



Process Instrumentation I (PTAC-1432)

Credit: 4 semester credit hours (3 hours class lecture, 2 hours lab)

Prerequisite/Co-requisite: None

Course Description

Study of the instruments and instrument systems used in the chemical processing industry including terminology, primary variables, symbology, control loops, and basic troubleshooting.

Required Textbook and Materials

1. Instrumentation 2005 by Pearson Custom Publishing
 - a. ISBN number is 0-13-700413-3
 - b. Textbook and note book furnished by students

Course Outline

- A. Introduction
 1. Introduction of faculty and students
 2. Review Syllabus
 3. Review Class Policies
 4. Review Lab Assignment
- B. Learning Objectives
 1. Evolution of Process Instrumentation
 2. Process Variables
 3. Instrument Categories
- C. Pressure, Level, Flow, Analytical Instruments, Miscellaneous Devices
 1. Definitions
 2. Measurements
 3. Key Terms
- D. Control loops
 1. Simple Theory
 2. Primary Sensors, Transmitters
Transmitters and Transducers
 3. Controllers and Final Control Element Overview
 4. Control Valves and regulators
- E. Symbology
 1. Process Diagrams
 2. Instrument Sketching
 3. Instrumentation Troubleshooting
 4. Emergency Shutdown

5. Instrumentation Malfunctions

Grade Scale

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

Course Evaluation

Final grades will be calculated according to the following criteria:

<i>Activity</i>	<i>Percentage</i>
Homework/Labs	20%
Quizzes	20%
Exams	60%
<i>Total</i>	<i>100%</i>

Course Requirements

1. Be able to answer questions on chapter assigned
2. Be able to identify equipment shown in lab associated with subject matter
3. Have a calculator and be able to use it.

Attendance Policy:

1. Missing more than 20% of classes will result in an automatic “F” for the course.
2. Absences are counted for unexcused, excused and coming to class late.
3. Missing more than 20% of a class period will count as an absence.
4. Being tardy 3 times equals 1 absence.

Course Policies

1. No food, drinks, or use of tobacco products in class.
2. No foul or harsh language will be tolerated
3. Turn off all Cell Phones during lectures
4. Headphones may be worn only upon Instructor approval
5. Do not bring children to class.
6. 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 in expulsion from LIT.
7. If you wish to drop a course, the student is 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.
8. Internet Usage
 - a. Classroom computers have access to the internet.
 - b. Student usage of the internet will be monitored.

- c. Proper usage of the internet will be allowed. Used for classroom research or as directed.
- d. Any unauthorized use of the internet will not be tolerated.
- e. Improper usage of the internet, such as profanity, pornography, gambling, etc... will result in disciplinary action not limited to expulsion from LIT.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Course Schedule

Week	Topic	Reference
1	Course introduction and policies <ul style="list-style-type: none">Lecture/LabChapters 1 & 2	Handouts
2	Chapter 2 <ul style="list-style-type: none">Lecture/ Lab	
3	Chapter 3 <ul style="list-style-type: none">Lecture/LabReviewTest	Chapters 1-3
4	Chapters 4 & 5 <ul style="list-style-type: none">Lecture/LabReview	
5/6	Chapter 6 & 7 <ul style="list-style-type: none">Lecture/LabReview	
7	Chapters 5 – 7 <ul style="list-style-type: none">Lecture/LabReviewTest2	
8	Chapter 8 <ul style="list-style-type: none">Lecture/Lab	

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Course Syllabus

9/10	Chapter 9 & 10 <ul style="list-style-type: none">• Lecture/Lab	
11	Chapter 11 <ul style="list-style-type: none">• Lecture/Lab• Review• Test 3	Chapters 8 - 11
12	Chapter 12 & 13 <ul style="list-style-type: none">• Lecture/Lab• Review	
13	Chapter 14 <ul style="list-style-type: none">• Lecture/Lab• Review• Test 4	Chapters 12 - 14
14	Chapter 23 <ul style="list-style-type: none">• Lecture/lab• Review	
15	Chapter 24 <ul style="list-style-type: none">• Lecture/Lab• Review	Chapters 23 & 24
16	Finals Week <ul style="list-style-type: none">• Test 5	Chapters 1-14, 23 & 24

Contact Information:

Instructor:

Office:

Telephone:

E-mail:

Office Hours: