

## Faculty of Engineering & Technology

### Petroleum Geology

#### Information :

**Course Code :** GEO 401

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Department of Petroleum Engineering

#### Instructor Information :

Title	Name	Office hours
Lecturer	Mohamed Ibrahim Mohamed Hussein	5
Assistant Lecturer	YOUSSEF ELSAYED ABDELHAFEZ KANDIEL	

#### Area Of Study :

- Discussing the fundamentals of petroleum geology; source rock, reservoir rock, trap types, and Seal.
- Learning the principles of subsurface mapping of a reservoir to estimate the volumetric hydrocarbon.
- Learning the Petroleum Geology of Egypt and the Tectonic framework in the different areas (Gulf of Suez, Nile Delta, and Western Desert).

#### Description :

The basics of oil prospects, the acquisition, processing and interpretation of geophysical data, seismic stratigraphy.

#### Course outcomes :

##### a. Knowledge and Understanding: :

1 -	Classify the different source rocks, kerogens, and reservoir rocks in sedimentary basins with shading light on Egypt examples.
2 -	Characterize the properties of reservoir rock and its fluid in hydrocarbon-bearing Formation.
3 -	Describe the geological anomalies and oil and gas traps and accumulations.
4 -	List the basic tools used in petroleum exploration and their methodology; Geophysical tools (Seismic, Gravity, and Magnetic), and Geochemical tools.
5 -	Describe the basic types of Unconventional petroleum resources.

##### b. Intellectual Skills: :

1 -	Apply the subsurface maps to come up with a petroleum play.
2 -	Apply Economical and feasibility assessment studies for developing new oil and gas fields.

##### c. Professional and Practical Skills: :

1 -	Analyse well cross-sections and correlation to come up with stratigraphic and structural implications.
2 -	Solve geological problems in sub-surface basins.

##### d. General and Transferable Skills: :

1 -	Work in team to write a report.
2 -	Search for information and write a geological interpretation

### **Course Topic And Contents :**

<b>Topic</b>	<b>No. of hours</b>	<b>Lecture</b>	<b>Tutorial / Practical</b>
Occurrence and origin of petroleum	5	3	2
Source rock characteristics	10	6	4
Reservoir rock characteristics	12	6	6
Reservoir pore spaces	7	3	4
Subsurface mapping	13	3	10
Carbonate reservoir rocks	5	3	2
Entrapment and seal	8	6	2
Petroleum Geology of Egypt and Tectonic framework	6	6	0
Principles of exploration tools (Geophysical and Geochemical)	6	6	0
Principles of unconventional petroleum geology	3	3	0

### **Teaching And Learning Methodologies :**

Interactive lecturing and discussion  
 Problem-solving  
 Presentation/Research

### **Course Assessment :**

<b>Methods of assessment</b>	<b>Relative weight %</b>	<b>Week No</b>	<b>Assess What</b>
Final exam	40.00		
Mid-Term exam	25.00		
Quizzes	20.00		
Report and assignments	15.00		