BA142- Mechanics (2)

Hour: Lecture: 2 Hrs. Tutorial: 2 Hrs. Credit: 3.

Coordinator: Moustafa Abdeen

Text Book:

- R.C. Hibbeler , *Engineering Mechanics: Dynamics,* Macmillan USA, latest edition .

Specific course information:

a. Introduction of the kinematics of the particle, rectilinear and projectile motions, force and acceleration. Moreover, work and energy of a particle, rotation of a body about a fixed axis, general plan motion, relative velocity and acceleration, equations of translation – rotational.
b. Prerequisite: BA141.
c. Designation: Required

Specific goals for the course:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to identify, formulate, and solve engineering problems.

Course instruction outcomes:

- The students will learn the geometry of motion (Kinematics) as well as the relationship between the motion of a body and the forces and the moments acting on it (Kinetics).

Student outcomes:

A, E

Topics Covered:

Kinematics of a particle – Rectilinear Kinematics - Curvilinear Motion –Projectile Motion - Force & Acceleration (Kinetics) - Work & Energy of a particle (Kinetics) - Rotation of a Rigid Body about a fixed Axis - General Plan Motion - Relative Motion (Velocity) - Relative Motion (Acceleration) - Planar Kinetics of Rigid Body – Equation of Translation Motion - Equation of Rotational Motion - Equation of General Plane Motion - Work and Energy. Frames – Friction - Mass Moment of Inertia - Virtual work.

Course / credit hours	Math & Basic Sciences	Engineering Topics	General Education
Mechanics2 (BA142)/3	0.5	2.5	