**Course Outcomes**

1. Review of fundamentals of *kinematics, dynamics, vibrations*.
2. Modeling *dynamic systems*.
3. Modeling *interaction* with *environment* and *determination of response*.
4. Investigation of *case studies*.

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**Typical Semester Projects**

1. Modeling a washing machine with an unbalanced load.
2. Modeling a playground swing and rider.
3. Modeling a golf swing.
1. COURSE NUMBER AND NAME: ME 56700 Dynamical Problems in Design

2. CREDITS AND CONTACT HOURS: 3 credits
   a. Lecture – 3 days per week at 50 minutes for 16 weeks

3. COURSE COORDINATOR OR INSTRUCTOR:
   R.J. Cipra

4. TEXTBOOK: Class Notes

5. SPECIFIC COURSE INFORMATION
   a. Catalog Description: Design of devices required to have specified dynamic characteristics. Modeling of linear and nonlinear systems and determination of their performance under deterministic and random inputs. Analytical and approximate methods, including computer solutions. Individual project involves modeling, analysis, and system simulation of an actual physical system’s motion. Typically offered in the fall (alternate years).
   
   b. Prerequisites:
      First Semester Senior Standing or Higher
   
   c. Status: Elective

6. SPECIFIC GOALS FOR THE COURSE
   a. Course Outcomes:
      1. Review of fundamentals of kinematics, dynamics, and vibrations.
      2. Modeling dynamic systems.
      4. Investigation of case studies.

   b. Related ME Program Outcomes:
      A1. Engineering Fundamentals; B3. Prof/Ethical Responsibility;
      A3. Experimental Skills; B5. Life-Long Learning;
      A4. Modern Engr Tools; C1. Leadership,
      A5. Design Skills; C2. Global Engineering Skills;
      A6. Impact of Engr Solns; C3. Innovation;
      B1. Communication Skills; C4. Entrepreneurship
      B2. Teamwork Skills

7. LIST OF TOPICS: See following page.

PREPARED BY: R. J. Cipra

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