## Common Course Outline ENSC 211 Mechanics II (Dynamics) 3 Credits

# **Community College of Baltimore County**

#### **Description**

**ENSC 211 - Mechanics II (Dynamics) -** Covers kinematics and kinetics of particles, energy and momentum methods and kinematics of plane motion of rigid bodies.

#### **3** Credits

Prerequisite: ENSC 111; or consent of instructor.

#### **Overall Course Objectives**

Upon completion of this course, the student will be able to:

- 1. utilize the terminology of Engineering Dynamics.
- 2. understand the fundamental concepts and units of Engineering Dynamics.
- 3. understand the different types of forces.
- 4. utilize the Free Body Diagram.
- 5. perform all of the Vector Products.
- 6. utilize the rules for Vector manipulation.
- 7. analyze the motion of particles in terms of displacement, velocity, and acceleration in different coordinate systems.
- 8. analyze the motion of particles based on Newton's SecondLaw.
- 9. analyze the motion of particles by energy methods.
- 10. analyze the motion of particles by Impulse and Momentum methods.
- 11. analyze the planar rigid body motion by all of the above methods.

#### Major Topics

- I. Kinematics of a particle ( the relationship between displacement, velocity, acceleration, and time )
- II. Kinetics of a particle ( the relationship of particle mass and the forces acting on it to the particle kinematics)
- III. Kinetics of a particle by Work and Energymethod
- IV. Kinetics of a particle by Impulse and Momentum method
- V. Planar kinematics and kinetics of rigid bodies
- VI. Planar kinetics of a rigid body by Work and Energy method
- VII. Planar kinetics of rigid body by Impulse and Momentum method

### **Course Requirements**

<u>Grading/Exams</u> - Grading procedures will be determined by the individual faculty member but will be based on exams.

Revised: June 11, 2019