
ME 423L - Instrumentation and Control Laboratory (1 cr)

SECTION	1001	1002	1003
Day	Tuesday	Wednesday	Thursday
Time	4:00 PM – 6:45 PM	4:00 PM – 6:45 PM	8:30 AM – 11:15 AM
Room	Remote Learning	Remote Learning	Remote Learning
INSTRUCTOR	Justin Neubauer	Justin Neubauer	Brandon Ortiz
Email	neubau10@unlv.nevada.edu	neubau10@unlv.nevada.edu	ortizb2@unlv.nevada.edu
Office Hours	By Appointment	By Appointment	By Appointment

COREQUISITES: ME 337 or ME 421

REQUIRED TEXT: None

COURSE DESCRIPTION

Basic hardware setup of computer based data acquisition and control system and software programming using LabVIEW, selection of correct transducers and signal conditioning units commonly encountered in feedback control systems in mechanical engineering, experimental model identification, feedback system characteristics and performance, stability, design and compensation of control systems.

LEARNING OUTCOMES

With the completion of the course students will have acquired:

- a. A fundamental knowledge and practice of state-of-the-art technology associated with automated processes in mechanical engineering
- b. The ability to solve and experimentally validate open-ended design problems
- c. The ability to use computers in solving, modeling, and analyzing control engineering problems
- d. Training in the oral and written presentation of technical information

LAB SCHEDULE (NOTE: *This is a tentative schedule subject to change as the semester progresses*)

Wk	Sect	Date	Lab Topic	Prelab Opens	Report Due
1			LAB DOES NOT MEET FIRST WEEK OF SEMESTER		
2	1001	01/26	General Introduction & Lab 1: LABVIEW Programming	Prelab 1	
	1002	01/27			
	1003	01/28			
3	1001	02/02	Lab 1: (Continued)	Prelab 2	
	1002	02/03			
	1003	02/04			
4	1001	02/09	Lab 2: ELVIS Dashboard (ADC/DAC)	Prelab 3	Lab 1 Report
	1002	02/10			
	1003	02/11			
5	1001	02/16	Lab 3: Dynamic System Simulation (1st & 2nd Order)		Lab 2 Report
	1002	02/17			
	1003	02/18			
6	1001	02/23	Lab 3: (Continued)	Prelab 4	
	1002	02/24			
	1003	02/25			
7	1001	03/02	Lab 4: Filters	Prelab 5	Lab 3 Report
	1002	03/03			
	1003	03/04			
8	1001	03/09	Lab 5: Mechatronics Sensors	Prelab 6	Lab 4 Report
	1002	03/10			
	1003	03/11			
9			* * SPRING BREAK RECESS * *		
10	1001	03/23	Lab 6: DC Motor Modeling	Prelab 7	Lab 5 Report
	1002	03/24			
	1003	03/25			
11	1001	03/30	Lab 7: DC Motor Speed and Position Control	Prelab 8	Lab 6 Report
	1002	03/31			
	1003	04/01			
12	1001	04/06	Lab 8: Process Trainer – Level Control	Prelab 9	Lab 7 Report
	1002	04/07			
	1003	04/08			
13	1001	04/13	Lab 9: HVAC Control	Prelab 10	Lab 8 Report
	1002	04/14			
	1003	04/15			
14	1001	04/20	Lab 10: Rotary Pendulum Modeling and Control		Lab 9 Report
	1002	04/21			
	1003	04/22			
15	1001	04/27			
	1002	04/28			
	1003	04/29			
16	1001	05/04	Lab Final – Rewrite Lowest Scoring Lab Report		Lab 10 Report
	1002	05/05			
	1003	05/06			
17			FINALS WEEK		Lab Final – Report Rewrite

COURSE POLICIESWebCampus:

- All aspects of this course will be conducted using the UNLV WebCampus learning management platform.
- Students are responsible for keeping track of when content is released and are encouraged to use WebCampus' notification functionality.
- Content will become available on the date listed in the **Lab Schedule** section of this document.
- Lab reports are due by the scheduled start of lab on the dates listed in the **Lab Schedule**. There will be a unique submission link for each lab report.

Lab Reports:

- After each lab, students are expected to write a lab report.
- Lab reports must begin with a Title Page. A title page template will be provided and must be used.
- An electronic copy must be submitted to the WebCampus Turnitin link by the due date.
- Only Microsoft Word (*.DOCX) file format will be accepted for lab report submissions.
- Microsoft Office365 is available at no cost to all students. For details go to the following website: <https://www.it.unlv.edu/software/directory/microsoft-office>.
- Each lab report is worth 100 points.
- Any lab report submitted after the due date will be penalized.
 - 10 points are deducted for each week-day that the report is late
 - Week-ends and recognized UNLV holidays are not considered
 - Reports will not be accepted if they are more than 5 week-days late

Prelab Quizzes:

- Will focus on the information from the respective lab handout posted in WebCampus.
- Opens on the scheduled day of lab according to the **Lab Schedule**.
- Remains open for one week.
- Once the Prelab Quiz is started a student will have one hour to complete it.

Grading: The final grade will be comprised of the following:

- Prelabs 10%
- Lab Reports..... 90%
- 100%

Letter Grade Scale:

	B + 87% - 89%	C + 77% - 79%	D + 67% - 69%	
A 93% - 100%	B 83% - 86%	C 73% - 76%	D 63% - 66%	F 0% - 59%
A - 90% - 92%	B - 80% - 82%	C - 70% - 72%	D - 60% - 62%	

UNIVERSITY POLICIES & RESOURCESPublic Health Directives

Face coverings are mandatory for all faculty and students in the classroom. Students must follow all active UNLV public health directives while enrolled in this class. UNLV public health directives are found at <https://www.unlv.edu/coronavirus/health-requirements>. Students who do not comply with these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the UNLV Code of Student Conduct, https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf, including being administratively withdrawn from the course.

