Introduction to Process Technology (PTAC 1302) Online

Credit: 3 semester credit hours (3 hours lecture)

Prerequisite/Co-requisite: None Complete the Online Orientation and answer yes to 7+ questions on the Online Learner Self-Assessment: http://www.lit.edu/depts/DistanceEd/OnlineOrientation/OOStep2.aspx

Course Description

An introduction overview of the process industries. *This course is time-bound, structured, and completed totally online.*

Required Textbook and Materials

1. *Introduction to Process Technology*, Pearson
   a. ISBN number is 0-13-700414-1

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
   1. Introduction of faculty and students
   2. Review Syllabus
   3. Review Class Policies

B. Process Technology- Overview
   1. Process industries
   2. Process technology
   3. Operator duties.

C. Oil and Gas Industry
   1. History of oil and gas industry.
   2. Duties of oil and gas operator.
   3. Role of operator.

D. Chemical Industry
   1. History of chemical industry.
   2. Duties of chemical operator.
   3. Role of chemical operator.

E. Other Types of Industry using Process Operators
   1. Description of other processes.
   2. Duties of operators.
   3. Role of operator.

F. Chemistry and Physics
   1. Relationships of physical properties of matter.
   2. Application of chemistry to the petrochemical industry.

G. Safety, Health, Environment
   1. Quality
   2. Terms & issues
   3. Hazards
   4. Workforce diversity
   5. Process drawings-P&ID's

H. Piping and Valves, Pumps, Compressors
   1. The purpose of piping and vessels.
   2. The purpose and function of pumps in the process industry.
   3. The purpose and function of compressors.

I. Turbines, Electricity and Motors
   1. Purpose and function of steam turbines.
   2. Purpose and function of electric motors.

J. Heat Exchangers and Cooling Towers

1. Purpose and function of heat exchangers.
   Purpose and function of cooling towers.

K. Furnaces and Boilers
   1. Purpose and function of fired heaters in the process industry.
   2. Purpose and function of boilers

L. Distillation
   1. Types and functions of distillation units.
   2. Process of distillation in relationship to finished products.

M. Process Utilities and Axillaries
   1. The different process utilities and their relationships to process production.
   2. The purpose and function of flare, refrigeration, lubrication, and hot oil systems.

N. Instrumentation
   1. Process instrumentation, their purpose and their function.

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:

Assignments	20%
Discussions	10%
Tests	40%
Final	30%

Course Requirements

1. Post weekly, online responses to student-to-student and student-to-instructor discussions.
2. Complete the online test, quizzes and assignments by the due dates shown on the course calendar
3. Log onto Blackboard and access the course a minimum of three times per week.

Course Policies

1. You must log onto Blackboard and access this course a minimum of three times per week.
2. 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.
3. If you wish to drop a course, the student is responsible for initiating and dropping the course. If you stop logging-in to the course and do not complete the course drop process, then you will receive an "F" grade for the course
4. Internet Usage – Students are expected to use proper net etiquette while participating in course emails, assignment submissions, and online discussions.

5. 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.

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

Technical Requirements

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:
http://kb.blackboard.com/pages/viewpage.action?pageId=25368512
A functional broadband internet connection, such as DSL, cable, 3G, 4G, WiMAX, Wi-Fi, satellite, or other broadband access is necessary to maximize the use of the online technology and resources.

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.

If you believe you have a disability requiring an accommodations, please reference the following website http://www.lit.edu/depts/stuserv/special/default.aspx

Course Schedule (Subject to Change)

Week	Topic	Reference
1/2	Course Orientation – Introductions, Syllabus, Learning Environment Orientation. Chapter 1-9 – Process Technology	Syllabus Netiquette Link Introduction Quiz
3	Basic Physics	Chapter 10 Assignment 1 Discussion 1
4	Basic Chemistry ****TEST 1** – Chapter 1-11	Chapter 11
5	Safety, Health, & Environment, Quality	Chapter 12,13 Assignment 2 Discussion 2

6	Teams, P&ID's ****TEST 2** – Chapters 12-15	Chapters 14,15
7	Piping & Valves	Chapter 16
8	Vessels, Pumps and Compressors	Chapter 17,18,19 Assignment 3
9	****TEST 3** – Chapters 16-19	
10	Turbines	Chapter 20 Discussion 3
11	Electricity& Motors ****TEST 4 - Chapters 20-21**	Chapter 21
12	Heat Exchangers	Chapter 22
13	Cooling Towers ****TEST 5 - Chapters 22-23**	Chapter 23 Assignment 4
14	Furnaces	Chapter 24
15	Distillation	Chapter 25 Discussion 4
16	Boilers ****TEST 6 – 24-26**	Chapter 26
17	Finals Week	Chapters 1- 26