

**MEMS 431: Structural Dynamics
and Vibrations
Laboratory Manual**

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Course website: http://classes.engineering.wustl.edu/mems431_lab

MEMS 431: Lab Policies

Safety: The first concern during all labs should be safety. Dynamics necessarily involves moving parts, so some care is required. Specific suggestions are noted in individual labs.

- 1) Read instructions and safety notices. Listen to directions from the lab instructor.
- 2) Know the locations of exits and telephones.
- 3) Do not touch bare electrical wires, even in low voltage circuits.
- 4) Do not turn on power to a device before you understand its operation.
- 5) Before turning on any device, make sure your hands, clothing and hair are not dangerously near moving parts. *Be especially careful of long hair and neck ties.*
- 6) Whenever possible, start tests at low speed and amplitude, then increase values.

Assignments: Lab write-ups will be completed in a variety of formats: full report, extended abstract, or other. The desired format for each lab is listed on the lab schedule and the lab manual. The sample lab report format is located on the course website. Design exercise reports need not follow the lab report format exactly, but should be clear, concise, and professional descriptions of your design. Reports for lab exercise will be graded according to the following guidelines:

<i>Procedures:</i> Accurate description of goals and methods	25%
<i>Results:</i> Complete and accurate measurements and analysis	40%
<i>Introduction, theory, and interpretation:</i> Insight into the lab	20%
<i>Presentation:</i> Clarity, organization, and style	15%

The grading for design projects will be similar, although sections like *Procedures* and *Results* will be replaced by sections such as *Design Objectives* and *Design Approach*.

Assignments are due at the next meeting of the lab group, usually two weeks later. *Each student must turn in a report for each lab. Collaboration between students is encouraged, but the final text and graphics must be the work of only the author of the report.*

Make-up and late labs: Students who miss a lab for a valid reason may be able make up the work during a scheduled lab period. The lab must be performed within two weeks of the original date. The instructors will not schedule extra lab sessions. Late labs will be accepted but will be penalized 20% per weekday late. After 4 weekdays, the lab will not be penalized further but may be turned in by the last class for a grade of 20%.

Groups: Each lab section (A, B, C) will be broken into four groups (1, 2, 3, 4). Groups 1 and 2 meet on the first week of every 2-week cycle; groups 3 and 4 on the second week. The early groups (1 and 3) will meet from 1:00pm-2:30pm, while the late groups (2 and 4) will meet from 2:30pm-4:00pm.

Academic Integrity: Violations (cheating, plagiarism) will result in a zero for the assignment and possible referral to the judiciary board.