

Faculty of Engineering & Technology
Introduction to petroleum engineering

Information :

Course Code : PE 201 **Level :** Undergraduate **Course Hours :** 2.00- Hours
Department : Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Professor	Mohamed Alaa Eldin Mohamed Abdelbakey	1
Teaching Assistant	Ahmed Samy Amin Abulazm Mady	1

Area Of Study :

Introduction to the fundamentals of oil and gas well drilling. Fundamental physical principles and calculations used in drilling. Exposure to oil well drilling training software

Description :

The course's main goal is to provide the student with an overview of the petroleum industry: its history, its technical achievements, its role in the global-economy and its future prospects. A brief introduction to modern exploration, production and processing operations is included.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Define Basis of Drilling Engineering needs for Well Planning
2 -	Define Basis of Well Design related to Pressures and Temperatures.
3 -	Explain Drilling Rigs (both Onshore and Offshore), Rig Systems and Rigs Power Design
4 -	Illustrate Basis of Drill String Design: Types and Techniques. Operationally how to prepare and run Bottom Hole Assemblies (BHA).
5 -	Illustrate Drilling Bits: Types, Selections and Operationally how to select Optimum Parameters
6 -	Describe Hole Sections
7 -	Describe briefly Drilling Fluids: Function, Types and Properties.
8 -	Recognize Safety for drilling " HSE"

b.Intellectual Skills: :

1 -	Apply principles and concepts in solving problems related to well drilling and design, and Drilling Bits.
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c.Professional and Practical Skills: :

1 -	Use software in solving drilling problems
2 -	Planning of oil well Engineering
3 -	Design calculations

d.General and Transferable Skills: :

1 -	Work in team and solve problems
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Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Basis of Drilling Engineering needs for Well planning	2	Introduction	
Basis of Well Design related to Pressures and Temperatures.	4	Petroleum Engineering Disciplines	Discussion of Assignments and weekly work sheets
Drilling Rigs (both Onshore and Offshore), Rig Systems and Rigs Power Design.	6	. As above	. As above
Basis of Drill String Design: Types and Techniques. Operationally how to prepare and run Bottom Hole Assemblies (BHA).	6	. As above	. As above
Drilling Bits: Types, Selections and Operationally how to select Optimum Parameters.	4	. As above	. As above
Hole Sections.	4		
Introduction to Drilling Fluids: Function, Types and Properties.	4		
Safety for drilling "HSE".	4		

Teaching And Learning Methodologies :

Weekly oral lectures using white board
PowerPoint presentations and data show with handouts
Short duration video tapes

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final exam	40.00	15	
Midterm	30.00	7	
Performance	5.00		
Quizzes	5.00	5	
Reports and special assignments	10.00		
Weekly tutorials and attendance	10.00		

Books :

Book	Author	Publisher
Nontechnical Guide to Petroleum Geology, Exploration, Drilling & Production	Norman J. Hyne	PennWell

Course Notes :

Available on pdf files

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. Well Engineering design and new technologies (SPT, Oil and Gas Journal, Drilling tools etc.)
4. IWCF and UMM communities