Accutant Solutions

Accurate Accountable Acumen

Production Optimization Training Courses Portfolio

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Production Optimization for Life of an Oil or a Gas Well

'Production Optimization' is a catchall phrase used in all the entire upstream departments from geo-sciences to drilling to completion through reservoir and of course production. This document focuses on training courses on the production optimization concepts relevant for production engineers and operators who manage life cycle of oil and gas wells and surface facilities. Scope of the training activities covered here primarily encompasses the elements from the sand-face through wellbore and surface.

Accutant Solutions, through its main principal Dr. Rajan Chokshi and associates, is available to offer the following technical trainings and work force development activities for oil and gas producers and service providers globally. Following training courses are available that specifically address production optimization.

Topic	Training Approach & Duration			
	Primer 1 Hour to ½-day	Basic 1 Day	Intermediate 2 to 3-Days	Deep Dive Workshop 5 Days
Production Optimization using Systems Analysis (aka NODAL™ Analysis)	✓	✓	✓	
Artificial Lift & Production Optimization	✓	✓	✓	✓
Full Field Optimization for Gas-Lift Assets	✓	✓	✓	✓
Artificial Lift for Shale & Tight Reservoirs	✓	✓	✓	✓
Artificial Lift for Heavy Oil	✓	✓		
Multiphase Metering	✓	✓		
Gas-Well Deliquification	✓	✓		
Sucker Rod Pumping Optimization	✓	✓		
Electrical Submersible Pump Optimization	✓	✓		
Real-Time Measurements for Production Optimization	✓	✓		

This series of training courses cover production optimization for green field or brown field, conventional oil filed or heavy oil or shale wells, as well as digital oilfield. Client consultation is available to select the most optimum sequence and selection of courses that meet specific business need and matches level of the target audience. Optional training tests can be integrated to comply with competency management requirements.

1-5 Days

Production Optimization using NODAL® Analysis

Instructor: Dr. Rajan N. Chokshi

Synopsis

Ever increasing demands related to cost savings and efficiency improvement require that the existing as well as planned oil and gas production assets are fully and optimally utilized. Nodal or Systems Analysis approach allows selection of optimum components under varying field and reservoir conditions. The course provides practical instructions on design and analysis of naturally flowing oil and gas wells, as well as gas-lift and ESP systems based on nodal or systems analysis concepts.

Knowledge Takeaways

- Provide an awareness of the fundamentals of production by introducing fluid flow, flow correlations, PVT/Black Oil, and discussing the inflow performance relationship (IPR), vertical lift performance (VLP), nodal analysis, and pressure gradient curves.
- Explain major factors in the artificial-lift selection process
- Analyze cessation of the natural flowing period of an oil well. Identify conditions in which a gas well ceases to flow because of liquid loading
- Identify components of a gas-lift and an ESP system. Design and analyze gas-lift and an ESP system.
- Use software tools to:
    - Develop a well model for a well under naturally flowing, gas-lift, or ESP conditions
    - Conduct sensitivity analysis on various components of well system for a robust design
    - Adjust input parameters based on field measurements.

Who should attend?

- Well analysts, artificial-lift engineers, production engineers, and other technical personnel who are involved in the analysis and design of naturally flowing oil wells, gas wells, and high-rate artificial-lift systems, such as gas-lift and ESP systems.

Prerequisites:

- Understanding of basic petroleum engineering concepts. Attendees should have petroleum engineering background or at least five years of working experience in the industry.
- For 3-5 days classes: Each participant needs to bring a laptop for solving class examples using software to be provided during class. Laptop needs to have a current Windows operating system and at least 500 MB free disk space. Participant should have administrator rights to install software.

