

ET-360/L
Electronic Controls Instrumentation

ET-360 - 01 (1282)
Tuesday 5:00PM -6:50PM
Room: ET-113

ET-360L - 01 (1283)
Tuesday 7:00PM - 9:45PM
Room: ET-113
Instructor: William E. Lopez
William.Lopez@csulb.edu
Personal webpage: www.welopez.com

Mode of delivery: In Person

Text Book: Instrumentation and Process Control
 Terry Bartelt
 ISBN: 1-4180-4171-8
Software: Lab View 2017

Grades are based on tests, homework and attendance as follows:

(2) Tests	33%
Homework	33%
Attendance	33%

Letter grades are as follows:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
00-59%	F

Homework Assignments

Ch. 1 Introduction to Industrial and Process Control Systems
pg. 15 prob. 1-24 even

Ch. 2 Interfacing Devices
pg. 44 prob. 1,2,3,8,10,11

Ch. 4 Controller Operation
pg. 90 prob. 1-32 even

Ch. 10 Pressure Systems
pg. 228 prob. 2-30 even

Ch. 11 Temperature Controls
pg. 254 prob. 2-30 even

Ch. 12 Flow Control
pg. 274 prob. 2-24 even

Ch. 13 Level Control Systems
pg. 290 prob. 2-20 even

Ch. 14 Analytical Instrumentation
pg. 313 prob. 2-20 even

Ch. 15 Industrial Process Techniques
pg. 348 prob. 2-26 even

Ch. 16 Instrumentation Symbolology
pg. 360 prob. 2-24 even

Ch. 17 Process Control Methods

ET- 360L

Grades are based on Lab View exercises, completed hardware labs and attendance as follows:

Lab View Activities	33%
Hardware Labs	33%
Attendance	33%

Lab View Exercises

Activity 1	Getting Started with Lab View
Activity 2	Customizing a V I
Activity 3	Analyzing and Saving a Signal
Activity 4	Creating a Signal Analogy
Activity 5	Connecting and Testing USB-6008 DAQ
Activity 6	Creating DAQ Task
Activity 7	Lab View DAQ Assistant and LM 34

Lab 10	Motor Speed Monitor (Input)
Lab W	Motor Speed Monitor (Output)
Lab 11	Part 1 Photo Resistor Input
	Part 2 Photo Resistor with Output
Lab X	Thermistor, Wheatstone Bridge, Differential Amp.
Lab 12	Lab View Microphone Lab
Lab 13	Lab View Hall Effect Sensor
Lab 15	Lab View Distance Sensor
Lab 14	Lab View Float Sensor
Hardware Lab 1	Op-Amp Current Booster
Hardware Lab 2	PID Op-Amp Waveforms
Hardware Lab 4	Photoresistors
Hardware Lab 5	Optocoupler
Hardware Lab 6	Proximity Sensors

ABET Student Outcomes

The course satisfies following [ABET](#) student outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Course Objectives:

This class is an introduction to electronic control. The lecture portion includes readings from the textbook, homework and tests. The lab portion will consist of two types of labs: hardware labs using several types of sensors and electronic components; and then combined software and hardware labs employing LabView. The class expands on material studied in previous courses such as Solid State 1 and 2 and Motors and Generators. This class is very hands-on but we will supply all the necessary software and electronic components.

Course Structure and Delivery Mode: The class is in person. Contact the instructor by e-mail or text. All class materials are contained in my personal webpage: www.welopez.com I will send e-mails with assignments, labs and other information.

