

Faculty of Engineering & Technology

Reservoir Rock Properties

Information :

Course Code : PE 302

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Mohsen Gad Elkarim Elnoby Mohamed	2
Assistant Lecturer	MOAMEN AHMED GASSER HASSAN KAMEL IBRAHIM KAMEL	
Teaching Assistant	AHMED NAGUIB ABDELAZIZ ABDELAZIZ GHONIM	
Teaching Assistant	Abdelrahman Adel Abdullah Abdelghany Kandil	

Area Of Study :

The Main Goals of this course are preparing student to:

- Prepare to list the various properties of reservoir rock.
- Make able to differentiate among these properties and their types.
- Develop skills to predict the reservoir performance with changes of these properties.
- Train to measure the various properties in the laboratory.

Description :

Study the basic petrophysical properties of reservoir rocks including porosity, permeability, fluid saturation, electrical conductivity, capillary pressure, and relative permeability. Laboratory measurement of the reservoir rock characteristics mentioned above.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Describe porosity types.
2 -	Differentiate between permeability types.
3 -	Identify saturation for different fluid.
4 -	Explain capillary pressure and conductivity.
5 -	Explain the mechanism of improving the permeability.

b.Intellectual Skills: :

1 -	Identify the different types of rock properties.
2 -	Solve the problem of unknown reservoir rock physical properties.

c.Professional and Practical Skills: :

1 -	To be able to solve problems related to drilling, reservoir and production engineering
2 -	Perform the required lab experiments.

3 -	Measure rock properties in core laboratory.
4 -	Measure rock properties in lab.

d.General and Transferable Skills: :

1 -	Work coherently and successfully as a part of a team in projects.
2 -	Communicate effectively.
3 -	Develop the report writing skill and presentation skills.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Definitions of Reservoir Rocks	5	3	2
Porosity	10	6	4
Permeability	15	9	6
Fluid Saturation	10	6	4
Electrical conductivity	5	3	2
Capillary pressure	10	6	6
Relative permeability	10	6	4
Laboratory measurement of the reservoir rock characteristics mentioned above	10	6	4

Teaching And Learning Methodologies :

Interactive Lecturing
Discussion
Problem-based Learning
Research
Experiential Learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignment	10.00		
Final Exam	40.00		
Lab	10.00		
Mid-Term exam	30.00		
Quizzes	5.00		
Reports	10.00		

Course Notes :

Available on pdf files

Recommended books :

Tarek Ahmed, %working guide to reservoir rock properties and fluid flow+

Gian Luigi Chierici. %Principles of Petroleum Reservoir Engineering+Átranslated from the Italian by Peter J. Westaway.

B. C. Craft, and M. F. Hawkins %Applied Petroleum Reservoir Engineering+È

L. P. Dake, %Fundamentals of Reservoir Engineering %ÆElsevier Scientific Publishing Company, Amsterdam, Oxford, New York, 1978.

Carl Gatlin %Petroleum Engineering, drilling and well completion+Printece- Hall, Inc