Faculty of Engineering & Technology

Petroleum Reservoir Engineering

Information :

Course Code :	PE 303	**Level**	: Undergraduate	**Course Hours :**	3.00- Hours

Department :	Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Omar Saad Ahmed Mahmoud	8
Lecturer	Omar Saad Ahmed Mahmoud	8
Assistant Lecturer	MOAMEN AHMED GASSER HASSAN KAMEL IBRAHIM KAMEL	
Teaching Assistant	Mohamed Osama Mohamed Abbas	
Teaching Assistant	AHMED NAGUIB ABDELAZIZ ABDELAZIZ GHONIM	

Area Of Study :

Enrich students' knowledge about the basic, critical properties of reservoir rock and fluids.
Train students to determine the parameters that impact well/reservoir performance over time.

Description :

Properties of reservoir formations and fluids; reservoir volumetrics, reservoir statics, reservoir dynamics. Darcy's law and the mechanics of single and multiphase fluid flow through reservoir rock, capillary phenomena, material balance, reservoir drive mechanisms.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Review mathematics, physics, and chemistry related to fluids and gases.
2 -	Explain formation evaluations, well logging, well test analysis, modeling and simulation.
3 -	Define properties of reservoir rock and fluid in oil and gas bearing formation
4 -	Describe the basics of material balance and fluid flow equations.

b.Intellectual Skills: :

1 -	Evaluate design, processes (operations), equipment and machinery.
2 -	Identify maps and reservoir traps.
3 -	Solve problems to determine the parameters that impact well/reservoir performance over time.

c.Professional and Practical Skills: :

1 -	Apply knowledge of mathematics, science, and engineering.
2 -	Ability to deal with the high level of uncertainty in definition and solution of petroleum reservoir problems.

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3 -	Calculate the original oil in place by volumetric and MBE method.
d.General and Transferable Skills: :	
1 -	Collaborate effectively within multidisciplinary teams.
2 -	Lead and motivate individual
3 -	Refer to relevant literatures

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Basics of Reservoir Engineering (Porosity Ç Dand Saturation (S).	10	6	4
Basics of Reservoir Engineering: Permeability and relative permeability curves	10	6	4
Reservoir Rock Properties: Wettability and Capillary Pressure.	10	6	4
Reservoir Fluid Properties	15	9	6
Classification of Oil and Gas Reservoirs.	5	3	2
Reservoir Drive Mechanisms and their Characteristics	5	3	2
Diffusivity Equation	10	6	4
Calculation of Oil in Place	5	3	2
Material Balance Equation (MBE) Calculation of Hydrocarbon Volumes	5	3	2

Teaching And Learning Methodologies :

Interactive Lecturing
Discussion
Problem Solving

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	10.00	1	
Final Exam	40.00	15	
Midterm Exam	30.00	7	
Term Papers/Reports	20.00	9	

Course Notes :

Available on pdf files

Recommended books :

Tarek Ahmed: ‰Reservoir Engineering Handbook+ 4th Edition, Gulf Professional Publishing; 4 edition (January 26, 2010).

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