Course level:

Beginner to Intermediate

Course contents

- Pre-Test
- Production optimization
- Need for and selection of artificial-lift methods like gas lift and ESP
- Gas-lift system components

- ESP system components
- Software introduction (for course lengths 3-5 days)
- Systems analysis for flowing wells
    - Inflow performance relationship
    - Outflow performance relationship
    - Liquid loading in gas wells
    - Selection of design parameters based on field measurements
- Gas-lift wells
    - Systems analysis
    - Design
    - Analysis
- ESP Wells
    - Systems analysis
    - Design
    - Analysis
- Preliminary automation concepts
- Network Optimization Basics
- Post-test

Note:

- This course is customizable from one to five-days length for a variety of audiences at appropriate skill and knowledge levels. Shorter and concise curriculum is available for project and asset managers interested in expanding their understanding of the effects of artificial lift on the performance of their assets.
- Optionally a workshop component can be incorporated that utilizes client-supplied software and their well data for solving field problems. This option requires three days of consulting work prior to the training.

1-5 Days

Artificial Lift and Production Optimization

Instructor: Dr. Rajan N. Chokshi

Synopsis

Artificial lift systems are important part of production operations for the entire lifecycle of an asset. Often oil and gas wells require artificial lift for most of the life cycle. Efficient and cost-effective production workflows involve field management using digital oilfield concepts. Understanding of these important production concepts are a must in order to profitably exploit the existing assets to the fullest extent.

Knowledge Takeaways

- Provide an awareness of the fundamentals of production by introducing fluid flow, flow correlations, PVT/Black Oil, and discussing the inflow performance relationship (IPR), vertical lift performance (VLP), nodal analysis, and pressure gradient curves.
- Introduce applications of major forms of artificial lift like gas-lift (GL), reciprocating rod lift (RRL), electrical submersible pumping (ESP), progressing cavity pumping (PCP), hydraulic jet and piston pump (HJP), plunger and capillary injection.
- Provide knowledge to the participants about the entire lift system - from downhole to the surface - and relevant components for GL, RRL, ESP, PCP, HJP, and Plunger.
- It discusses challenges facing lift applications. addresses how digital oilfield tools help address these challenges. Artificial lift selection and life cycle analysis are covered. Recent advances in real-time approaches to the production monitoring and lift management are also discussed using field case studies.

Who should attend?

- Production, reservoir, completion, drilling and facilities engineers and operators interested in learning about selection, design, analysis and optimum operation of artificial lift and related production systems will benefit from this course.

Prerequisites:

- Understanding of basic petroleum engineering concepts. Attendees should have petroleum engineering background or at least five years of working experience in the industry.
- For 3-5 days classes: Each participant needs to bring a laptop for solving class examples using software to be provided during class. Laptop needs to have a current Windows operating system and at least 500 MB free disk space. Participant should have administrator rights to install software.

Course level:

Beginner to Intermediate

Course Contents

Module 1: Production Systems Analysis and Gas-Lift

- Pre-test
- Systems or Nodal Analysis: Multiphase flow, PVT properties, Inflow and Outflow Performance
- Artificial Lift Systems Classification: What, Why, How.
- Continuous Gas-lift: Applications, Benefit/Limitations, Components, Design example, Optimization

Module 2: Reciprocating Rod Lift

- Applications, Benefit/Limitations, Components
- Dynamometer cards and automation
- Design example & optimization

Module 3: Electrical Submersible Pumping

- Applications, Benefit/Limitations, Components
- Well Performance Curve and Design considerations, Example
- Automation

Module 4: Progressing Cavity Pumping, Hydraulic Jet and Piston Pumps, Gas Well Deliquification

- Applications, Benefit/Limitations, Components
- Well Performance Curve and Design considerations, Example
- Gas Well Deliquification Problem

Module 5: Capillary, Plunger Lift, Digital Oil Field

- Capillary and plunger lift solutions for well deliquification
- Digital oil field and production optimization; Real-time downhole and surface measurements; Role of software in visualization, analysis and surveillance
- Artificial lift selection: lift life-cycle and lift changeovers.
- Post-test

Note:

- This course is customizable from one to five-days length for a variety of audiences at appropriate skill and knowledge levels. Shorter and concise curriculum is available for project and asset managers interested in expanding their understanding of the effects of artificial lift on the performance of their assets.
- Optionally a workshop component can be incorporated that utilizes client-supplied software and their well data for solving field problems. This option requires three days of consulting work prior to the training.

