1. EM232 Dynamics

2. 3 Credit Hours / 3 Contact Hours

3. Course Director: Dr. Joshua J. Radice

4. Text book: Engineering Mechanics: Dynamics, Meriam, Kraige, and Bolton, 9th Edition

5. Specific course information
   a. Course in classical vector dynamics. Topics include vector algebra and calculus, kinematics and kinetics of particles and rigid bodies, as well as energy and momentum methods. Extensive problem-solving involving particle and rigid body motion is required.
   b. Prerequisites: Statics (EM211), Co-requisites: Differential Equations (SM212)
   c. This course is required for the Mechanical and General Engineering programs.

6. Educational objectives for the course
   a) Select a suitable coordinate system and reference coordinate axes and describe the two-dimensional motion of a particle in those coordinate systems.
   b) Select a suitable solution method or combination of methods for problems involving particle or rigid body motion.
   c) Construct free body force diagrams and kinetic diagrams for particle or rigid body motion, understand the relationship between them and use them to formulate equations of motion.
   d) Construct impulse and momentum diagrams for particle or rigid body motion, understand the relationship between them and use them to formulate equations of motion.
   e) Formulate work-energy relationships and use them to solve problems involving particles and rigid bodies.
   f) Apply Coulomb dry friction to particle and rigid body engineering problems.
   g) Communicate engineering solutions effectively and clearly.

7. Specific program outcomes address by this course:

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Introduced							
Reinforced	X						
Mastered							

8. Brief list of topics to be covered
   a) Particle kinematics and coordinate systems
   b) Particle relative motion
   c) Equations of motion for particles
   d) Kinematics of rigid bodies
   e) Rigid body relative motion
   f) Equations of motion for rigid bodies