

Fundamentals of Petroleum Refining Syllabus

Time: 4 hours

Maximum Class Size: 20

Prerequisites: None

Course Description: Developing an understanding of refinery work, as well as how to work safely in a refinery is the primary focus of the 4-hour Fundamentals of Petroleum Refining course. Participants will learn the definition of crude, its history and properties, as well as products that come from crude. They will learn how crude gets from the oil patch to the refinery, refinery processes and configurations, the properties of refinery-produced steam and refinery hazards and emergency response procedures. This course is a combination of lecture, video, partner and small-group exercises.

Goals/Objectives/Student Learning Outcomes

- Define the terms: Crude, Refine, Petroleum Products.
- Describe 1 – 2 historical uses for crude oil.
- Describe 1 – 2 of the earliest uses for products refined from crude oil.
- Explain the difference between “Sweet Crude” and “Sour Crude”
- Explain the difference between “Light Crude” and “Heavy Crude”
- Identify some of the basic properties of refinery products
- Explain why a Safety Culture is important in a refinery
- Recognize 2 – 3 signs of a Safety Culture
- List 3 – 5 hazards of working in a refinery
- Identify 2-3 different refinery processes
- Explain the importance of an Emergency Action Plan

Standards

Cal / OSHA Title 8 Section 3220

Emergency Action Plan

OSHA 29 CFR

- 1926.64 Process Safety Management of highly hazardous materials
- 1910.106 Flammable liquids
- 1910.1200 Safety Data Sheets
- 1926.65 Hazardous waste operations and emergency response
- 1926.24 Fire protection and prevention
- 1926.352 (e) Fire prevention
- Subpart E Personal Protective Equipment

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Classroom Rules and Procedures

- All classes begin at 6:30 am and end at 10:30 am
- Upon entering classroom, all participants must sign in and be seated by 6:30 am
- Class will consist of a combination of lecture, video, demonstration, coached group exercises, individual exercises and assessment.

Textbooks/Readings/Materials

- LTS Basic Fundamentals of Petroleum Refining Student Handout Packet
- LTS Basic Fundamentals of Petroleum Refining Instructor Version Packet
- Whiteboard
- Flipchart
- Markers
- IT1: Refining Crude Oil: History Process and Products article
- IT2: Descriptions of the Refining Process
- IT3: Priority-Value-Culture
- IT4: Safety Culture or Not
- Video: The Evolution of the Oil Industry
- Video: Cracking and Reforming in Petroleum Refining

Course Requirements

To receive credit for the course, participants must:

- Be present for full four hours
- Participate in all classroom exercises

Course Policies

- Participants must be on-time and ready to work.
- Participants must return from breaks on-time.
- Participants must participate in each exercise and assignment

Assessment and Grading

Participants will be assessed on the following:

- Exit Exams are pass/fail and must be passed with a score of 80% or above.