

# 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
Lecturer	Mostafa Magdy El Sayed Abd El Hafiz	8
Teaching Assistant	Akram Rabie Hamed Ragheb Tobar	2

### Area Of Study :

On completion of this course students should be able to demonstrate knowledge and understanding of:

- 1. Understand the principles of Well design.
- 2. Prepare Drilling Programs.
- 3. Understanding of Well Control principles and WC troubles shooting
- 4. Enrich student 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.Knowledg	ge and Understanding: :
1 -	Understand the well Planning
2 -	Recognize the Basis of Well Design, Pore Pressures and Formation Strength and Testing, Selection of casing points and casing design.
3 -	Explain how to prepare casing strings
4 -	Explain how Cementing Planning and Cement Slurry Design
5 -	Classify the drilling Problems: Stuck Pipe, Lost of Circulations and Well bore stabilities
6 -	Describe the Well Control process
7 -	Explain the fishing Tools and Fishing Operations
8 -	Outline the Safety instructions for drilling " HSE"
b.Intellectu	al Skills: :
1 -	Use principles and concepts in solving problems in well design process
2 -	Apply design tools of petroleum engineering
3 -	Think in a creative way
4 -	Identify the appropriate methods drilling Problems



# c.Professional and Practical Skills: :

1 -	Use software in solving drilling problems			
2 -	Planning of oil well			
3 -	Practice Design calculations of oil well			
4 -	Investigate the auditing methods			
5 -	Practice the required managements of drilling			
6 -	Construct the procedures of oil wells			
d.General and Transferable Skills: :				
1 -	Work in team			
2 -	Write engineering report			
3 -	Analyze results and how to think			

## Course Topic And Contents :

Торіс	No. of hours	Lecture	Tutorial / Practical
Pore Pressure, Formation strength resting and fracture pressure	15	9	6
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	
Laboratory	

### Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	10.00		
Final Exam	40.00		
Lab	10.00		
Midterm Exam	30.00	7	
Performance	10.00		

Course Notes :	
Course Handouts	



### **Recommended books :**

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