

Introduction to the Oil & Gas industry
CNST 6335

Course Description

The course provides the student with a basic knowledge and understanding of the oil and gas industry, including its history, technical aspects, business model, and impact on society and the environment. The primary emphasis is on operations in exploration, production, transportation, refining, and marketing. At the end of the course, the student should be able to speak in a general way on all aspects of the industry and be familiar with common industry terminology.

Course Prerequisites

Graduate standing or consent of instructor.

Instructor

Earl J Ritchie

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Textbook

The Oil & Gas Industry: A Nontechnical Guide by Joseph F. Hilyard. PennWell Books
ISBN-13: 978-1593702540

The textbook is available online through the UH Library.

Learning Objectives

Upon the completion of the course students will demonstrate an understanding of:

1. Operations of the oil and gas industry across the value chain
2. Relationships and interactions between industry players
3. Importance of oil and gas in the economy
4. Likely future scenarios for the industry

Schedule of Topics

Module#	Topics	Reading Assignments
1 (Weeks 1-2)	Introduction and History of the Industry - Energy and society - Development of the industry	Chapter 2 Pages 19 – 27 Chapter 3 Pages 36 – 47
2 (Week 3)	Petroleum Geology - Origin of oil and gas - Hydrocarbon accumulations - Conventional vs. unconventional	Chapter 1
3 (Week 4)	Exploration - Exploration tools and methods - Exploration economics	Chapter 4
4 (Week 5)	Drilling and Testing - Mechanics of drilling - Drilling equipment - Evaluation of drilling results	Chapter 5 Pages 67 – 87 Chapter 6 Pages 99 – 102
5 (Week 6)	Production - Equipping a well for production - Production equipment - Oil and gas processing	Chapter 5 Pages 88 – 98 Chapter 6 Pages 99 – 113 Chapter 7 Pages 115 – 119; 123 – 129
6 (Week 7)	Reservoir Mechanics and Production Management - Properties of hydrocarbon fluids - Reserve estimation - Production management techniques	Chapter 7 Pages 119 – 123
7 (Week 8)	Transportation and Storage - Transportation methods - Economics of transportation - Storage methods and rationale	Chapters 8, 9, and 10
8 (Week 9)	Refining and Petrochemicals - Hydrocarbon chemistry - Refining basics - Brief overview of petrochemical industry	Chapter 11
9 (Week 10)	Marketing - Oil and natural gas trading - Pricing - Retail marketing - LNG	Chapter 14
10 (Week 11)	Structure of the Industry - Major industry players - Interactions between industry entities - Relationships with governments and the public	Chapter 13
11 (Week 12)	Energy and the Environment - Climate change and the energy industry - Carbon reduction methods - Economics of carbon reduction	None
12 (Week 13)	Future of the Oil and Gas Industry - Peak oil - Alternative energy - Future oil and gas production	Chapter 15

13 (Week 14)	Course Review	
(Week 15)	Final exam	

Grading

There will be a quiz after each module, periodic homework assignments, and a final exam. Except for the last module, quizzes and homework will be due one week after the scheduled completion date of the module. Grade weighting is as follows:

Quizzes	30%
Homework	35%
Final exam	35%

Grading scale

A = 90 to 100%
B = 80 to 89%
C = 70 to 79%
D = 60 to 69%
F = Less than 60%

Homework Assignments

Late submissions will incur score penalties. Homework submission must be through Blackboard as an attachment to an email.

Quizzes

Quizzes are designed to assist you in understanding the course materials and to provide you with examples of the type of questions that will be on the final exam. Quizzes will be posted periodically. You are allowed only one chance to open each quiz. Do not attempt to open a quiz until you are ready to answer the questions and complete the quiz.

Final Exam

The Final Exam will be scheduled online during week 15. The exact time will be announced during the semester. Students must make early arrangements with their employers and others to make sure they do not miss the Final Exam. There will be no makeover exams.

Academic Honesty

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from The University. Since dishonesty harms the individual, all students, and the integrity of The University, policies on scholastic dishonesty will be strictly enforced.

Students with Disabilities

University of Houston provides, upon request, appropriate academic adjustments for qualified students with disabilities. Any student with a documented disability (physical or cognitive) who requires academic accommodations should contact the Center for Students with Disabilities (713/743-5400) for more assistance.

UH CAPS Statement

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to the demands of a professional program, or feeling sad and hopeless. You can reach CAPS (UH main campus www.uh.edu/caps, or UH Sugar Land campus <http://www.uh.edu/dsaes/uhsugarland/>) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. No appointment is necessary for the “Let’s Talk” program, a drop-in consultation service at convenient locations and hours around campus.

UH main campus http://www.uh.edu/caps/outreach/lets_talk.html

UH Sugar Land campus <http://www.uh.edu/dsaes/uhsugarland/>

Exam Policy

Exams will include material covered in class discussions and homework assignments. The student is responsible for all reading assignments and class handouts whether or not covered in class or listed on the syllabus.

Course/Instructor Evaluation

A course/instructor evaluation will be conducted in class during the last scheduled lecture. Any suggestions you have on improving the course, however, are welcome throughout the term.

For detailed information about Disabilities, Religious Holy Days, the Academic Calendar, and Academic Honesty, and other information, please visit the UH website: [Student Resources](#)

Disclaimer

This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance class learning or for other reasons. Any such changes will be communicated clearly.