

## Introduction to Process Technology (PTAC 1302)



**Credit:** 3 semester credit hours (3 hours lecture)

**Prerequisite/Co-requisite:** None

### Course Description

An introduction overview of the processing industries.

### Required Textbook and Materials

1. *Introduction to Process Technology*, Pearson, Second Edition
  - a. ISBN number is 0-13-480824-X
2. Equipment (To be purchased by the student)
  - a. hardhat
  - b. safety glasses
  - c. shoes (no open toes/sandals)

### Course Objectives

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

1. Describe the roles, responsibilities, safety, environmental, and quality concepts associated with the work environment of a process technician.
2. Identify basic processes, equipment and systems.
3. Define and apply terms and symbols needed in the processing industry.

### Course Outline

- |   |                              |
|---|------------------------------|
| A. Introduction                           | L. Basic Physics             |
| 1. Introduction of faculty and students   | M. Basic Chemistry           |
| 2. Review Syllabus                        | N. Piping and Valves         |
| 3. Review Class Policies                  | O. Vessels                   |
| B. Process Technology- Overview           | P. Pumps                     |
| C. Mineral Extraction Industries;         | Q. Compressors               |
| 1. Oil & Gas                              | R. Turbines                  |
| 2. Mining                                 | S. Electricity & Motors      |
| D. Chemical & Pharmaceutical Industry     | T. Heat Exchangers           |
| E. Power Generation Industry              | U. Cooling Towers            |
| F. Food & Beverage Industry               | V. Furnaces                  |
| G. Water & Wastewater Treatment Industry  | W. Boilers                   |
| H. Pulp & Paper Industry                  | X. Distillation              |
| I. Working as Teams                       | Y. Process Service Utilities |
| J. Safety, Health, Environment & Security | Z. Process Auxiliaries       |
| K. Quality                                | AA. Instrumentation          |

## **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:

Homework	10%
Tests	50%
Final	40%

## **Course Requirements**

1. Read chapters as assigned.
2. Answer questions at the end of each chapter.
3. Identify equipment shown in lab associated with subject matter
4. 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 2 times equals 1 absence.

## **Course Policies**

1. No food, drinks, or use of tobacco products in class.
2. Beepers, telephones, headphones, and other electronic devices must be turned off while in class.
3. Do not bring children to class.
4. Assignments submitted late will be reduced 10 points each day.
5. If a test is missed due to an emergency situation, the student will have one week to make it up; otherwise a grade of 0 will be assigned. Students are responsible for scheduling the make-up date.

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. A student who wishes to drop a course is responsible for initiating and completing the drop process. A student who stops coming to class, and fails to drop the course, will earn an "F" in the course.

### **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 online resource:

<http://www.lit.edu/depts/stuserv/special/defaults.aspx>

### **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) or obtained in print upon request at the Student Services Office.

### **Course Schedule**

<b>Week</b>	<b>Topic</b>	<b>Reference</b>
1/2	Course introduction and policies.	Handouts & Textbook (chapters 1-3)
3	Power Generation	Chapter 4
	Food & Beverage	Chapter 5
4	Water & Wastewater	Chapter 6
	Pulp & Paper	Chapter 7
	**TEST 1**	
5	Working as Teams	Chapter 8
	SHES	Chapter 9
6	Quality	Chapter 10
	Basic Physics	Chapter 11
7	Basic Chemistry	Chapter 12
	**TEST 2**	
8	Process Drawings	Chapter 13
	Piping & Valves	Chapter 14
9	Vessels	Chapter 15
	**TEST 3**	

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Course Syllabi

10	Pumps	Chapter 16
	Compressors	Chapter 17
11	Turbines	Chapter 18
	Electricity & Motors	Chapter 19
12	Heat Exchangers	Chapter 20
	Cooling Towers	Chapter 21
13	**TEST 4**	
	Furnaces	Chapter 22
14	Boilers	Chapter 23
	Distillation	Chapter 24
15	Process Service Utilities	Chapter 25
	Process Auxiliaries	Chapter 26
16	Instrumentation	Chapter 27
	**TEST 5**	
17	Finals Week	Chapters 1- 27