

## Physics of Instrumentation INCR 1402 6C1\_Spring\_2026



**LAMAR INSTITUTE  
OF TECHNOLOGY**

### **CREDIT**

4 Semester Credit Hours (3 hours lecture, 4 hours lab)

### **MODE OF INSTRUCTION**

Face to Face

### **PREREQUISITE/CO-REQUISITE:**

None

### **COURSE DESCRIPTION**

An introduction to simple control loops. Introduction to pressure, temperature, level, and flow transmitters. Introduction to transducers used in the detection of changes in process variables.

### **COURSE OBJECTIVES**

Upon completion of this course, the student will be able to

1. Demonstrate an understanding of process instruments and devices.
2. Understand and describe control loops.
3. Understand the control and detection of pressure, temperature, level, flow, pH, etc

### **INSTRUCTOR CONTACT INFORMATION**

Instructor: Thomas Bonds

Email: [tmbonds@lit.edu](mailto:tmbonds@lit.edu)

Office Hours: 30 minutes before/after class, additional hours available upon request

### **REQUIRED TEXTBOOK AND MATERIALS**

1. Instrumentation 6th Edition by Franklyn W. Kirk, Thomas A Weedon, and Philip Kirk
2. ISBN number is 978-0-8-26934442-0 2.
3. Scientific Calculator
4. Notebook.

### **ATTENDANCE POLICY**

Regular attendance in class is important to achieve the educational objectives of the student and the Institute. Class attendance is restricted to those students registered for the course and to the guests invited by the instructor. Persons not properly registered for a course will not be permitted to attend class. Students are not permitted to bring any children to class. Children must not be left unattended on campus.

Approved: CH 08/15/2025

If a student misses more than 25% (approximately 8 classes) of the entire semester, they will earn a grade of “F”. There are no excused absences. If you are not in class that day, you will be counted absent.

If you find it necessary to leave class early please plan with me before class starts. Please do not leave the room during lecture. If you do leave, please do not re-enter the room until after lecture. This includes bathroom breaks. Take them before class.

## **DROP POLICY**

If you wish to drop a course, you are responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an “F” in the course.

## **COURSE EVALUATION**

Final grades will be calculated according to the following criteria:

- Exams 70% May include lecture and lab exams
- All other work 30% Classwork, Homework, and Labs

## **GRADE SCALE**

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

## **TECHNICAL REQUIREMENTS**

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at <https://lit.edu/online-learning/online-learning-minimum-computer-requirements>. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

## **DISABILITIES STATEMENT**

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles’ Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email [specialpopulations@lit.edu](mailto:specialpopulations@lit.edu). You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](https://lit.edu/specialpopulations).

## **STUDENT CODE OF CONDUCT STATEMENT**

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at [www.lit.edu](http://www.lit.edu). Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

## **STARFISH**

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive

emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

#### **ADDITIONAL COURSE POLICIES/INFORMATION**

1. ALL work should be completed in PENCIL! Work submitted in pen will receive a ZERO.
2. No food, drinks, or use of tobacco products in class.
3. No foul or harsh language will be tolerated
4. Turn off all Cell Phones during lectures, unless otherwise instructed by me
5. Clean up work station after you complete your lab assignments. Materials left at work station will result in 10 points deducted from that lab assignment.
6. Take care of tools and equipment used during class.
7. Headphones may be worn only upon Instructor approval.
8. Do not bring children to class.
9. No Cheating of any kind will be tolerated. Students caught cheating or helping someone to cheat can and will be removed from the class for the semester. Cheating can result from expulsion from LIT.
10. Students must have access to, and knowledge of basic computer functions (including Blackboard)
11. Students should check Blackboard daily.
12. Internet Usage
  1. Classroom computers have access to the internet.
  2. Student usage of the internet will be monitored.
  3. Proper usage of the internet will be allowed for classroom research, classwork, tests, and assignments as directed.
  4. Any unauthorized usage of the Internet will not be tolerated.
  5. Improper usage of the Internet, such as profanity, nudity, gambling, etc. will result in disciplinary action.
13. **There will be NO make-up Exams.** If you miss an Exam for any reason, you automatically forfeit your possible exemption from the Final.
14. **There will be NO make-up Labs.**
15. There will be a 20 point penalty **for each day** deducted from late work (**daily assignments only**).

