

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
Teaching Assistant	Taha Abdelhamid Abdelmaqsoud Abdelhamid Yehia	

Area Of Study :

- Develop students knowledge about Artificial lift, Gas lift methods and techniques.
- Familiarize students with ESP technology and beam pumping (SRP) theory.

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 - Demonstrate the criteria for the practical application of ESP technology and beam pumping theory.

b. Intellectual Skills: :

- 1 - Think in creative and innovative way in problem solving.
- 2 - Apply various well and production history 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 - Ability to work in team
- 2 - Report writing skills and presentation skills

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction	2	2	0

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Gas Lift Operation	9	6	3
Electric submersible pump	9	6	3
Sucker rod Pump	9	6	3
Hydraulic Pump	9	6	3
Progressive cavity pump	4	2	2
Comparison of Artificial lift methods	3	2	1

Teaching And Learning Methodologies :

Interactive Lecturing
 Discussion
 Experiential learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	10.00		
Attendance	10.00		
Final Exam	40.00		
In Class Quizzes	10.00		
Mid-Term exams 1st	15.00		
Mid-Term exams 2nd	15.00		

Recommended books :

1. Text Book: Principle of Artificial lift by Niladri Kuma Mitra
2. Lecture notes on the course Available pdf files + handouts
3. Recommended Readings: www.spe.org