FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

Faculty of Engineering & Technology

Advanced Petroleum Reservoir Engineering

Information :

Course Code :	PE 403	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Omar Saad Ahmed Mahmoud	8
Teaching Assistant	Reham Shawket Mostafa Taha Khalaaf	2

Area Of Study :

Acquire knowledge of basic reservoir engineering data and analysis.
Apply advanced technologies of petroleum reservoir engineering.
Integrate knowledge of different reservoir types and drive mechanisms.
Evaluate reservoir volumes, hydrocarbons in place, and reserves.
Create the future performance of different reservoir types and mechanisms.

Description :

Quantitative study of oil production by natural forces, gas cap, water influx, solution gas, etc.; material balance equations, study of gas, non-retrograde gas condensate, and black oil reservoirs. Predictive calculations of oil recovery from different reservoir types.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Review mathematics to determine the reservoir volumes.
2 -	Describe reservoir properties for reservoir calculations and prediction.
3 -	Outline the methods of petroleum field development plans.
4 -	Utilize the methodologies of solving reservoir engineering problems
5 -	Develop the current Petroleum reservoir engineering technologies.
b.Intellectual Skills: :	
1 -	Design case studies of reservoir volumes/reserves in oil and gas reservoirs
2 -	Select appropriate solutions for reservoir engineering problems.
3 -	Judge reservoir engineering decisions for prediction performance.
4 -	Design computer programs for petroleum reservoir engineering applications.
c.Professional and Practical Skills: :	
1 -	Apply knowledge of mathematics of the original oil in place by MBE method
2 -	Employ the traditional methods and advanced technology to determine petroleum reserves.
3 -	Deal with the high level of uncertainty of reservoir engineering data

4 -	Prepare technical petroleum reservoir reports.
d.General and Transferable Skills: :	
1 -	Collaborate effectively.
2 -	Communicate effectively with teams.
3 -	Effectively manage tasks, time, and resources.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Review of the Basics of Reservoir Engineering	9	6	3
Identify of reservoir Drive Mechanisms and their Characteristics	6	3	3
Study of depletion/solution gas reservoirs	9	6	3
Study of water drive reservoirs	9	6	3
Study of gas cap, gravity drainage and combination reservoirs	6	3	3
Study of dry, wet gas reservoirs	12	9	3
Study of gas condensate reservoirs	6	3	3
The prediction of Oil Reservoir Performance	12	6	6
The prediction of gas reservoir performance	6	3	3

Teaching And Learning Methodologies :

Interactive Lecturing
Discussion
Problem-based Learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	15.00		
Final Exam	40.00		
Mid- Exam	25.00		
Participations	10.00		
Quizzes	10.00		

Recommended books :

Tarek Ahmed: Reservoir Engineering Handbook, 3rd Edition, Gulf Professional Publishing, 2006, ISBN 0-7506-7972-7.
B.C. Craft and M.F. Hawkins: Applied Petroleum Reservoir Engineering, 2nd Edition,
Revised by R. Terry, Prentice Hall PTR, 1991, ISBN 0-13-039884-5.
L.P. Dake: Fundamentals of Reservoir Engineering, Elsevier Science B.V., 1998, ISBN 0-444-41830-X.