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	7
Lecturer	Mohamed Ghareeb Moustafa Ahmed	7
Teaching Assistant	Akram Rabie Hamed Ragheb Tobar	

Area Of Study :

Develop knowledge about Artificial lift, Gas lift methods and techniques.
Familiarize with ESP, PCP technology and beam pumping (SRP) theory.
Solve 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: :	
1 -	Describe the artificial lift methods for oil well.
2 -	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.Professional 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 :

Topic	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., ñThe technology of artificial lift methodsò, Vol. 2A and 2B, petroleum publishing Co., Tulsa, Ok. 1980.