Office hours:

Fall Semester:

Monday	4:30-5:00 PM; 9:45-10:15 PM	Room ET-113
Tuesday	4:30-5:00 PM; 9:45-10:15 PM	Room ET-113
Wednesday	4:30-5:00 PM; 9:45-10:15 PM	Room ET-113
Friday	2:00-2:30 PM; 4:45-5:30 PM	Room ET-113

Spring Semester:

Monday	4:30-5:00 PM; 9:45-10:15 PM	Room ET-113
Tuesday	4:30-5:00 PM; 9:45-10:15 PM	Room ET-113
Wednesday	4:30-5:00 PM; 9:45-10:15 PM	Room ET-113
Friday	4:30-5:00 PM; 9:45-10:15 PM	Room ET-113

Plagiarism/Academic Integrity Policy

*There is **zero tolerance** for cheating, plagiarism, or any other act of violation of Academic Integrity policy. Work that you submit is assumed to be original unless your source material is documented appropriately, using proper citation. Using the ideas or words of another person, even a peer, or a web site, as if it were your own, is plagiarism. Any individual or group caught cheating on homework, lab assignments, or any exam/quiz will be subjected to full extent of academic actions allowed under University regulations. At a minimum, any student caught violating Academic Integrity Policy will receive no credit for the work concerned and one grade lower letter grade. To learn more about the University policy on Cheating and Plagiarism, visit:*

[Academic Information and Regulations-Cheating and Plagiarism](#)

University Withdrawal Policy

Class withdrawals during the final 3 weeks of instruction are not permitted except for a very serious and compelling reason such as accident or serious injury that is clearly beyond the student's control and the assignment of an Incomplete grade is inappropriate (see [Grades](#)). Application for withdrawal from CSULB or from a class must be filed by the student [online](#) whether the student has ever attended the class or not; otherwise, the student will receive a grade of "WU" (unauthorized withdrawal) in the course. More information regarding the University guidelines on Dropping and Withdrawing at:

[Dropping and Withdrawal](#)

Student Grievance Policy

Please check CSULB grievance policy and procedure at:

[Student Grievance Procedures](#)

Special Needs Accommodations

Online courses are required to meet ADA accessibility guidelines. Students with a disability or medical restriction who are requesting a classroom accommodation should contact the [Bob Murphy Access Center \(BMAC\) and also notify the instructor](#). BMAC personnel will work with the student to identify a reasonable accommodation in partnership with appropriate academic offices and medical providers. Only approved BMAC petitions will be accommodated.

Any student who is facing academic or personal challenges due to difficulty in affording groceries/food and/or lacking a safe and stable living environment is urged to contact the [CSULB Student Emergency Intervention & Wellness Program](#). Additional resources are available via [Basic Needs Program](#). The students can also email supportingstudents@csulb.edu, call (562)985-2038, or if comfortable, reach out to the instructors as they may be able to identify additional resources. For mental health assistance please check out [CSULB Counseling and Psychological Services \(CAPS\)](#).

Emergency Preparedness

Students are strongly encouraged to familiarize themselves with the [Personal Preparedness Instructions](#) and other resources under "Emergency Preparedness" link on [CSULB University Police web site](#).

Disclaimer

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

Additional Information

Technology Requirements

Please contact the department if you need support with access to the Internet, electronic devices, or any other issues related to remotely accessing your course.

Tutoring

Take advantage of free peer tutoring (virtual) provided by Engineering Student Success Center (ESSC): [Engineering Tutoring](#)

Additional Resources

There are many services on campus to help you achieve success in your courses. Links to the following services are also available in BeachBoard course homepage under “CSULB Student Resources”:

- [Counseling and Psychological \(CAPS\)](#)
- [Disabled Student Services](#)
- [Enrollment Services](#)
- [Financial Aid](#)
- [Learning Assistance Center](#)
- [Student Health Services](#)
- [Tutoring at CSULB](#)
- [University Library](#)
- [Writers Resource Lab](#)

Student Feedback about the Course

*Student Feedback is highly encouraged. Please feel free to contact the instructor to share any concern or opinion about the course throughout the semester and participate in the **anonymous survey**. Early Feedback will provide the instructor the opportunity to address your concern and implement required modifications in a timely manner.*

Personal Assistance

Any student who is facing academic or personal challenges due to difficulty in affording groceries/food and/or lacking a safe and stable living environment is urged to contact the [CSULB Student Emergency Intervention & Wellness Program](#). Additional resources are available via [Basic Needs Program](#). The students can also email supportingstudents@csulb.edu, call (562)985-2038, or if comfortable, reach out to the instructors as they may be able to identify additional resources