1-5 Days

Artificial Lift and Production Optimization for Unconventional Assets

Instructor: Dr. Rajan N. Chokshi

Synopsis

This five-days course and workshop is designed to give trainees a thorough review and hands-on exposure to the artificial lift and related issues that are applicable to unconventional and tight oil/gas wells. Production optimization is also discussed particularly real-time measurements and optimization techniques that are required to understand and manage the dynamic production scenarios. Dynamic choke management strategies are also covered in form of hands-on exercises. Besides introducing participants to the basics of artificial lift and real-time measurements, the training focuses on specific production and lift challenges related to the unconventional wells. Artificial lift selection and life cycle analysis are also covered. Recent advances in real-time approaches to the production monitoring and lift management are discussed using field case studies. A unique feature of this training is hands-on workshop for solving problems using unique software for unconventional well hydraulics and surface choke schedule management. The course closes with a group exercise wherein each group of trainees would develop problem statement and solution plans for production from unconventional assets.

Who should attend?

- Artificial lift and production personnel responsible for shale fields development and production
- Reservoir, completion, drilling and facilities engineers working on shale development
- Field and asset supervisors and managers interested in improving performance of their unconventional assets. Anyone interested in learning about artificial lift and unique challenges of unconventional production

Knowledge Takeaways

- Ultra-low permeability, significant pressure declines, gas-liquid separation in wellbore, significant flowrate, phase and pressure fluctuations combine to create significant challenges for operators trying to produce a shale or tight asset optimally.
- Unlike conventional production, unconventional production is highly dynamic short- as well as medium- to long-term. As a result, traditional approaches to artificial lift applications are inefficient if not unsuccessful. Artificial lift life cycle is different for unconventional wells.
- During early to middle lifecycle, most operators deploy production control measures in form of choking at the surface, and it has been found that such measures can favorably impact well economics, productivity and eventually EUR enhancement.
- Production dynamics requires us to rethink about application of real-time downhole and surface sensing. Software tools available to analyze field data are inadequate. This course will help trainees understand and appreciate these aspects while providing them applicable solution paths.
- The course will use the latest software tools developed based on the research at The University of Texas. This hands-on exposure will allow participants to understand and appreciate various production aspects while providing them applicable solution paths.

Prerequisites:

- Understanding of petroleum production concepts. Attendees should have petroleum engineering background or at least five years of working experience in the industry.

Course level:

Intermediate to Advanced level

Course contents

Day 1:

- Pre-test
- Introduction to Artificial Lift Systems and Production Optimization: What, Why, How.
- What are the Production Challenges specific to Shale and tight well Development?
- Choking Practices: What, Why, How

Day 2:

- High Rate Volume Practices
- Continuous Gas-lift: Applications, Benefit/Limitations, Components, Design Considerations
- Electrical Submersible Pumping: Applications, Benefit/Limitations, Components, Design considerations
- Hydraulic Jet and Piston Pump

Day 3:

- Choking methodology based on well constraints
    - Software simulation and exercises for choking schedules based on well
- Software simulations during high to medium rate production
- Low rate Volume Practices for liquid dominant assets
- Reciprocating Rod Lift: Applications, Benefit/Limitations, Components, Design considerations

Day 4:

- Challenges of gas producing assets
- Capillary Injection: Application for lift and chemical treatment, Components, Design considerations
- Plunger Lift: Gas well deliquification, Components, Design considerations
- Role of Surface Compression
- Technologies on horizon: Downhole compression, multiphase pumping.
- Software simulations during medium to low rate production
- Choking methodology based on field network constraints
    - Software simulation and exercises for choking schedule based on network constraints

Day 5:

- Selection of artificial lift for Shale Wells
    - Variables specific to Shale Well ALS Selection
    - Strengths & weaknesses of applicable lift systems
    - Lift Life Cycle and Elimination process
    - Application case Studies in oil and gas wells
    - Emerging trends and research
- Digital oil field and production optimization
    - Real-time downhole and surface measurements
    - Role of software in visualization, analysis and surveillance
    - Application Case Studies
- Lift Selection Aspects in Shale: Group Exercise
- Optional: Post-test

1-3 Days

Gas-Lift and Optimization in Unconventional – Primer through Intermediate Application Concepts

Instructor: Dr. Rajan N. Chokshi

Synopsis

Most all oil and gas wells require artificial lift at some point and for most of the life cycle to achieve production objectives. There are at least eight forms of artificial lift technologies available in the market. Each lift system's applicability often overlaps with other lift system(s) and it is important to understand positioning and strength of a particular lift form. Unlike mechanical forms of lift methods, gas-lift performance relies heavily on understanding interdependency between reservoir, wellbore and surface installations.

