

Faculty of Engineering & Technology

Drilling Engineering II

Information :

Course Code : PE 402

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Associate Professor	Taher El Sebaey Taher El Fakhrny	4
Lecturer	Mostafa Magdy El Sayed Abd El Hafiz	6
Teaching Assistant	Akram Rabie Hamed Ragheb Tobar	2
Teaching Assistant	Akram Rabie Hamed Ragheb Tobar	2

Area Of Study :

1. Understand the principles of Well design.
2. Prepare Drilling Programs.
3. Understand Well Control principles and WC troubles shooting
4. Enrich knowledge of the drilling related down hole problems and troubleshooting

Description :

Pore pressure, fracture gradient, casing seat selection, casing design, cementing, well completion, factors affecting rate of penetration, hole problems, directional holes, fishing.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Memorize the Safety instructions for drilling " HSE".
2 -	Explain the well Planning
3 -	Describe the Basis of Well Design, Pore Pressures, Formation Strength Testing / Kick Tolerance, Selection of casing seating points and casing design.
4 -	Explain the Cementing Planning and Cementing tools in surface and subsurface.
5 -	Classify the drilling Problems: Stuck Pipe, Lost of Circulations and Well bore stabilities, Fishing Tools, and Operations.
6 -	Explain Well Control Equipment and Methods.

b.Intellectual Skills: :

1 -	Apply principles and concepts in solving problems in well design process.
2 -	Apply design tools of Drilling engineering.
3 -	Analyze and using the offset data for good well planning.
4 -	Apply the appropriate methods to solve the drilling Problems.

c. Professional and Practical Skills: :

1 -	Use updated software in solving drilling problems.
2 -	Evaluate all the offset data for well planning.
3 -	Practice basic calculations of oil well designing.
4 -	Select the proper class of cement used in different formations.

d. General and Transferable Skills: :

1 -	Communicate effectively.
2 -	Lead and motivate individual.
3 -	Effectively manage tasks, time, and resources.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Well Planning	5	3	2
Pore Pressure, Formation Strength Testing / Kick Tolerance and, fracture pressure.	10	6	4
Casing seat selection, casing design and casing running operations.	15	9	6
Primary Cementing and remedial work.	5	3	2
Well Control principles and procedures.	10	6	4
Losses of Circulation	10	6	4
Pipe Sticking types and prevention.	10	6	4
Fishing Operations.	10	6	4

Teaching And Learning Methodologies :

Interactive Lecturing
Problem Solving/ Discussion
Experiential Learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	10.00		
Final Exam	40.00		
Midterm Exam I	30.00	7	
Participation	10.00		
performance	10.00		

Recommended books :

1. AMOCO, Shell and Eni Drilling Manuals; Drilling Engineering Series, 2014.
2. Halliburton Sperry sun / Baroid, Schlumbergeer and BHI field practical applications
3. IWCF and UMM communities.
4. Well Engineering design and new technologies (SPT, Oil and Gas Journal, Drilling tools etc.)