

BA 142 – Engineering Mechanics (2)
COURSE INFORMATION

Course Title: Engineering Mechanics (2).

Code: BA142.

Contact Hours (hours/week): Lecture – 2 Hrs. Tutorial – 2 Hrs.
Credit – 3.

. Prerequisite: BA141

Course Coordinator: Dr. Wael Abass

G R A D I N G

Class Performance/Attendance: 10%
Midterm # 1/Assignments – (7th Week): 30%
Midterm # 2/Assignments – (12th Week): 20%
Final Exam: 40%

COURSE DESCRIPTION

Kinematics of a particle – Rectilinear Kinematics- projectile motion- Force and acceleration (Kinetics), Newton’s laws.-Work and energy of a particle (kinetics) - Rotation of a rigid body about a fixed axis-General plane motion- Relative motion (velocity)- Relative motion (acceleration) - Planar Kinetics of a rigid body- Equation of translational motion-Equation of rotational motion-Equation of General plane motion.

T E X T B O O K S

Engineering Mechanics dynamics – R.C. Hibbeler

R E F E R E N C E B O O K S

Vector mechanics for engineers – Dynamics – Bear/ Johneston

COURSE AIM

The aim of the course is to provide a clear and thorough presentation of the theory and applications of engineering mechanics.

COURSE OBJECTIVES

The course objectives are to study 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).

COURSE OUTLINE

Week Number 1: Kinematics of a particle – Rectilinear Kinematics.

Week Number 2: Curvilinear Motion – Rectangular Components, Projectile Motion.

Week Number 3: Force & Acceleration (Kinetics).

Week Number 4: Work & Energy of a particle (Kinetics).

Week Number 5: Rotation of a Rigid Body about a fixed Axis.

Week Number 6: General Plan Motion.

Week Number 7: Exam # 1.

Week Number 8: Relative Motion (Velocity).

Week Number 9: Relative Motion (Acceleration).

Week Number 10: Planar Kinetics of Rigid Body

Week Number 11: Equation of Rotational Motion

Week Number 12: Exam # 2.

Week Number 13: Equation of General Plane Motion.

Week Number 14: Work and Energy.

Week Number 15: Review

Week Number 16: Final Exam.