

## Faculty of Engineering & Technology

### Natural Gas Engineering

**Information :**

**Course Code :** PE 401

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Department of Petroleum Engineering

**Instructor Information :**

Title	Name	Office hours
Associate Professor	Adel Mohamed Salem Ragab	4
Teaching Assistant	Mohamed Osama Mohamed Abbas	

**Area Of Study :**

The main goals of this course are preparing students to:

“Develop knowledge about natural gas properties, gas behavior, and gas reservoirs.

“Train for gas well test.

“Develop knowledge about gas production, gas flow in pipelines, and gas treatment.

**Description :**

Gas reserves estimation, deliverability, and future production performance prediction.

Deliverability testing of gas wells including isochronal, flow after flow, drawdown and buildup.

Gas field development and underground storage. Gas production metering gauging and transmission.

**Course outcomes :**

**a. Knowledge and Understanding: :**

1 -	Explain Gas properties and Gas behavior in the presence of water and condensate
2 -	Describe Gas reservoirs and Gas behavior in porous media
3 -	Illustrate Gas well test and Gas production
4 -	Describe Gas flow in pipelines and Gas treatment.
5 -	Explain oil well drilling, completion and work over operations
6 -	Explain well test analysis, and modeling
7 -	Illustrate oil and gas production and production optimization and processing

**b. Intellectual Skills: :**

1 -	Evaluate Gas properties and Gas behavior.
2 -	Analyze well test
3 -	Think in a creative way to solve Engineering problems

**c. Professional and Practical Skills: :**

1 -	Select software in interpreting gas well test.
2 -	Calculate gas production problems.

3 -	Interpret Gas flow in pipelines analysis.
4 -	Build a technical report about the reserve.
<b>d.General and Transferable Skills: :</b>	
1 -	Collaborate effectively within multidisciplinary team.
2 -	Work in stressful environment and within constraints.
3 -	Communicate effectively.

<b>Course Topic And Contents :</b>			
<b>Topic</b>	<b>No. of hours</b>	<b>Lecture</b>	<b>Tutorial / Practical</b>
Gas properties	5	3	2
Gas behavior in the presence of water and condensate	10	6	4
Gas reservoirs	10	6	4
Gas flow in porous media	10	6	4
Gas well test	10	6	4
Gas production	10	6	4
Gas flow in pipelines	10	6	4
Gas treatment	10	6	4

<b>Teaching And Learning Methodologies :</b>
Interactive Lecturing
Discussion
Problem-based Learning
Lab computer work and Research

<b>Course Assessment :</b>			
<b>Methods of assessment</b>	<b>Relative weight %</b>	<b>Week No</b>	<b>Assess What</b>
Assignment	5.00		
Final Exam	40.00		
Lab Comp	10.00		
Mid- Exam	25.00		
Oral Exam	5.00		
Quizzes	15.00		

<b>Recommended books :</b>
H. Dale Beggs, %Gas Production Operations-% Gulf Pub Co, Petro Skills., USA, 1990

