Industrial Processes (PTAC 1354) Online

Credit: 3 semester credit hours (3 hours lecture)

Prerequisite/Co-requisite: PTAC 2420 and SCIT 1494.
Completed the Online Orientation and answered 7+ questions correctly on the Online Learner Self-
Assessment: http://www.lit.edu/depts/DistanceEd/OnlineOrientation/OOStep2.aspx

Course Description

The study of the common types of industrial processes. Types of commercial processes will be explored and demonstrated. *This course is time bound, structured, and completed totally online.*

Required Textbook and Materials

1. Petroleum Refining, Fourth Edition, Leffler
    a. ISBN number is 978-1-59370-158-1
2. Oil & Gas Production Handbook, free online textbook
    a. https://library.e.abb.com/public/34d5b70e18f7d6c8c1257be500438ac3/Oil%20and%20gas%20production%20handbook%20ed3x0_web.pdf

Course Objectives

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

1. Describe processes and operations typical to the processing industry.

Course Outline

A. Oil & Gas Production
    1. Introduction
    2. Exploration
    3. Production
    4. Upstream Process Sections
    5. Midstream

B. Petroleum Refining
    1. The Evolution of Petroleum Products
    2. From the Oil patch to the refinery
    3. Crude Oil Characteristics
    4. Distilling
    5. Vacuum Flashing
    6. The Chemistry of Petroleum
    7. Refinery Gas Plants
    8. Cat Cracking
    9. Alkylation
    10. Catalytic Reforming
    11. Hydrocracking
    12. Isomerization
    13. Residue Reduction
    14. Gasoline
    15. Distillate and Residual Fuels
    16. Ethylene Plants
    17. Solvent Recovery of Aromatics

PTAC 1354 Online
Course Syllabus

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:

Discussions	10%
Assignments	20%
Test	40%
Final Exam	30%

Course Requirements

1. Calculate temperature conversions
2. Calculate Specific and API gravities
3. Demonstrate knowledge of Upstream, Refinery and Chemical plant processes
4. Explain requirements for gasoline, jet fuel and diesel engines.

Course Requirements

1. Post online responses to student-to-student and student-to-instructor discussions.
2. Complete the online tests, assignments and discussions 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. Students are expected to use proper net etiquette while participating in course emails, assignment submissions and online discussions. No foul or harsh language will be tolerated.
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. 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.

Technical Requirements

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:
https://help.blackboard.com/en-us/Learn/9.1_SP_14/Student/015_Browser_Support/010_Browser_Support_SP_14
A functional internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

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.

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.
http://www.lit.edu/depts/stuserv/special/default.aspx

Course Schedule (subject to change)

Online Week	Topic	Reference
1	Course introduction and policies *Oil & Gas Production Handbook* • Introduction • Exploration • Production • Upstream Process Sections • Midstream	Online: Week 1A Text: pg. 1-18 Online: Week 1B
2	*Petroleum Refining Textbook* Crude Oil Characteristics	Text: pg. 1-24 (Ch. 1,2,3) Online: Week 2
3	Distilling Vacuum Flashing	Text: pg. 25-48 (Ch. 4,5) Online: Week 3
4	The Chemistry of Petroleum	Text: pg. 49-56 (Ch 6) Online: Week 4 **TEST #1**
5	Refinery Gas Plants	Text: pg. 57-66 (Ch 7) Online: Week 5
6	Cat Cracking	Text: pg. 69-80 (Ch 8) Online: Week 6
7	Alkylation	Text: pg. 81-88 (Ch 9) Online: Week 7

8	Cat Reforming	Text: pg 89-100 (Ch 10) Online: Week 8 **TEST #2**
9	Hydrocracking	Text: pg 101-106 (Ch 11) Online: Week 9
10	Isomerization	Text: pg 107-111 (Ch 12) Online: Week 10
11	Residue Reduction	Text: pg 113-123 (Ch 13) Online: Week 11
12	Gasoline	Text: pg 125-146 (Ch 14) Online: Week 12 **TEST #3**
13	Distillate and Residual Fuels	Text: pg 147-155 (Ch 15) Online: Week 13
14	Ethylene Plants	Text: pg 187-192 (Ch 19) Online: Week 14
15	Solvent Recovery of Aromatics	Text: pg 207-211 (Ch 21) Online: Week 15 **Test-4**
16	Final Exam	Comprehensive

Contact Information – varies by instructor