1. EM232 Dynamics

2. Credit Hours (3) / Contact Hours (3)

3. Course Director: Associate Professor Joshua J. Radice

4. Text book: R.C. Hibbeler, Engineering Mechanics: Dynamics 14th Edition, Pearson

5. Specific course information
   a. Course catalog description: 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: EM211 Statics
      Co-requisites: SM212 Differential Equations
   c. This course is required for the Mechanical, Systems, and Ocean Program.

6. Specific goals for the course (course outcomes)
   a. Select a suitable coordinate system and reference coordinate axes and describe the two-dimensional motion of a particle in those coordinate systems. (A, B, C)
   b. Select a suitable solution method or combination of methods for problems involving particle or rigid body motion. (A, B, C)
   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. (A, B, C)
   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. (A, B, C)
   e. Formulate work-energy relationships and use them to solve problems involving particles and rigid bodies. (A, B, C)
   f. Apply Coulomb dry friction to particle and rigid body engineering problems. (A, B, C)
   g. Communicate engineering solutions effectively and clearly (A, B, C)

7. Specific program outcomes address by this course

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Introduced											
Reinforced	X		X		X		X				X
Mastered											

8. Brief list of topics to be covered
   a. Particle Kinematics
      i. Cartesian Coordinates
      ii. Normal-Tangential Coordinates