

1. **Course Number and Name:**
CE 2338 Mechanics II (Dynamics)
2. **Credits and Contact hours**
3 credit hours; 3 lecture hours
3. **Instructor's course or coordinator's name**
 - a. Dr. Cesar Tirado
4. **Textbook**

Engineering Mechanics: Dynamics, plus Mastering Engineering, Russell C. Hibbeler, 14th Edition, Prentice Hall, 2016.

 - a. Course notes is posted on Blackboard
 - b. Homework is posted through Pearson's Mastering Engineering website.
5. **Specific Course information**
 - a. Catalog Description: Dynamics of particles and rigid bodies, work and energy, impulse and momentum.
 - b. Prerequisite: CE 2315 Statics and MATH 1312 – Calculus II, each with grade of "C" or better. Co-requisite: None.
 - c. Required
6. **Specific goals of the course**
 - a. **The students will be able to:** Derive and apply the relationships between position, velocity, and acceleration of a particle in motion (a, e); Derive relations defining the velocity and acceleration of a particle on a rigid body for translation, rotation, and general plane motion (a, e); Apply Newton's second law to analyze the motion of a particle acted upon by forces or a rigid body acted upon by forces and moments (a, e); Apply the method of work and energy to problems modeled as a single particle, system of particles, or a rigid body (a, e); Apply the method of impulse and momentum to problems modeled as a single particle, system of particles, or a rigid body (a, e); Describe and analyze the motion of a particle relative to a rotating frame (a, e); Apply the principle of impulse and momentum to impact problems (a, e); Communicate legible and understandable engineering solutions (g).
7. **Relation to student outcomes:** a, c, d, e, g, 1, 2, 3, 4
8. **Topics Covered:**
 - a. Kinematics of a particle
 - b. Kinetics of a Particle: Force and Acceleration
 - c. Kinetics of a Particle: Work and Energy
 - d. Kinetics of a Particle: Impulse and Momentum
 - e. Planar Kinematics of a Rigid Body
 - f. Planar Kinetics of a Rigid Body: Force and Acceleration
 - g. Planar Kinetics of a Rigid Body: Work and Energy
 - h. Planar Kinetics of a Rigid Body: Impulse and Momentum