Gas-lift is one of the predominant forms of artificial lift used for lifting liquids from conventional, unconventional, onshore and offshore assets. Gas-lift and its various forms (intermittent lift, gas-assisted plunger lift) allows life of well lift-possibilities when selected and applied properly. This course is designed to give trainees thorough understanding of gas-lift technology and related application concepts in unconventional and tight oil and gas wells. Related production optimization topics are also discussed.

Knowledge Takeaways

This course focuses on gas-lift applications and related system analysis (often called NODAL analysis) concepts. While providing instructions at intermediate level the training will arm attendees with sufficient details to participate in informative decision-making process. Followings are the main objectives:

- Provide a thorough introduction about the theory of gas lift,
- Demonstrate the advantages and limitations of gas-lift systems,
- Acquaint the student with system evaluation, design, installation, operation concepts.
- Why gas-lift is important for unconventional production and what does it compete against?
- Components and application envelope for gas-lift
- Forms of gas-lift applied successfully in unconventional fields.
- Production Optimization of gas-lift installations.

Who should attend?

- Production, reservoir, completion, drilling and facilities engineers
- Anyone interested in learning about application of gas-lift systems for unconventional reservoirs.

Course level:

Beginner to Intermediate

Course contents

1. Introduction
    - Artificial Lift: When / Why / What of Lift Mechanisms; Types
    - How Gas-lift is same and different from other lift forms. Relative market position.
2. Well Performance: Review of Fundamentals
    - Systems/NODAL Analysis
    - Reservoir Performance: Productivity Index & Inflow Performance Relationship (IPR)
    - PVT Analysis
    - Multiphase Flow
        - Flow Correlations & Mechanistic models; Flow Regimes/maps
        - Pressure Gradient Curves
        - VLP: Vertical Lift Performance
3. Gas-Lift

- Types; Application; Advantages, Limitations
- Equipment: Downhole & Surface
- Gas-Lift production rate & well evaluation basics: Operating Point Analysis

4. Gas-Lift Valve Mechanics
    - Valve Classifications: IPO, PPO, Pilot, Dummy
    - Continuous Flow Unloading Sequence
    - Force Balance Theory for IPO & PPO Valves
    - Importance of True Valve Performance
5. Gas-Lift Installation Design
    - Overview of IPO design methodology; Valve Spacing & Valve Sizing
    - Design & Optimization
6. Artificial Lift lifecycle and What comes next in unconventional well's life cycle.
7. Intermittent gas-lift basics & overview of design
8. Plunger lift & Gas-assisted Plunger lift
9. Injection Infrastructure: Compression & sizing
10. Single Well Optimization Concepts
11. Digital oilfield concepts applicable to gas-lift

1-5 Days

Full Field Optimization for Gas-Lifted Assets

Instructors: Dr. Rajan N. Chokshi, Luis E Gonzalez

Synopsis

For assets having gas-lift as a predominant form of artificial lift, the full field optimization is essential due to the closed loop nature of the system due to interdependency between reservoir, wellbore and surface installation. This course will review full-field optimization concepts applicable to the gas lifted wells from subsurface to the surface. Through several guided exercises, participants will understand workflows of solving entire system using commercial software tools. The knowledge gained from this course will allow the participants to effectively analyze their gas lifted assets and implement optimization practices at component as well as system level over the lifetime of an asset.

Who should attend?

Reservoir, production and facilities engineers; project and asset managers interested in improving performance of their assets.

