

**Faculty of Engineering & Technology**

**Humanities/Social Science Elective**

**Information :**

**Course Code :** HUM HY

**Level :** Undergraduate

**Course Hours :** 2.00- Hours

**Department :** Department of Petroleum Engineering

**Instructor Information :**

Title	Name	Office hours
Associate Professor	Abdulaziz Mohamed Abdulaziz Ali Ismail	
Teaching Assistant	MOhamed Gehad Wiliam Elsaed Mohamed	

**Area Of Study :**

The Main Goals of this course are to familiarize students with the unique aspects of unconventional gas and oil reservoirs, including their economic significance, geologic occurrences, controls on production, drilling and completion practices, reservoir management, and present activity.

**Course outcomes :**

**a.Knowledge and Understanding: :**

1 -	Describe unique geological characteristics of unconventional resources and their technical, economic, political, and environmental constraints.
2 -	Illustrate the low-permeability sands and their drilling and completion methods.
3 -	Describe the Coalbed Gases and their occurrences, resources, reservoir characteristics, drilling and completion methods.
4 -	Describe the Heavy oil and their occurrences, resources, reservoir characteristics, drilling and completion methods.

**b.Intellectual Skills: :**

1 -	Apply principles of geo-mechanics to unconventional reservoirs.
2 -	Think in a creative way.

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

1 -	Apply knowledge of mathematics, science, and engineering to compute the characteristics of unconventional resources, Coalbed Gases, low permeability sands and heavy oils.
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**d.General and Transferable Skills: :**

1 -	Collaborate effectively within multidisciplinary teams.
2 -	Acquire entrepreneurial skills.
3 -	Refer to relevant literature.

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction to Unconventional Energy Resources	4	4	0
Low-permeability (Tight) Sands	4	4	0
Coalbed Gas	4	4	0
Shale Reservoirs (Gas and Oil)	6	6	0
Heavy Oil	6	6	0
Other Unconventional Energy Resources and Issues That May be Addressed	4	4	0

**Teaching And Learning Methodologies :**

Interactive Lecturing  
Problem Solving  
Experiential Learning

**Course Assessment :**

Methods of assessment	Relative weight %	Week No	Assess What
Final Examination	40.00		
Homework's	10.00		
Progress Exam 1	25.00		
Progress Exam 2	25.00		

**Recommended books :**

Y. Zee Ma and Stephen A. Holditch: "Unconventional Oil and Gas Resources Handbook Evaluation and Development" Gulf Professional Publishing is an imprint of Elsevier, 2016.

**Periodicals :**

Recommended readings:

- M. RAFIQL ISLAM : "UNCONVENTIONAL GAS RESERVOIRS Evaluation, Appraisal and Development" Gulf Professional Publishing is an imprint of Elsevier, 2015.
- Vivek Bakshi : "Shale Gas: A Practitioner's Guide to Shale Gas and Other Unconventional Resources" Globe Law And Business; 1 edition (December 1, 2012)
- James Jacobs, and Stephen Testa : "Fracking: Environmental Protection and Development of Unconventional Oil and Gas Resources," 1st edition, McGraw-Hill Education; 1 edition (June 24, 2016).
- Reza Rezaee : "Fundamentals of Gas Shale Reservoirs," 1st Edition, Wiley; 1 edition (July 27, 2015).
- J Speight : "Shale Gas Production Processes," 1st Edition, Gulf Professional Publishing, 24 Jun 2013.