Academic Misconduct

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). See the Student Conduct Code, <https://www.unlv.edu/studentconduct/student-conduct>.

Auditing Classes

Auditing a course allows a student to continue attending the lectures and/or laboratories and discussion sessions associated with the course, but the student will not earn a grade for any component of the course. Students who audit a course receive the same educational experience as students taking the course for a grade, but will be excused from exams, assessments, and other evaluative measures that serve the primary purpose of assigning a grade.

Classroom Conduct

Students have a responsibility to conduct themselves in class and in the libraries in ways that do not interfere with the rights of other students to learn, or of instructors to teach. Use of electronic devices such as pagers, cellular phones, or recording devices, or potentially disruptive devices or activities are only permitted with the prior explicit consent of the instructor. The instructor may rescind permission at any time during the class. If a student does not comply with established requirements or obstructs the functioning of the class, the instructor may initiate an administrative withdrawal of the student from the course.

Copyright

The University requires all members of the University Community to familiarize themselves with, and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect nor defend you, nor assume any responsibility for employee or student violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional copyright policy information is available at <https://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC)

The UNLV Disability Resource Center (SSC-A, Room 143, <https://www.unlv.edu/drc>, telephone 702-895-0866) provides resources for students with disabilities. Students who believe that they may need academic accommodations due to injury, disability, or due to pregnancy should contact the DRC as early as possible in the academic term. A Disabilities Specialist will discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours, so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any

information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

Final Examinations

The University requires that final exams given at the end of a course occur on the date and at the time specified in the Final Exam schedule. The Final Exam schedule is typically available at the start of the semester, and the classroom locations are available approximately one month before the end of the semester. See the Final Exam Schedule, <https://www.unlv.edu/registrar/calendars>.

Identity Verification in Online Courses

All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas.

UNLV students enrolled in online or hybrid courses are expected to read and adhere to the Student Academic Misconduct Policy, <https://www.unlv.edu/studentconduct/misconduct/policy>, which states that “acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment” is a form of academic misconduct. Intentionally sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student Academic Misconduct Policy.

UNLV students enrolled in online courses are also expected to read and adhere to the Acceptable Use of Computing and Information Technology Resources Policy, <https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy>, which prohibits sharing university accounts with other persons without authorization.

To the greatest extent possible, all graded assignments and assessments in UNLV online courses should be hosted in WebCampus-Canvas or another UNLV-managed platform that requires ACE login credentials for access.

Incomplete Grades

The grade of “I” (Incomplete) may be granted when a student has satisfactorily completed three-fourths of course work for that semester/session, but cannot complete the last part of the course for reason(s) beyond the student’s control and acceptable to the instructor, and the instructor believes that the student can finish the course without repeating it. For undergraduate courses, the incomplete work must be made up before the end of the following regular semester. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the period indicated, a grade of “F” will be recorded, and the student’s GPA will be adjusted accordingly. Students who are fulfilling an Incomplete grade do not register for the course, but make individual arrangements with the instructor who assigned the “I” grade.

Library Resources

Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the Libraries’ Research Consultation website, <https://guides.library.unlv.edu/appointments/librarian>. You can also ask the library staff questions via chat and text message at <https://ask.library.unlv.edu/>.

Missed Classwork

Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses

(except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit the Missed Work policy, under Registration Policies, on the Academic Policies webpage, <https://catalog.unlv.edu/content.php?catoid=29&navoid=7326>.

In accordance with the policy approved by the Faculty Senate regarding missed class time and assignments, students who represent UNLV in any official extracurricular activity will also have the opportunity to make up assignments, provided that the student provides official written notification to the instructor no less than one week prior to the missed class(es).

The spirit and intent of the policy for missed classwork is to offer fair and equitable assessment opportunities to all students, including those representing the University in extracurricular activities. Instructors should consider, for example, that in courses which offer a “Drop one” option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an excused absence for extracurricular activity is both contrary to the intent of the Faculty Senate’s policy, and an infringement on the student’s right to complete all work for the course.

This policy will not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the University that could be reasonably avoided. There should be a good faith effort by both the instructor and the student to agree to a reasonable resolution. When disagreements regarding this policy arise, decisions can be appealed to the Department Chair/School Director, College/School Dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to: academic recruitment activities, competitive intercollegiate athletics, fine arts activities, liberal arts competitions, science and engineering competitions, and any other event or activity sanctioned by a College/School Dean, and/or by the Executive Vice President and Provost.

Rebelmail

Rebelmail is UNLV’s official email system for students and by University policy, instructors and staff should only send emails to students’ Rebelmail accounts. Rebelmail is one of the primary ways in which students receive official University communications, information about deadlines, major Campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the University. Emailing within WebCampus-Canvas is also acceptable.

Tutoring and Coaching

The Academic Success Center (ASC) provides tutoring, academic success coaching, and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, please visit the ASC website, <https://www.unlv.edu/asc>, or call 702-895-3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A, Room 254. Drop-in tutoring is located on the second floor of the Lied Library, and on the second floor of the College of Engineering building (TBE A 207).

UNLV Writing Center

One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, <https://writingcenter.unlv.edu/>, located in the Central Desert Complex, Building 3, Room 301 (CDC 3–301). Walk-in consultations are sometimes available, but students with appointments receive priority assistance. Students may make appointments in person or by calling the Center, telephone 702-895-3908. Students are requested to bring to their appointments their Rebel ID Card, a copy of the instructions for their assignment, and two copies of any writing they have completed on their assignment.