BAKER COLLEGE
STUDENT LEARNING OUTCOMES

ME3250 Vibrations
3 Semester Hours

Student Learning Outcomes & Enabling Objectives

1. Explain basic vibration concepts.
   a. Contrast elements of a vibrating system.
   b. Describe properties of vibrating systems such as stiffness, flexibility and inertia influence coefficients.
2. Analyze single degree of freedom systems.
   a. Examine free vibration of single degree of freedom systems.
   b. Examine harmonically excited vibration of undamped and damped systems.
   c. Examine transient vibration and vibration under general forcing conditions using convolution integral and Laplace transforms.
3. Analyze systems with two or more degree of freedoms.
   a. Examine free and forced vibration.
   b. Examine systems with and without structural damping.
   c. Apply Lagrange's equations.
   d. Apply computational methods to solve eigenvalues problems.
4. Explain concepts of vibration control in simple mechanical systems.
   a. Solve problems involving vibration reduction.
   b. Solve problems involving isolation and absorption of vibrations.
5. Examine the Finite Element Method to solve vibration problems.
   a. Explain the bar vibration problem.
   b. Explain the truss vibration problem.
   c. Explain the beam vibration problem.

These SLOs are not approved for experiential credit.

Effective: Fall 2017