Prerequisites:

- Understanding of petroleum engineering concepts. Attendees should have petroleum engineering background or at least five years of working experience in the industry.
- Familiarity with engineering design software is desired.
- For 3-5 days classes: Each participant needs to bring a laptop for solving class examples using software to be provided during class. Laptop needs to have a current Windows operating system and at least 500 MB free disk space. Participant should have administrator rights to install software.
- Optionally a workshop component can be incorporated that utilizes client-supplied software and their well data for solving field problems. This option requires three days of consulting work prior to the training.

Course level:

Intermediate

Course Content:

- Systems analysis concepts applicable for solving Gas-Lift System
  - Lift Systems: Why, When and What
  - Gas Lift: Main Characteristics
  - Gas Lift Interdependencies
- Model Construction
  - Integrated Model construction
  - Data Collection, Validation & Analysis
  - Reservoir Model Building – Walkthrough
  - Well Model Building – Walkthrough
  - Surface Facilities Model Building – Walk Through
  - Solving an Example Model
- Examples on solving gas lift asset models: Examples 1-4
- Forecasting asset performance using Integrated Models
  - Forecasting and Benefits
  - Forecasting Workflow
  - Example Problem
- Real-time asset optimization
  - What is Real-time Production optimization for gas lift asset
  - Demo: Real-time syste

2-5 Days

Gas Well Deliquification with Artificial Lift and Production Optimization

Instructor: Dr. Rajan N. Chokshi

Course Description:

Ever increasing demands related to cost savings and efficiency improvement require that the existing as well as planned gas production assets are fully and optimally utilized. Most all gas wells produce liquid in form of water or condensate. If this liquid is not removed from the wellbore in timely manner the gas production suffers dramatically and eventually ceases altogether. In case of coal-bed methane (CBM) wells, removal of water releases adsorbed methane from the coal seam. Thus, the liquid loading impacts productivity of most all gas assets. Deliquification, an effective way of removing liquid from the wellbore, requires deployment of artificial lift and production optimization techniques for most of gas well's productive life. Careful selection, design and operation of artificial lift system is extremely important for profitability. Efficient and cost-effective production workflows involve field management using digital oilfield concepts. Understanding of these important production concepts are a must to profitably exploit the existing assets fully. The objective of this course is to:

- Provide an awareness of the fundamentals of production from gas wells by introducing fluid flow, flow correlations, PVT/Black Oil, and discussing the inflow performance relationship (IPR), vertical lift performance (VLP), nodal analysis, and pressure gradient curves.
- Introduce liquid loading in gas wells and need for deliquification
- Introduce artificial lift types like plunger and capillary injection, gas-lift (GL), hydraulic jet and piston pump (HJP), progressing cavity systems (PCP), reciprocating rod lift (RRL), and electrical submersible pumping (ESP).
- Introduce other means for deliquification like surface compression, velocity and dead strings.
- Provide knowledge to the participants about the entire lift system - from downhole to the surface - and relevant components for plunger, capillary, PCP, GL, RRL, ESP, and HJP.
- Discuss challenges facing lift applications.
- Introduce digital oilfield and related aspects specific to artificial lift.
- Explore the importance of downhole monitoring and surface measurements.

Learning Outcomes:

- A thorough treatment of liquid loading and deliquification problem including artificial lift techniques for production optimization of gas and CBM wells.
- The basics as well as advanced concepts of each form of artificial lift systems from downhole to the surface including real-time optimization equipment and software.
    - **Optionally** using appropriate software tools, how lift components are designed and analyzed.
- Challenges facing lift applications.
- Gas well life cycle and Artificial lift selection for different stages.
- Unconventional artificial lift applications
- How digital oilfield tools help address these challenges. Recent advances in real-time approaches to the production monitoring and lift management from field case studies

Who will benefit?

- Production engineers and field operators
- Reservoir engineers
- Completion Engineers
- Drilling and facilities engineers working in integrated project teams
- Anyone who is interested in learning about selection, design, analysis and optimum operation of artificial lift and related production systems.
- Project and asset managers interested in expanding their understanding of the effects of deliquification and impact of artificial lift on the performance of their assets.

