An Intensive 5 Day Training Course

Fundamentals of Reservoir Engineering

16 - 20 Jul 2017, Abu Dhabi

This course is Designed, Developed, and will be Delivered under ISO Quality Standards
**WHY CHOOSE THIS TRAINING COURSE?**

This training course introduces reservoir engineering concepts and methods to enable cross-disciplinary exchange of ideas and experience. It provides the required input to help you understand questions crucial to the reservoir engineer: How much oil & gas is there (accumulation)? How much can be recovered (reserves)? How fast can it be recovered (rate)? By the end of the course, participants will have gained a foundational understanding of reservoir engineering that they can use while moving forward in their training.

This training course will feature:

- Discussions on the role of reservoir engineering in exploration and production as well as how reservoir engineers interact with other disciplines in the Petroleum Industry
- A description of Reservoir rock properties, Darcy’s Law and Fundamentals of fluid flow in a porous media.
- A description of Reservoir fluid phase behaviour and reservoir fluid properties
- An Overview of well testing and application of the diffusivity equation
- An outline of different drive mechanisms and discussion of the recovery factors
- Principles of Material Balance and Decline Curve Analysis
- Use of fractional flow equations and Immiscible displacement concepts
- Definition of reserves, estimation of oil and gas in place and Production Forecasts

**WHAT ARE THE GOALS?**

By the end of this training course, participants will be able to:

- Describe a hydrocarbon reservoir and list the fluids found in it
- Illustrate with diagrams how these fluids are distributed in a hydrocarbon reservoir
- Describe and explain porosity, permeability and fluid saturations
- Determine the properties of natural gas, oil and water
- Explain and define saturated reservoirs, undersaturated reservoirs, bubble point pressure, oil and gas formation volume factors, gas oil ratio
- Calculate the volume of hydrocarbon in place and recovery factors Derive the general material balance equation, modify it and use it to calculate hydrocarbon in place for gas reservoirs, saturated reservoirs and under saturated reservoirs
- Use the Havlena and Odeh technique to determine oil in place for saturated reservoirs and under saturated reservoirs
- Use of well testing data in determining average reservoir pressure, productivity index, permeability, and skin effect
- Discuss the recovery factors of different drive mechanisms.
- Explain the use of fractional flow equations and Immiscible displacement concepts
- Perform decline curve analysis

**WHO IS THIS TRAINING COURSE FOR?**

This Reservoir Engineering training course is suitable to a wide range of professionals but will greatly benefit:

- Petroleum and Reservoir Engineers who need to determine accurate values of the properties of reservoir gas, oil and water for use in engineering calculations and Simulation studies
- Production and Operations Engineers who want to have an understanding of the way reservoir fluids behave, the reservoir depletion process and reservoir drive mechanisms
- Reservoir, Production and Operations Engineers who need to determine oil and gas production rates and production forecasts
- Petro-physicists, Geo-physicists, Geologists and Non – Engineers who work in teams with Petroleum and Reservoir Engineers to estimate hydrocarbon in place and reserves and to perform reservoir characterisation studies
- Managers who seek to derive greater decision making on field development

**HOW WILL THIS TRAINING COURSE BE PRESENTED?**

This PetroKnowledge training course will utilise a variety of learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The daily workshops will be highly interactive and participative. This involves regular discussion of applications as well as review questions on each topic.
DAILY AGENDA

Day One: Reservoir and Reservoir Engineering Basics

- Introduction to reservoir engineering
- Reservoir Life Cycle
- Reservoir environment and formation properties
- Identification of contacts
- Definition of reservoir pressure
- Determination of pressure gradients

Day Two: Reservoir Conditions

- Reservoir and surface conditions
- Formation volume factor, viscosity, solution gas-oil ratio, API gravity, specific gravity
- Estimating gas, oil, and water properties from correlations
- Application of deviation factor to ideal gas law
- Darcy’s Law and fundamentals of fluid flow
- Relative permeability concept

