

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
Lecturer	Mohamed Ghareeb Moustafa Ahmed	8
Assistant Lecturer	MOAMEN AHMED GASSER HASSAN KAMEL IBRAHIM KAMEL	
Teaching Assistant	Abdelrahman Adel Abdullah Abdelghany Kandil	

Area Of Study :

- Understand flow type, flow regime and reservoir geometry
- Understand the skin effect on well productivity
- 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	15.00		
Final Exam	40.00		
Lab Exper.	10.00		
Mid- Exam	25.00		
Quizzes	10.00		

Recommended books :

Brown, Kermit E. and H. D. Beggs. Technology of Artificial lift Methods. Vol. 1 Tulsa, Oklahoma; PennWall Books, 1980

Well performance Manual-Dowell . Schlumberger, 1998.

H. Dale Beggs, Production Optimization Using Nodal Analysis-EOGCI Publications,

ISBN: 0-930972-14-7"Basic Engineering Circuit Analysis", J. D. Irwin, Fourth edition, Macmillan, most recent edition.