FUTURE UNIVERSITY IN EGYPT
جامعة المستقبل

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	Omar Saad Ahmed Mahmoud	

Area Of Study :

The course introduces the students to the various disciplines of Reservoir Engineering. Those disciplines include porosity, permeability, fluid saturation, wettability, electric conductivity, capillary pressure and net pay thickness. It also provides an overview of the well coring.

Description :

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 -	To get acquainted with the various petroleum engineering disciplines
2 -	To understand the rock properties of the reservoir in which the hydrocarbons accumulated
3 -	Differentiate between porosity types
4 -	Differentiate between permeability types.
5 -	Differentiate between saturation for different fluid
6 -	Explain capillary pressure and conductivity.
7 -	Measure rock properties in lab.
b.Intellectual Skills: :	
1 -	To use simple data and information related to course contents.
2 -	To apply various basic geological and engineering concepts to reservoir problem solving
3 -	Identify the different types of rock properties
4 -	Analyze each properties in lab.
5 -	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 -	Identify reservoir rock properties.
4 -	Differentiate among each properties.
d.General and Transferable Skills: :	
1 -	Ability to work in team
2 -	Ability to understand and predict the hydrocarbons reservoir behavior
3 -	Work coherently and successfully as a part of a team in projects.
4 -	Communicate effectively.
5 -	Develop the report writing skill and presentation skills.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction	2	Introduction	
Porosity	4	Petroleum Engineering Disciplines	Discussion of Assignments and weekly work sheets
Well Coring	2	As above	As above
Fluid Saturation	2	As above	As above
Permeability	4	As above	As above
Electric Conductivity	2	As above	As above
Capillary Pressure	4	As above	As above
Wettability	2	As above	As above
Rock Compressibility	2	As above	As above
Net Pay Thickness	4	As above	As above

Teaching And Learning Methodologies :

Weekly oral lectures using white board

PowerPoint presentations and data show with handouts

Short duration video tapes

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final Exam	40.00	10	
Quizzes	10.00	5	
Reports and special assignments	10.00	1	
Weekly tutorials and attendance	10.00	1	

Course Notes :

Available on pdf files

Recommended books :

Tarek Ahmed, ñworking guide to reservoir rock properties and fluid flowò

Gian Luigi Chierici. ñPrinciples of Petroleum Reservoir Engineeringòtranslated from the Italian by Peter J. Westaway.

B. C. Craft, and M. F. Hawkins ñApplied Petroleum Reservoir Engineeringò

L. P. Dake, ñFundamentals of Reservoir Engineering ñ Elsevier Scientific Publishing Company, Amsterdam, Oxford, New York, 1978.

Carl Gatlin ñPetroleum Engineering, drilling and well completionòPrintece- Hall, Inc