

# Faculty of Engineering & Technology

# **Artificial Lift**

Information :

Course Code :	PE 504	Level	:	Undergraduate	Course Hours :	2.00- Hours

**Department :** Department of Petroleum Engineering

## Instructor Information :

Title	Name	Office hours
Lecturer	Mohamed Ghareeb Moustafa Ahmed	6
Lecturer	Mohamed Ghareeb Moustafa Ahmed	6
Teaching Assistant	Abdelrahman Adel Abdullah Abdelghany Kandil	
Teaching Assistant	Taha Abdelhamid Abdelmaqsoud Abdelhamid Yehia	

## Area Of Study :

ÁDevelop knowledge about Artificial lift, Gas lift methods and techniques. Áramiliarize with ESP, PCP technology and beam pumping (SRP) theory. Ásolve problems related to production performance for the main common artificial lift

#### **Description :**

This course is a study of artificial lift methods used to produce liquids (oil/water) from wellbores. Methods covered include sucker rod (piston) pumps, electric submersible pumps, gas lift, hydraulic lift and plunger lift.

## Course outcomes :

# a.Knowledge and Understanding: :

Describe the artificial lift methods for oil well.
Illustrate the criteria for the practical application of ESP technology and beam pumping theory.

#### b.Intellectual Skills: :

1 -	Apply a creative and innovative way in artificial lift problem solving.		
2 -	Demonstrate various well and production option to select artificial lift method and engineering concepts to problem solving		
c.Professio	onal and Practical Skills: :		
1 -	Use well production with artificial lift tool		
2 -	Troubleshoot any artificial lift well problems related to production performance		
d.General and Transferable Skills: :			
1 -	Work in team		
2 -	Effectively manage tasks, time, and resources		



### **Course Topic And Contents :**

Торіс	No. of hours	Lecture	Tutorial / Practical
Introduction	2	2	0
Sucker rod Pump selection, design and operation	9	6	3
Electric submersible pump selection, design and operation	9	6	3
Gas Lift Operation and operation	7	4	3
Progressive cavity pump selections, design and operation	6	4	2
Hydraulic jet Pumping components and operations	8	5	3
Plunger life system	1	1	0
Comparison of Artificial lift methods and system performance evaluation	3	2	1

Teaching And Learning Methodologies :		
Interactive Lecturing		
Discussion		
Experiential learning		

Course Assessment :			
Methods of assessment	Relative weight %	Week No	Assess What
Assignments/ reports	15.00		
Final Exam	40.00		
Mid-Term exams	25.00		
Participations	10.00		
Quizzes	10.00		

#### **Recommended books :**

Lecture notes on the course Available pdf files + handouts Recommended Readings: www.spe.org Brown, K. E., ‰he technology of artificial lift methods+ÉVol. 2A and 2B, petroleum publishing Co., Tulsa, Ok. 1980.