San Jose State University  
Department of Mechanical Engineering  

ME 230 Graduate Program Comprehensive Exam Guidelines

1. **Time, Date, and Place:**  
   Posted on the ME Department website.

2. **General Rules:**  
   - This is an open-book examination. You may bring one of the following textbooks:  
     1. Advanced Engineering Mathematics by Zill and Warren, or  
     2. Advanced Engineering Mathematics by Kreyszig  
   - Students are allowed to bring a calculator without any wireless and connectivity.

3. **Format of the Exam:**  
   Includes,  
   (a) (allow 15-20 minutes): Short questions, True and False questions, or multiple-choice questions,  
   (b) (allow 40 minutes): A choice from a set of two problems

4. **Exam Duration:** One hour.

5. **Topics to be considered:**  
   (Questions could come from ME 230 textbooks such as Zill/Wright, Kreyszig, or similar)  
   - Second-order ordinary differential equations with initial or boundary conditions  
   - Method of undetermined coefficients and Method of variation of parameters for solving non-homogenous ordinary differential equations  
   - Solution of ordinary differential equations using Laplace transform method  
   - Orthogonal functions and Fourier series  
   - Bessel series, Legendre series, and general orthogonal functions series  
   - Boundary-value partial differential equations in Cartesian, Polar and Cylindrical coordinates, method of separation of variables

6. **Passing Grade:** 65% minimum

7. **Course Coordinator:** Dr. Fred Barez

October 7, 2015