**Course Schedule: Subject to change- Refer to blackboard for official due dates**

<b>Week</b>	<b>Assignment/Activities</b>	<b>Due Date</b>	<b>Location</b>
<b>1</b>	Cover Syllabus Introduction Discussion Assignments Tests	Tuesday, 01/20	Getting Started
<b>1</b>	Review Ch-1-2 Lab work Assignment 1	Thursday, 01/22	Text Book Ch-1-2
<b>2</b>	Temperature Review Ch-3 - 4 Assignment 2	Tuesday, 01/27	Text Book Ch-3-4
<b>2</b>	Temperature Review Ch-4 - 6 Assignment 3	Thursday, 01/29	Text Book Ch-4-6
<b>3</b>	Temperature Review Ch-7 - 8 Assignment 4	Tuesday, 02/03	Text Book Ch-7-8
<b>3</b>	Test Review Lab Exercise	Thursday, 02/05	Text Book 1-8 Lab Class
<b>4</b>	Temperature Test 1	Tuesday, 02/10	Classroom 228
<b>4</b>	Pressure Review Review Ch 9-10 Assignment 1 Lab work	Thursday, 02/12	Text Book Ch-9-10
<b>5</b>	Pressure Review Review Ch 9-10 Assignment 2 Lab work	Tuesday, 02/17	Text Book Ch-9-10

<b>5</b>	Pressure Chapter 11 Review Assignment 3 Lab work	Thursday, 02/19	Text Book Ch-11
<b>6</b>	Pressure Chapter 12 Review Assignment 4 Lab work	Tuesday, 02/24	Text Book Ch-12
<b>6</b>	Pressure Chapter 9-12 Test Review Lab work	Thursday, 02/26	Text Book Ch-9-12
<b>7</b>	Test-2 Pressure Ch 9-12	Tuesday, 03/03	Classroom 228
<b>7</b>	Level Ch-13 Assignment-1	Thursday, 03/05	Text Book Ch-13
<b>8</b>	Level Chapter 14 Lab Work Assignment-2	Tuesday, 03/17	Text Book Ch-14
<b>8</b>	Level Ch-15 Assignment-3	Thursday, 03/19	Text Book Ch-15
<b>9</b>	Level Ch-16 Assignment-4	Tuesday, 03/24	Text Book Ch-16
<b>9</b>	Level Ch-17 Calibration Lab	Thursday, 03/26	Text Book Ch-16 Classroom 228
<b>10</b>	Level Assignment- 6 Calibration Lab	Tuesday, 03/31	Classroom 228
<b>10</b>	Level Chapter 5 Review Calibration Lab	Thursday, 04/02	Classroom 228
<b>11</b>	Test-3 Level	Tuesday, 04/07	Classroom 228

<b>11</b>	Review Ch-18 Flow	Thursday, 04/09	Text Book Ch-18
<b>12</b>	Review Ch-19 Flow	Tuesday, 04/14	Text Book Ch-19
<b>12</b>	Review Ch 20 Flow Lab work	Thursday, 04/16	Text Book Ch-20
<b>13</b>	Ch-21-22 Assignment-7	Tuesday, 04/21	Text Book Ch-21-22
<b>13</b>	Ch-18-22 Assignment-8	Thursday, 04/23	Text Book Ch-18-22
<b>14</b>	Flow Test- 4 Ch18-22	Tuesday, 04/28	Classroom 228
<b>14</b>	Finals, Grades Review	Thursday, 04/30	Classroom 228