King Saud University
College of Engineering
Petroleum and Natural Gas Engineering Department

PGE 455

Transportation and Storage of Petroleum and Natural Gas

نقل وتخزين البترول و الغاز الطبيعي

Compiled by
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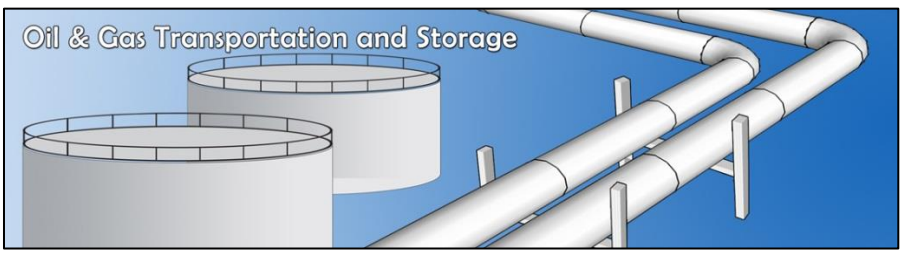

PGE 455
Transportation and Storage Petroleum and Natural Gas, 2(2-1-0)

Main CLOs: **By the end of the course, students are able to:**

1. **Design a pipeline for oil and natural gas transportation and Design a storage tanks and pressure vessels for oil, gas, and liquefied gases.**
2. **Select the most appropriate pumps, compressors, and number of station's needed.**
3. **Recognize the environmental issues related to oil and gas transportation and storage.**

Offering: **Required and offered every semester**

Year/Level: **5/9**

Pre-requisites: **PGE 481: Production of Naturally Flowing Wells**

Co-requisites: **None**

Textbook: **Kennedy J.L., "Oil and Gas Pipeline Fundamentals", Penn Well Publishing Company, Tulsa, Oklahoma, 1984.**

References: **Bell S.B., "Petroleum Transportation Handbook", USA, referred to McGraw-Hill book company, Inc., 1963. "The Flow of Complex Mixtures in Pipes", Govier, G.W. and K. Aziz, Van Nostand Reinhold Company, 1972.**

Evaluation: **Home Works, Quizzes, Oral Presentations, Special Assignments, Mid-term Exams, and Final Exam.**

Relation to PLOs: **Students in this course should be able to:**

- **i) Apply the knowledge of mathematics, geology, physics, chemistry as well as other engineering sciences (26% ABET a).**
- **ii) Design an engineering process or system to meet desired needs (23% ABET c).**
- **iii) Identify, formulate and solve engineering problems (51% ABET e).**

Mapping of Course Contents to Program Learning Outcomes ("a" to "k"):

Contact hours	Courses Contents H: High (3) M: Medium (2) L: Low (1) 0: Not at All	PLOs		
		"a"	"c"	"e"
2	Flow of liquids through pipelines, friction factors.	0	M	H
2	Pressure traverse and maximum capacity of the pipelines.	0	L	H
2	Increasing the capacity of pipelines.	0	0	H
2	Hydraulic gradient for lines.	0	0	M
2	Flow of gas in pipelines.	0	M	M
4	Multiphase flow and pressure traverse.	0	L	M
4	Construction, design factor, and corrosion control of pipelines.	H	M	M
5	Storage tanks and pressure vessels; types design calculations, and foundation.	0	L	H
2	Pumps and compressors.	H	0	0
2	Corrosion control and fire prevention.	H	0	M
1	Auxiliary equipment.	H	L	L
28	Total	26%	23%	51%