



MECH 455 Instrumentation

SUMMER 2015 (201505)

Instructor

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TBA

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TAs

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Course Outcomes

The ability to design and control mechanical systems, evaluate performance, and prevent failures relies on our ability to obtain and analyze data. This course provides students with the basic tools required to gather information about physical systems and processes with a variety of instrumentation systems. Various measuring techniques using electronic transducers coupled to microprocessors are examined. The integration of sensors, with filtering, amplification, noise suppression and data sampling is a major focus of the course. Typical properties measured in mechanical systems will be addressed such as temperature, pressure, strain, velocity and acceleration. The laboratory experiments constitute a large portion of the work in the course and require students to design and implement complete measurement systems. The goal of the course is to provide sufficient background so that students will be comfortable designing measurement systems for use in industrial and research applications.

Lectures: A-Section (A01 / CRN 30555)

Days: Mondays and Thursdays
Time: 10:00 am to 11:20 pm
Location: ELL 167

Tutorials: T01

Fridays (see attached schedule)
12:30 pm to 1:30 pm
ECS 125

Labs: B-Sections

B01: Thursdays 1:30 pm - 4:30 pm in ELW B232
B02: Wednesdays 1:30 pm - 4:30 pm in ELW B232
B03: Fridays 8:30 am - 11:30 am in ELW B232
B041: Fridays 1:30- 4:30 pm in ELW B232

Required Text

Title: Introduction to Engineering Experimentation
Author: A. J. Wheeler and A. R. Ganji
Publisher: Prentice Hall

Assessment:

3 Tests	52%	Dates: See Course Schedule
5 Labs	48%	

Notes:

1. There are five laboratory exercises for this course. Lab information is posted on the course website. Students will work in groups of 3 and attendance is critical for successful completion of the course, and therefore mandatory. All labs require student work in advance of the laboratory (see laboratory guidelines) with a Pre-Lab Report. The advance work must be submitted prior to the lab session to receive full marks. Group lab reports are due seven calendar days after the corresponding lab period, at 4:30 pm in the labeled drop-box outside ELW A144.
2. **Failure to complete all laboratory requirements will result in a grade of N being awarded for the course.**
3. The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar.

Note to Students:

Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Secretary to set up an appointment.

Accommodation of Religious Observance

See entry in current Undergraduate Calendar

Policy on Inclusivity and Diversity

See entry in current Undergraduate Calendar

Standards of Professional Behaviour

You are advised to read the Faculty of Engineering document Standards for Professional Behaviour in current Undergraduate Calendar, which contains important information regarding conduct in courses, labs, and in the general use of facilities.

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult entry in current Undergraduate Calendar for the UVic policy on academic integrity.

Course Material

Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.