmed Abdelfattah Abdelaziz Abdelfattah	
Teaching Assistant	Ahmed Mohamed Abdelnaby Ali Shafay	

Area Of Study :

Displacement, Velocity and Acceleration of a particle, Use of Cartesian coordinates to describe particle motion, Projectiles, Particle motion on straight paths, Trajectory equations, Rectangular and polar axes , Relative motion of two particles. Newton's law of motion, Resistive media, Rocket motion as an application on variable mass particles, Simple harmonic motion of a particle, Motion on circular path, Principle of work and Kinetic energy, Conservative forces, Principle of conservation of mechanical energy, Principle of impulse and momentum.

Description :

Displacement, Velocity and Acceleration of a particle, Use of Cartesian coordinates to describe particle motion, Projectiles, Particle motion on straight paths, Trajectory equations, Rectangular and polar axes , Relative motion of two particles. Newton's law of motion, Resistive media, Rocket motion as an application on variable mass particles, Simple harmonic motion of a particle, Motion on circular path, Principle of work and Kinetic energy, Conservative forces, Principle of conservation of mechanical energy, Principle of impulse and momentum.

Course outcomes :

a. Knowledge and Understanding: :

1 -	Define the fundamental quantities for describing the kinematics of the particle.
2 -	Define the concept of kinetics which relating the forces and accelerations.

3 -	Distinguish between motion of particle in case of rectilinear and curvilinear motion.
4 -	Write equations of motion of a particle.
5 -	Define different types of energy.

b. Intellectual Skills: :

1 -	Calculate the Velocity and Acceleration of a particle.
2 -	Discriminate between different System of units.
3 -	Find linear momentum of a particle and its rate of change.

c. Professional and Practical Skills: :

1 -	Use Kinematics of particles to formulate equations of motions.
2 -	Fix the knowledge of Equations of Motion to solve particles problems.

d. General and Transferable Skills: :

1 -	Work effectively in a team.
2 -	Develop the skills related to creative thinking, problem solver, and teamwork in different fields.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Displacement, Velocity and acceleration of a particle	4	1	1
Use of Cartesian coordinates to describe particle motion, Particle motion on straight paths	4	1	1
Projectiles, Trajectory equations	4	1	1
Rectangular coordinates	4	1	1
Polar coordinates	4	1	1
Relative motion of two particles	4	1	1
Simple harmonic motion of a particle	4	1	1
Newton's law of motion	4	1	1
Principle of work and kinetic energy	4	1	1
Conservative forces	4	1	1
Resistive media, Rocket motion as an application on variable mass particles	4	1	1
Motion on circular path	4	1	1
Principle of conservation of mechanical energy	4	1	1
Principle of impulse	4	1	1
Principle momentum	4	1	1

Teaching And Learning Methodologies :

Interactive Lecture
Discussion
Problem-based Learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final Exam	40.00		
Mid- Exam 1I	25.00		
Mid- Exam I	15.00		
Performance	10.00		
Quizzes+Assignment	10.00		

Course Notes :

Recommended books :

Periodicals :

Web Sites :