Faculty of Engineering & Technology

Well Performance and Production Systems

Information :

Course Code :	PE 405	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Mohamed Ghareeb Moustafa Ahmed	8

Area Of Study :

Understand flow type, flow regime and reservoir geometry
Recognize clay types and properties and understand how it effect on porosity Value.
Understand the components of inflow and outflow performance
Describe the pressure versus depth relationship" Pressure Traverse Curves"

Description :

Introduction to the producing wellbore system; inflow performance relationships, effect of formation damage on well flow, nodal systems analysis; perforating methods and their effect on inflow; stimulation treatments to enhance well performance. Introduction to well completions, diagnostics and well servicing. Overview of production systems.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Define optimum flowing pressure and flowrate.
2 -	Define pressure gradient for single and multiphase flow
3 -	Recognize when and why need to artificial lift
4 -	Understand choke performance for single phase flow.
b.Intellectual Skills: :	
1 -	Evaluate the single and multiphase flow performance and know their models.
2 -	Evaluate the choke performance and know its models.
3 -	Identify introduction about artificial lift.
4 -	Solve problems with limited data.
c.Professional and Practical Skills: :	
1 -	Apply different models for IPR and VLP.
2 -	Practice among models for single phase and multiphase flow.
3 -	Investigate choke performance.
d.General and Transferable Skills: :	
1 -	Work coherently and successfully as a part of a team in projects.
2 -	Make a successful report clearly on well performance.

3 -	Use internet in research on well performance.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction. Set the stage, Single Phase, Laminar and Newtonian Fluid	6	4	2
Inflow Performance Relationship, IPR	9	6	3
Multiphase Flow	15	9	6
Flow In Vertical Tubing	11	6	5
Gradient Or Pressure Traverse Curves	12	6	6
Choke Performance	10	6	4
Introduction to well Artificial lift	4	3	1
Overview of production systems.	8	5	3

Teaching And Learning Methodologies :

Interactive Lecturing
Discussion/ Problem Solving
Laboratory

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignment and attendance	10.00		
Final exam	40.00		
Mid-Term exam I	25.00		
Mid-Term exam II	25.00		

Recommended books :

1. Classroom Lectures and Assignments
2. ñWell performance Manualò, Dowell ï Schlumberger, 1998.
3. ñProduction Optimization Using Nodal Analysisò, H. Dale Beggs, OGCI Publications, ISBN: 0-930972-14-7"Basic Engineering Circuit Analysis", J. D. Irwin, Fourth edition, Macmillan, most recent edition.