NorthWest Arkansas Community College
Division of Science and Mathematics

Course Number and Title
MEEG 2013: Dynamics

Catalog Description
Kinematics and kinetics of particle and of rigid bodies; work and energy; impulse and momentum, and special topics. Class will meet 4 hours a week, drill included.

Prerequisites
MEEG 2003

Credit hours/Contact hours/Load hours
3 credit hours/ 4 contact hours/ 3.67 load hours

Target Audience/Transferability
This course is designed for students who are transferring into an engineering program at a 4-year institution. It is intended to transfer in as a 3 credit hour Intro course for those engineering areas requiring such a course. Transferability, as always, depends on the policy of the senior institution.

Student Learning Outcomes
Students successfully completing this course will possess an understanding of fundamental engineering concepts and will:

1. Develop an understanding of laws of Motion.
2. Understand and solve problems regarding the kinematic motion of a particle.
3. Understand the concept of force and acceleration and their relationships as described by the equations of motion.
4. Understand the work and energy and their relationship to conservative forces,
5. Understand the principle of linear impulse and its relation to linear and angular momenta.
6. Understand the kinematics of a rigid body as compared to a particle in terms of rotation, relative velocity and absolute motion.
7. Understand the kinematics of a rigid body as compared to a particle in terms of work and energy relationships.
8. Understand the kinematics of a rigid body in three dimensions.
9. Understand and describe undamped and damped harmonics motion
10. Apply problem solving techniques to problems in Dynamics,

Topics
1) Kinematics of a Particle
2) Kinetics of a Particle: Force and Acceleration

3) Kinetics of a Particle: Work and Energy
4) Kinetics of a Particle: Impulse and Momentum
5) Planar Kinematics of a Rigid Body
6) Planar Kinetics of a Rigid Body: Force and Acceleration
7) Planar Kinetics of a Rigid Body: Work and Energy
8) Planar Kinetics of a Rigid Body: Impulse and Momentum
9) Three-Dimensional Kinematics of a Rigid Body
10) Three-Dimensional Kinetics of a Rigid Body
11) Vibrations

Text:

Engineering Mechanics : Dynamics - 13th edition

by Russell C. Hibbeler
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