Faculty of Engineering & Technology

Advanced Drilling Technology

Information :

Course Code :	PET 509	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Professor	Taher El Sebaey Taher El Fakhrny	4
Teaching Assistant	Akram Rabie Hamed Ragheb Tobar	3

Area Of Study :

This course covers Advanced Drilling Engineering necessary subjects that will guide the students to know how to deal with new technologists while Drilling and completing different Well(s) Types (such as Underbalanced Drilling Techniques) as well as the Well Integrity (which covers: zonal isolation, evaluation of cementing bonds, inflow and outflow areas, Barriers and Barrier envelops, Well integrity Management System

Description :

In depth studies of directional well planning and bottom hole assemblies, hole problems and wellbore stability in deviated wells; computer aided drilling optimization and drill bit selection for directional wells. Field trip required.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Introduction and understanding of Well Integrity
2 -	Zonal Isolation
3 -	Cementing bonds tools and evaluation
4 -	Inflow and out flow areas
5 -	WI requirements for Completion string and Well head
6 -	Barriers and Barrier envelops (Drilling, completion and well intervention)
7 -	UBD introduction, Drivers and limitations
8 -	Risks associated with UBD Operations
9 -	UBD Circulation Design
10 -	UBD Surface and down hole equipment
b.Intellectual Skills: :	
1 -	Use principles and concepts in solving problems
2 -	Use of petroleum engineering softwares
3 -	Presentation skills
4 -	Training in using the appropriate methods

c.Professional and Practical Skills: :	
1 -	Use software in solving drilling problems
2 -	Planning of oil well
3 -	Design calculations
4 -	Auditing methods
5 -	Personal management
6 -	Case study procedures
d.General and Transferable Skills: :	
1 -	Work in team and solve problems
2 -	Write engineering report
3 -	Analyze results and how to think
4 -	Develop communication skills
5 -	Drilling operation reporting
6 -	Hazards awareness
7 -	Computer applications

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction and understanding of Well Integrity	7	3	4
Zonal Isolation	14	6	8
Cementing bonds tools and evaluation	14	6	8
Inflow and out flow areas	14	6	8
WI requirements for Completion string and Well head	7	3	4
Barriers and Barrier envelops (Drilling, completion and well intervention)	7	3	4
UBD introduction, Drivers and limitations	7	3	4
Risks associated with UBD Operations	7	3	4
UBD Circulation Design	14	6	8
UBD Surface and down hole equipment	14	6	8

Teaching And Learning Methodologies :

Interactive Lecturing
Problem Solving
Laboratory

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final Exam	40.00		
Midterm Exams	50.00		

Participation	10.00		

Course Notes :
Course Handouts

Recommended books :
1. Drilling Engineering Workbook 2. Drilling Manuals from Different Oil & Gas Companies Such as: Shell and ENI.