

**Class Time and Location:** Mondays and Wednesdays- 5:30 to 6:45 P.M. @ the HOVENSA Training School

**Course Description:** *Industrial Processes (PRT 125)* is a study of the processes employed in petroleum refining and chemical plant operations, emphasizing the typical refinery processes. The pre-requisite for *Industrial Processes is Introduction to Process Technology (PRT-101)*.

Students will learn the function and operation of basic process units employed in petroleum refining and chemical plant operations and how these units interact. These processes include atmospheric and vacuum distillations, hydro-treating, hydro-cracking, thermal cracking, catalytic cracking, alkylation and isomerization units.

Students will also learn about auxiliary units such as sulfur recovery, gas treating, waste treating and gasoline blending. Students will learn the effects of governmental regulations and economics on the operation of a modern refinery.

Students will learn how integrated the various process units are and how modifying one process affects other processes and the overall operation of the refinery or plant. This course will provide students with the opportunity to gain this knowledge.

### **Course Objective**

For each of the following processes or processing units, the student will be able to describe their components and their operation and be able to explain the interaction between the different processing units:

- ❑ Atmospheric Distillation Units
- ❑ Vacuum Distillation Units
- ❑ Thermal Cracking Units
- ❑ Catalytic Cracking Units
- ❑ Catalytic Reforming
- ❑ Alkylation
- ❑ Oxygenated Hydrocarbons
- ❑ Hydro-treatment and Gas Treatment
- ❑ Extraction and Separation Systems
- ❑ Economic Factors that Determine the Refinery Product Slate

### **Required Materials:**

- Texts: Petroleum Refining, 3<sup>rd</sup> edition (William L. Leffler)
- A simple calculator
- A three-ring binder for handouts and notes
- Access to a Personal Computer and the Internet

**GRADING:**

There will be a minimum of **four** in-class tests that will **each** count as fifteen (15) percent of the final grade. Quizzes/Home assignments/Class Participation will count as twenty (20) percent of the final grade. The final exam will be a comprehensive exam that will count as twenty (20) percent of the overall grade. The dates of the tests have already been tentatively scheduled. If you miss a test, you must present a doctor's certificate in order to receive a makeup. No other make-ups will be given. An unexcused absence during a test will result in a grade of zero. Missing the final exam will result in a grade of zero.

**Summary of how your Final Grade will be determined:**

Four in-class Tests	-60 Percent (%)
Quizzes/Homework Assignments/Class Participation	- 20 Percent (%)
Final Exam	<u>- 20 Percent (%)</u>
	100 Percent (%)

**Grading Scheme showing assignment of letter grades:**

95- 100	A	90 -94	A-		
87 - 89	B+	83 - 86	B	80 - 82	B-
77 - 79	C+	73 - 76	C	70 - 72	C-
65 - 69	D+	60 - 64	D	0 - 59	F

**COURSE REQUIREMENTS:**

Classes are scheduled for Mondays and Wednesdays from 5:30 to 6:45 P.M. All students are required to attend class **regularly and punctually**. Students are also expected to participate fully in class discussions and problem solving sessions. **Cells phones, pagers and other electronic devices must be turned off during lecture.**