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](http://www.lit.edu/depts/DistanceEd/OnlineOrientation/OOStep2.aspx)

**Course Description**
The study of the common types of industrial processes. *This course is time bound, structured, and completed totally online.*

**Required Textbook and Materials**
   a. ISBN number is 1593701586
2. Oil & Gas Production Handbook, free online textbook
   a. [https://library.e.abb.com/public/34d5b70e18f7d6c8c1257be500438ac3/Oil%20and%20gas%20production%20handbook%20ed3x0_web.pdf](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
Grade Scale

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 – 100</td>
<td>A</td>
</tr>
<tr>
<td>80 – 89</td>
<td>B</td>
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<tr>
<td>70 – 79</td>
<td>C</td>
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<tr>
<td>60 – 69</td>
<td>D</td>
</tr>
<tr>
<td>0 – 59</td>
<td>F</td>
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</tbody>
</table>

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

Supplemental Instruction
Supplemental Instruction (SI) consists of group tutoring sessions conducted once a week for 50 minutes for selected subjects. The SI Leader is a peer who helps students learn difficult content in those specific courses. The SI Leader attends the class with the students to keep up with the course content and engage students in interactive learning strategies at the 50 minute sessions. For this course, the supplemental instruction session will be held on WE DO NOT HAVE SUPPLEMENTAL INSTRUCTION. See your instructor for assistance.

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.

Approved 6/2015
# Course Schedule (subject to change)

<table>
<thead>
<tr>
<th>Online Week</th>
<th>Topic</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course introduction and policies&lt;br&gt; <em>Oil &amp; Gas Production Handbook</em>&lt;br&gt; - Introduction&lt;br&gt; - Exploration&lt;br&gt; - Production&lt;br&gt; - Upstream Process Sections&lt;br&gt; - Midstream</td>
<td>Online: Week 1A&lt;br&gt; Text: pg. 1-18&lt;br&gt; Online: Week 1B</td>
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<tr>
<td>2</td>
<td><em>Petroleum Refining Textbook</em>&lt;br&gt; Crude Oil Characteristics</td>
<td>Text: pg. 1-24 (Ch. 1,2,3)&lt;br&gt; Online: Week 2</td>
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<tr>
<td>3</td>
<td>Distilling&lt;br&gt; Vacuum Flashing</td>
<td>Text: pg. 25-48 (Ch. 4,5)&lt;br&gt; Online: Week 3</td>
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<tr>
<td>4</td>
<td>The Chemistry of Petroleum</td>
<td>Text: pg. 49-56 (Ch 6)&lt;br&gt; Online: Week 4&lt;br&gt; <strong>TEST #1</strong></td>
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<td>5</td>
<td>Refinery Gas Plants</td>
<td>Text: pg. 57-66 (Ch 7)&lt;br&gt; Online: Week 5</td>
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<tr>
<td>6</td>
<td>Cat Cracking</td>
<td>Text: pg. 69-80 (Ch 8)&lt;br&gt; Online: Week 6</td>
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<td>7</td>
<td>Alkylation</td>
<td>Text: pg. 81-88 (Ch 9)&lt;br&gt; Online: Week 7</td>
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<tr>
<td>8</td>
<td>Cat Reforming</td>
<td>Text: pg 89-100 (Ch 10)&lt;br&gt; Online: Week 8&lt;br&gt; <strong>TEST #2</strong></td>
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<tr>
<td>9</td>
<td>Hydrocracking</td>
<td>Text: pg 101-106 (Ch 11)&lt;br&gt; Online: Week 9</td>
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<tr>
<td>10</td>
<td>Isomerization</td>
<td>Text: pg 107-111 (Ch 12)&lt;br&gt; Online: Week 10</td>
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<tr>
<td>11</td>
<td>Residue Reduction</td>
<td>Text: pg 113-123 (Ch 13)&lt;br&gt; Online: Week 11</td>
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<tr>
<td>12</td>
<td>Gasoline</td>
<td>Text: pg 125-146 (Ch 14)&lt;br&gt; Online: Week 12</td>
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<table>
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<tr>
<th>Week</th>
<th>Topic</th>
<th>Text</th>
<th>Online</th>
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<tbody>
<tr>
<td>13</td>
<td>Distillate and Residual Fuels</td>
<td>pg 147-155 (Ch 15)</td>
<td>Week 13</td>
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<tr>
<td>14</td>
<td>Ethylene Plants</td>
<td>pg 187-192 (Ch 19)</td>
<td>Week 14</td>
</tr>
<tr>
<td>15</td>
<td>Solvent Recovery of Aromatics</td>
<td>pg 207-211 (Ch 21)</td>
<td>Week 15</td>
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<tr>
<td>16</td>
<td>Final Exam</td>
<td>Comprehensive</td>
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