Course Content

Day 1: Introduction to Systems Analysis & Gas Well Loading Problem

- Pre-test
- Multiphase flow
- PVT properties
- Inflow / Outflow Performance and sensitivity analysis
- Gas Well loading and deliquification problem
- Completion selection for deliquification
    - Dead String
    - Velocity String
- Surface Compression and multiphase pumping

Day 2: Introduction to Artificial Lift, Capillary Systems, Plunger Lift

- Artificial Lift Systems: Basics, Why/What/How.
- Capillary Injection Systems
    - Applications, Pluses/minuses
    - Chemical Delivery
    - Selection considerations
    - Special applications in Shale, long perforations
- Plunger Lift
    - Applications, pluses/minuses
    - Bottom hole and Surface Setup: Plungers, BHA, Lubricator
    - Selection and Special Applications
    - Surveillance

Day 3: Gas-Lift, PCP, Hydraulic Lift

- Continuous Gas-lift
    - Overview, Applications, Pluses/Minuses
    - Mandrels, Valves
    - Well Performance Curve; Design example
    - Surveillance & Optimization Approaches
- Intermittent Gas-Lift
    - Overview, Applications
    - Gas-Assisted Plunger Lift
- Progressing Cavity Pump (PCP)
    - Overview, Applications, Pluses/minuses
    - PCP Pump Fundamentals
    - Surface Equipment
    - Application in CSG/CBM wells

- Hydraulic lift
    - Basics; applications, Pluses/minuses
    - Pumps, Surface Equipment
    - Gas Well Applications

Day 4: ESP, Reciprocating Rod Lift

- Electrical Submersible Pump (ESP)
    - Overview, Applications, Pluses/Minuses
    - Pump, Intake, Gas Separator, Seal, Motor, Cable, Surface Equipment
    - Basic ESP Design
    - Well Performance Curve and Design considerations, Example
    - Automation
- Reciprocating Rod Lift
    - RRL Chain, Pump Motion, Applications, Pluses/Minuses
    - Pump and Dynamometer cards
    - Surface Pumping Units, Rod Strings & Rod Life
    - Optimization using RPC, VFD
    - Design example

Day 5: Digital Oil Field

- Artificial lift selection: lift life-cycle and lift changeovers
- Artificial Lift in Shale
- Digital oil field: What & Why
    - Components
    - Data Management
    - Data Analytics Importance
    - DOF Case study
- Post-test

Note:

- This course is customizable from two to five-days length for a variety of audiences at appropriate skill and knowledge levels.
- Optionally a workshop component can be incorporated that utilizes client-supplied software and their well data for solving field problems. This requires three days of consulting work prior to the training.

1 Day

Multiphase Flow Metering Concepts & Applications

Instructor: Dr. Rajan N. Chokshi

Synopsis

Continuous determination of flow rates at the wellhead and/or closer to the source in the wellbore is one of the most important considerations related to the digital or non-digital oil fields. This one-day course will provide overview of multiphase metering, need, business case and approaches offered in the marketplace to address this need.

Who should attend?

Reservoir, production, and facilities engineers; personnel interested in understanding the impact of multiphase metering on their field development and operational strategies.

Prerequisites:

- Understanding of basic petroleum engineering concepts. Attendees should have petroleum engineering background or at least five years of working experience in the industry.

Course level:

Beginner

Course Content:

- Definitions
- Need for Multiphase Flow Metering
- Multiphase Flow – A Brief Review
- Multiphase Flow Meter (MPFM) Evolution
- Overview of underlying technologies
- MPFM Selection Aspects
- Overview of some Commercial MPFMs
    - In-situ surface Multiphase Flow Meter
    - In-well Optical Flow Metering
- Application example & data analysis
- Conclusion

1 Day

Artificial Lift and Real-Time Optimization in Digital Oilfield

Instructor: Dr. Rajan N. Chokshi

Synopsis

This one-day course is designed to give trainees an overview of artificial lift issues and production optimization. With the increasing need to optimize dynamic production in highly constrained cost environments, opportunities and issues related to real-time measurements and optimization techniques needs to be discussed and understood. Besides introducing participants to the basics of artificial lift and real-time measurements, the training addresses how digital oilfield tools help address these challenges. Artificial lift selection and life cycle analysis are covered. Recent advances in real-time approaches to the production monitoring and lift management are also discussed using field case studies. The course closes with a session wherein trainees would discuss their challenges and plans for production using digital oilfield.

