1. Course number and name
   ENGR 102: Statics

2. Credits and contact hours
   3 Credit Hours

3. Instructor's or course coordinator's name
   Instructor: Timothy B. D'Orazio, Professor of Civil Engineering
   Course coordinator: Timothy B. D'Orazio, Professor of Civil Engineering

4. Text book, title, author, and year
   Beer, F.P. and Johnston, E. R., Vector Mechanics for Engineers - Statics, 7th edition,
   McGraw-Hill, 2010.

a. other supplemental materials
   None

5. Specific course information
a. brief description of the content of the course (catalog description)
   .Vector treatment of force systems acting on particles and rigid bodies. Centroids and
   moments of inertia. Trusses, machines, fluid statics, shear and moment diagrams for beams,
   and friction.   Applications to structural and mechanical problems.

b. prerequisites or co-requisites
   Math 227, Phys 220

c. indicate whether a required, elective, or selected elective course in the program
   Required for Civil and Mechanical Engineering.

6. Specific goals for the course
a. specific outcomes of instruction, ex. The student will be able to explain the significance of
current research about a particular topic.

   Students will demonstrate an ability to:
   • use vectors to represent forces.
   • sum forces.
   • sum moments.
   • develop force equilibrium equations.
   • develop moment equilibrium equations.
   • evaluate particle equilibrium.
   • analyze equilibrium of frictionless pulley and cable systems.
   • analyze equilibrium of truss systems.
   • analyze equilibrium of machine systems.
   • analyze equilibrium of beam systems.

Students will demonstrate an ability to:
• determine centroids of areas of various shapes using both integration and summation.
• determine moments of inertia about axes using both integration and summation.

Students will demonstrate an ability to:
• analyze the behavior of blocks on ramps with friction.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
    Course addresses ABET Student Outcome(s): a, c, e

7. Brief list of topics to be covered

   • Using vectors to represent forces.
   • Summing forces.
   • Summing moments.
   • Developing force equilibrium equations.
   • Developing moment equilibrium equations.
   • Particle equilibrium.
   • Equilibrium of frictionless pulley and cable systems.
   • Analyzing equilibrium of truss systems.
   • Analyzing equilibrium of machine systems.
   • Analyzing equilibrium of beam systems.
   • Determining centroids of areas.
   • Determining moments of inertia.
   • Analyzing equilibrium of systems with friction.