Day Three: Reservoir Fundamentals

- Principles of Well Testing in reservoir characterization
- Estimation of average pressure
- Application of diffusivity equation to steady state, semi-steady state and unsteady-state flow
- Applications of line source solution to determine reservoir pressure
- Overview of well testing techniques
- Use of well testing

Day Four: Reservoir Drive

- Reservoir Drive Mechanisms
- Principles of Material Balance Analysis
- Use of fractional flow equations
- Immiscible displacement concepts
- Recovery concepts

Day Five: Reserve Estimation and Production Forecasting

- Definition of reserves
- Recovery factor-API Correlations
- Estimation of oil-in-place
- Estimation of gas-in-place
- Production Forecast – Decline Curve Analysis
**Course Dates, Venues and Fees**

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<thead>
<tr>
<th>Date</th>
<th>Venue</th>
<th>Fee</th>
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<tbody>
<tr>
<td>16 - 20 Jul 2017</td>
<td>Abu Dhabi</td>
<td>$4,500</td>
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This fee is inclusive of Documentation, Lunch and Refreshments.

Please use BLOCK CAPITALS to fill in this form. It is important that you read carefully through all information before starting to complete the form.

**Registration Details**

Family Name: ________________________________

First Name (Mr./Ms.): ________________________

Position: ________________________________

Company: ________________________________

Mailing Address: ________________________________

Telephone: ___________ Mobile: ___________

Fax: ___________ Email: ___________

**Authorisation**

Authorised By: ________________________________

Position: ________________________________

Company: ________________________________

Mailing Address: ________________________________

Telephone: ___________ Mobile: ___________

Fax: ___________ Email: ___________

**Booking Terms & Conditions**

**Booking**
- Bookings for courses can be made via our website (petroknowledge.com) or by contacting our Registration Desk on +971 2 5577389 or at reg@petroknowledge.com
- For on-line bookings, please select the course that you require and click on the “Register Now” button, following the instructions step by step
- Upon receipt of booking in order, enrolment on the respective training course will be confirmed by Registration Team with all necessary documentation

**Invoicing and Payment**
- Our fees include course presentation, relevant materials, physical & digital documentation, lunch and refreshments served during entire training. Accommodation charges are not included in the course fees
- Course fees are payable upon booking unless a valid, authorized Purchase Order is provided and accepted
- Invoices will be sent via email/courier to the ID/name and address provided
- We prefer to have the fees payment in our account before the start of training course. However, if your company has a different payment policy, the same should inform us in advance
- The currency of fees is in US Dollars (USD). Payments can be made in USD or UAE local currency AED (Arab Emirates Dirhams) either by Bank Transfer or by Credit Card. Our Bank Account details will be provided on the Invoice
- Please note that we do accept payment by cash, in USD or AED, only for the last minute bookings

**Cancellation of Courses**
- It may be necessary for PetroKnowledge to amend or cancel any course, course times, instructors, dates or published fees due to unforeseen circumstances and we reserve the right for such changes
- Any amendments will be advised before the course start date and any bookings already paid in full will not be subject to increased fees

**Cancellation by Client**
- Once you have completed your booking, received your confirmation of enrolment and a dated payment Invoice, you are deemed to have a contract with PetroKnowledge. You reserve the right to cancel this contract given the below terms
- All cancellations must be received in writing at reg@petroknowledge.com and info@petroknowledge.com at least 14 days prior to the training
- After the cancellation period has expired, consideration may be given, on a case to case basis, if a registered delegate nominates a substitute on the same course, shifts to next session of the course or moves to a new course
- For a cancellation request made on or before the statutory 14 day cancellation period, a refund may be given or a credit note issued which can be used against future course fees
- A 25% administration fee (of the total course fee at the time of booking) will be charged for any cancellations made outside of the statutory cancellation period

**Attendance Certificate**
- The daily course schedule should be accurately followed to ensure undeterred implementation of our training
- All delegates, who participated in their course throughout, will receive the Certificate of Completion on the last day
- Please report any foreseeable absences to a PetroKnowledge representative or to your sponsors directly
- An absence of three (3) or more sessions of the course will invalidate your eligibility for the Certificate of Completion