Who should attend?

- Anyone interested in learning about what digital oilfield means for artificial lift and product optimization
- Production, reservoir, completion, drilling and facilities engineers
- Project and asset managers interested in improving performance of their assets.

Learning Objectives (Why You Should Attend?)

Current pricing scenario and related cost savings and efficiency improvement drivers demand that existing assets are utilized to the fullest extent. Digital oilfield tools and techniques have been proven to address and solve optimization challenges in conventional as well as unconventional production. These toolset is a must to manage highly dynamic production short- as well as medium- to long-term. Besides more common surface controls and related remote management approaches, the production dynamics requires us to rethink about application of real-time downhole and surface sensing. Software tools available to analyze field data are inadequate. This course will help trainees understand and appreciate these aspects while providing them applicable solution paths.

Prerequisites:

- Understanding of petroleum production concepts. Attendees should have petroleum engineering background or at least five years of working experience in the industry.

Course level:

Intermediate to Advanced level

Course Content:

- Basics of Artificial Lift and Production Optimization
  - Lift Life Cycle and Elimination process
  - Specific Lift management challenges
- What is Digital Oilfield
  - Wellsite tools
  - Desktop tools
  - Application case studies
- Real-time Downhole Measurements for optimization
  - Available Technologies
  - Role of software in visualization, analysis and surveillance
  - Application case studies

Dr. Rajan N. Chokshi

Dr. Rajan Chokshi works as an artificial lift and production 'Optimizer' for Accutant Solutions, a consulting firm out of Houston, USA. He has over 34 years of experience working with a national oil company, research consortia, consulting and software firms, and a service company in various roles from engineer, software developer, project manager, trainer, consultant, and a senior business leader.

Dr. Chokshi has worked on projects globally in the areas of multi-phase flow, artificial lift, production optimization, and real-time production monitoring. He has co-authored over fifteen SPE papers, one patent and has three patents pending. Besides delivering several SPE webinars and trainings, Dr. Chokshi continues to conduct workshops for practicing professionals globally in SPE and private forums. As an adjunct faculty, he has taught at Texas Tech, Missouri S&T, U of Southern California, and continues to teach at the U of Houston. He has served on various SPE committees like production & facilities advisory, global training and production awards. He is incoming chair of awards & recognition committee. He was co-chair of an SPE artificial lift workshop, and is co-chair of SPE forum on production issues in unconventional. He has been selected twice as an SPE Distinguished Lecturer for the 2015-2016 and 2018-2019 years.

EDUCATION

- B.E. in Chemical Engineering, Gujarat University, India
- M.Tech. in Chemical Engineering, IIT, Kanpur, India
- Ph.D. in Petroleum Engineering, The University of Tulsa, OK, USA

SELECTED PUBLICATIONS

- Importance of Downhole Measurements, Visualization and Analysis in Producing Unconventional Wells
- Consideration for Optimizing Artificial Lift in Unconventionals
- Service Industry & University Collaboration in Teaching Production Optimization with Artificial Lift
- Unified Mechanistic Model for Steady-State Two-Phase Flow: Horizontal to Vertical Upward Flow
- Experimental Study and the Development of a Mechanistic Model for Two-Phase Flow Through Vertical Tubing

PORTFOLIO OF COURSES

- 1-Day to 5-Days – Artificial Lift and Production Optimization
- 1-Day to 5-Days – Gas-Lift for Production Optimization
- 1-Day to 3-Days – Reciprocating Rod Lift
- 1-Day to 3-Days – Artificial Lift Selection for Shale and Tight Reservoirs
- 1-Day – Reciprocating Rod Lift for Shale and Tight Reservoirs
- 1-Day – Gas-Lift for Shale and Tight Reservoirs
- 1-Day – Artificial Lift and Production Optimization in Digital Oil Field Era

COURSES TAUGHT IN

USA, UK, Canada, Mexico, Venezuela, Colombia, UAE, Kuwait, Saudi Arabia, Oman, Bahrain, Libya, Indonesia, India.