

# Optimization of Heavy Oil Production Using Artificial Lift Systems



**DRPT354  
Drilling,  
Reservoir &  
Petroleum  
Training**

**COURSE TITLE**

**Optimization of Heavy Oil Production Using Artificial Lift Systems**

**COURSE DATE/ VENUE**

**20<sup>th</sup> - 24<sup>th</sup> January 25'**

**Barcelona, Spain**

**COURSE REFERENCE**

DRPT354

**COURSE DURATION**

05 Days

**DISCIPLINE**

Drilling, Reservoir & Petroleum Training

**COURSE INTRODUCTION**

This 5-day course emphasizes the role of engineers and field operators in planning and executing Artificial Lift Operations to optimize field production in heavy oil fields and thus add to the profitability and recoverable reserves. It also emphasizes the significance of the team concept as a factor in optimizing operations success. The course is highlighted with open discussions and problem solving shared by the instructor and participants.

By the end of this course, attendees will have a working knowledge of the industry's advanced technologies in field of designing and installing artificial lift systems in their respective heavy oil operations. They will have knowledge of selecting the appropriate type of Artificial Lift for a heavy oil production.

**COURSE OBJECTIVE**

To provide an in-depth knowledge of the theoretical and practical aspects of Artificial Lift optimization in Heavy Oil Production. At the end of the this course delegates will learn

about the different Artificial Lift systems used in heavy oil production, and how to design an Artificial Lift system, and how to install a system.

### **COURSE AUDIENCE**

- Production Engineers and managers.
- Reservoir engineers.
- Completion and Workover Engineers
- Field maintenance supervisors and operators.
- Service companies and equipment manufacturing engineers.
- Safety engineers and personnel selected by their companies for attending special training courses.

### **COURSE CONTENT**

#### **DAY 1: Heavy Oil Production – Inflow and Outflow Relationships**

- ❖ Heavy Oil Reservoir performance: wellbore and reservoir performance overview
- ❖ Pressure loss in the wellbore
- ❖ Well productivity
- ❖ Concepts of productivity index
- ❖ Inflow and outflow relationships
- ❖ Overview of artificial lift technology: sucker rod pump design, hydraulic pump design, jet pump, gas lift, Electric Submersible Pump (ESP)
- ❖ Application of artificial lift technology and its limitations
- ❖ Artificial lift screening methods

#### **DAY 2: Sucker Rod Pumping**

- ❖ Sucker rod pump concept
- ❖ Limitations and advantages of the sucker rod pumping system
- ❖ Components of the sucker rod pump
- ❖ Design of the sucker rod pump
- ❖ Troubleshooting of the sucker rod pump systems

### **DAY 3: PCP systems**

- ❖ Concept of the Progressing Cavity Pump (PCP) pumps
- ❖ Limitation and advantages of the PCP pumps
- ❖ Best practices for installation and maintenance
- ❖ Troubleshooting of PCP pumps
- ❖ New technology of PCP pumps

### **DAY 4 : ESP Systems**

- ❖ Concept of the Electric Submersible Pump (ESP) system
- ❖ Equipment and accessories of the ESP systems
- ❖ ESP design: pump performance curves, pump intake curves, typical problems, installation, troubleshooting; best practices for installation and maintenance;
- ❖ Steps to correctly size an ESP system. basic sizing principles for the pump, motor and cable
- ❖ Importance of correctly matching well productivity to pump performance
- ❖ Use of data to diagnose well/equipment problems
- ❖ Limitations and advantages of the ESP system

### **DAY 5: Heavy Oil Production Optimization**

- ❖ Applications of Artificial Lift for heavy oil production.
- ❖ Case Studies
- ❖ Open discussion on client cases.

### **COURSE CERTIFICATE**

**TRAINIT ACADEMY** will award an internationally recognized certificate(s) for each delegate on completion of training.

### **COURSE FEES**

£5,750 per Delegate. This rate includes participant's manual, Hand-Outs, lunch, coffee/tea on arrival, morning & afternoon of each day.

## **COURSE METHODOLOGY**

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions

