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	6
Assistant Lecturer	Reham Milad Kamel Samaan	
Assistant Lecturer	Noura Khedr Abdul raheem Ahmed	

Area Of Study :

Overall aims of the course are:
Enrich studentsÕ knowledge about principles of kinematics of particles and the basic concepts of kinetics.
Develop studentsÕ skills to apply equations of motion to solve and analyze dynamic problems.

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 coordinates, Relative motion of two particles, NewtonÕs 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 describeparticle motion, Particle motion on straightpaths	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
Newtonôs 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 anapplication on variable mass particles	4	1	1
Motion on circular path	4	1	1
Principle of conservation of mechanicalenergy	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 :

course handouts & notes

Recommended books :

J.l. meriam, l.g. kraige, Engineering Mechanics (dynamics) 7th ed., si units.
Bear, F.P., Johnson, E.R. and Eisenberg, E. R., "VECTOR MECHANICS.

Periodicals :

Web Sites :