

Basic and Applied Science Courses (BA)

Basic and Applied Science Courses Group

BA 141 – Engineering Mechanics (1)

COURSE INFORMATION

Course Title: Engineering Mechanics (1).
 Code: BA141.
 Hours: Lecture – 2 Hrs. Tutorial – 2 Hrs. Credit –3.
 Prerequisite: none.

GRADING

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

COURSE DESCRIPTION

Introduction to mechanics. Plane and space force analysis, projection and synthesis. Moments. Couples and wrenches. Static equilibrium. Technique of free body diagrams. Applications of static equilibrium of machines, Method of virtual work and its application to solution of problems of static equilibrium.

TEXT BOOK

HIBBELER R.C., Engineering Mechanics.

REFERENCE BOOKS

Books available in the AAST Library

COURSE AIM

The aim of the course is to provide the student with an introduction to many of the fundamental concepts in Mechanics

SPECIFIC OUTCOMES OF INSTRUCTION

- The students will be able to treat only rigid-body mechanics, since it forms a suitable basis for the design and analysis of many types of structural, mechanical or electrical devices encountered in engineering.

APPENDIX A-26

COURSE OUTLINE

- Week Number 1:* Rectangular components of a force.
- Week Number 2:* Parallelogram law.
- Week Number 3:* Equilibrium of particle – springs and cables.
- Week Number 4:* Moment of force.
- Week Number 5:* Free body diagram.
- Week Number 6:* Equilibrium of rigid body.
- Week Number 7:* Exam # 1.
- Week Number 8:* Trusses “joint method – zero – force members”.
- Week Number 9:* Trusses “method of section”.
- Week Number 10:* Frames.
- Week Number 11:* Frames (cont.).
- Week Number 12:* Exam # 2.
- Week Number 13:* Friction
- Week Number 14:* Mass Moment of Inertia
- Week Number 15:* Virtual work
- Week Number 16:* Final Exam.

COURSE COORDINATOR AND DEMAND

Course Coordinator: Dr.Eltantawy Fared.

Course Demand: *Required*