ME 4501 – Vibrations & Controls Laboratory

Instructor: Dr. Richard Ruhala, Associate Professor of Mechanical Engineering

Office: G-162  (Note: will be spending a lot of time this semester in new ME lab in Q217)

Phone: 678-915-6855  812-589-2983

   work           cell/text

Email: rruhala@spsu.edu  (best way to reach me)

Class times: M 600—800 Section 031  OR  T 230—430 Section 030  Q-217

Office Hours: ___ Wednesday ___

130-430 pm

___ Thursday ___

200-300 pm & 730—830 pm

or by appointment


Laboratory notebook with numbered pages. Either traditional bounded lab notebook or OK to used binder and number pages and include table of contents and thus update with lab assignments.

Reference textbook in System Dynamics and/or Control Theory is not required, but is a good reference for controls assignments.


Grading: 60% Lab Reports and assignments, including lab notebook.

20% Midterm Exam (TBA)

20% Final Exam (TBA— not cumulative)

Nominal Grading Scale: 90-100 A  80-89 B  70-79 C  60-69 D  0-59 F

Catalog COURSE DESCRIPTION

(1-credit) This is a laboratory course designed to complement the vibrations and controls topics also covered in lecture courses. Experimental study of one, two, and more degrees of freedom vibration, including effects of damping, free and
forced vibrations, translational and torsional vibrations. Implementation of proportional, integral, and/or derivative control of dynamic systems.

**General LEARNING OUTCOMES**

Upon the completion of this course, you should be able to:

1. An ability to design and conduct experiments, as well as to analyze and interpret data.
2. Assess the validity of the experimental results and compare with theoretical results when possible.
3. An ability to communicate effectively by writing and submitting a laboratory report.
4. Calibrate a transducer and understand the signal path and relationship to the physical variable.

**COURSE OUTCOME MEASURES and ASSESSMENT**

Measures and assessment of the outcomes will be made by:

- Exams
- Lab Reports
- Lab notebook and other assignments.
- Student survey(s).

**LABS**

- Lab attendance is of paramount importance in this class. Due to high enrollment, it is difficult to make-up a lab. It is the student’s responsibility to contact the Professor *prior* to the lab if s/he cannot attend the lab at the regular scheduled time. If you have a legitimate reason to miss a lab, attend a different lab section during the same week if possible. See the instructor(s) ahead of time for their approval if that is your plan.
- Use lab notebooks to document your laboratory work.
- The lab assignment and/or report are due 1 week after the lab session (unless otherwise declared by the Professor).
- Some labs may include assignments with calculations and written responses. Solutions must follow procedures and formatting that will be described below. Photocopies out of your lab notebooks may be allowed if sufficiently neat.
• Other labs will require a technical memo or professional report. Lab reports should be typed up using formatting that will be specified by the professor.
• Lab reports, when due, are to be turned in at the beginning of class on the due date for full credit. They will be marked down 25% for each 24-hour period of tardiness.
• Lab notebooks may be graded during the midterm and final exam weeks.

EXPECTATIONS

• You are expected to check your email and Georgia VIEW Vista 8 daily. I will communicate with you via the email account that is assigned to you by SPSU.
• SPSU has an Honor Code and a procedure relating to when academic misconduct is alleged. All students should be aware of this. Information about the Honor Code and the misconduct procedure may be found at http://spsu.edu/honorcode/
• Questions regarding the grading of a report or exam must be submitted in writing to the professor within one week from the date that the work was returned. RECOMMENDATIONS
• Visit the course website on Vista for important announcements, documents, reading and homework assignments, and other helpful information.

AMERICANS WITH DISABILITITES ACT COMPLIANCE

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the ATTIC counselor working with disabilities at 678-915-7316, now in the Basement of the Student Center, as soon as possible to better ensure that such accommodations are implemented in a timely fashion. Accommodations are best implemented at the beginning of the semester. I will work with you to provide reasonable accommodations to ensure that you have a fair opportunity to perform and participate in class.