1. Course: ENCP 210 – Dynamics
2. Credits and Contact Hours: 3 credits, 3 lecture hours per week
3. Instructor: Varies
4. Example Textbook: Hibbeler, Engineering Mechanics - Dynamics, 14th ed., Prentice Hall, 2017 ISBN-13: 9780136912347
5. Course Information
   1. Catalog Description: Kinematics of particles and rigid bodies. Kinetics of particles with emphasis on Newton’s second law; energy and momentum methods for the solution of problems. Applications of plane motion of rigid bodies.
   2. Prerequisites: ENCP 200 or ECIV 200 or EMCH 200.
   3. Substitute for ECIV 210 or EMCH 310
6. Course Goals
   1. Learning Outcomes. Students will be able to:
      1. apply concepts of displacement, velocity, constant acceleration, and curvilinear motion of particles as both scalar and vector quantities.
      2. analyze rigid body motion in two dimensions with respect to both absolute and relative motion descriptions.
      3. apply Newton's laws of motion to engineering problems involving particle kinetics and rigid body kinetics in-plane motion.
      4. employ work-energy and impulse-momentum principles to engineering problems involving particle kinetics and rigid body kinetics in-plane motion.
      5. analyze free and forced vibration of one degree of freedom systems.
   2. Learning Outcomes (LOs) relation to ABET EAC Criterion 3 Student Outcomes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ABET EAC Criterion 3 Student Outcomes | LO1 | LO2 | L03 | L04 | LO5 |
| an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. | X | X | X | X | X |

1. Topics Covered
   * Kinematics of a Particle
   * Kinetics of a Particle: Force and Acceleration
   * Kinetics of a Particle: Work and Energy
   * Planar Kinetics of a Rigid Body: Force and Acceleration
   * Planar Kinetics of a Rigid Body: Work and Energy
   * Planar Kinetics of a Rigid Body: Impulse and Momentum
   * Vibrations
2. Document History

Created April 5, 2022