Unconventional Excellence

Artificial Lift and Real-Time Optimization for Unconventional Assets

Unconventional production is highly dynamic, and traditional approaches to artificial lift applications are inefficient or even unsuccessful. The artificial lift life-cycle is different for unconventional wells. Production dynamics requires rethinking of the application of real-time downhole and surface sensing. This three-day course will help attendees understand and appreciate these facets while providing applicable solutions. The course reviews 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 dynamic production scenarios.

Rajan Chokshi, PhD

Producing Unconventional with Gas Lift – From Annular to PAGL to Plunger Lift and In-Between

Gas-lift is one of the predominant forms of artificial lift used for lifting liquids from conventional, unconventional, onshore, and offshore assets. Additionally, proper application of gas-lift to a loaded-up gas wells can be one of the most effective way to improve profitability of a gas well portfolio. 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

"Best Practices" for New Well Fracs and Legacy Well Recompletions

Participants will understand why recompletions work and how they can deliver superior economics to new well fracs. With the processes discussed in the course, the risks associated with recompletion candidate selection, mechanical isolation, and recompletion execution can be minimized to the lowest level possible. Discussion topics include: what a new well or recompletion produces with an optimized stimulation treatment, "best practices" to avoid stranding hydrocarbons in both types of wells, where operators have done recompletions and their economics vs new wells, and how recompletions can help avoid new infill well 40% EUR losses from asymmetric completions.

Robert 'Bob' Barba

Deepwater Systems, Ainsa Basin, Spanish Pyrenees:
Application to Hydrocarbon Prospectivity and Unconventional Plays (Spain)

Learning outcomes of this five-day field course include improving knowledge and understanding of deepwater depositional processes; learning necessary terminology so that engineers and geologists can communicate effectively; developing appreciation for reservoir and architectural element scale, dimensions, and connectivity; understanding deep water architectural element variability away from the wellbore; and becoming able to relate features that are observed in core to 3D features in the subsurface. Students will travel from Barcelona to the Ainsa Basin, where deep-marine systems, submarine channels, lobes, and related deposits will be studied in the field.

Steve Cossey, PhD

Kevin Pickering, PhD
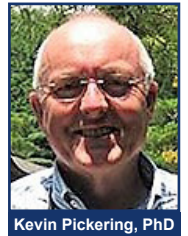
Geosteering: Best Practices, Pitfalls, & Applied Solutions

This course includes intermediate-level review of the topics that most often impact the geosteering effort including best practices that account for the most common sources of difficulty. It starts with a review of "good outcomes", specifically including what defines a successful geosteering effort, plus examples from a variety of plays. Since best practices necessarily include understanding and recognition of potential pitfalls, time is taken to explore four categories of potential problems, their origins, how to recognize, and how to mitigate them. Students should derive a more comprehensive understanding of the importance of geosteering and what realistically defines a geosteering success.

Hydraulic Fracturing: Theory and Application

This course provides an in-depth look at hydraulic fracturing, first from a theoretical viewpoint but then also how this theory translates into application of the technique. The course starts with a discussion of the goals of hydraulic fracturing and the economic justifications that go along with them. From there, reservoir characteristics such as in-situ stresses, rock mechanical properties, etc. and their impacts on hydraulic fracture behavior are covered. Fracturing fluids and proppant types are presented, and an in-depth discussion of conductivity and the associated damage mechanisms under reservoir conditions are discussed. The impacts of such on production and reserve recovery is also highlighted. A large section of the course is dedicated to diagnostic techniques such as DFIT's, tracers, microseismic, and fiberoptics.

Karen Olson, MS

Integrated Structural and Stratigraphic Architecture of the Texas Hill Country

This field course focuses on understanding the development of Cretaceous carbonate reservoirs, analogous to those found in the Gulf Coast basins, Middle East, and southern hemisphere. By studying shelf-to-basin reservoir elements in the Texas Hill Country, students can learn about the factors controlling hydrocarbon production in these regions. Significant stratigraphic units are traversed to examine the tectonic history that has shaped the Texas Hill Country and Gulf Coast basins. At each stop, subsurface accumulations are discussed and outcrop analogs of actual reservoirs are observed. This direct observation allows participants to see how depositional and structural features interact to influence hydrocarbon recovery challenges.

Chris Zahm, PhD

Introduction to Subsurface Machine Learning

Students of this course will acquire a working knowledge of using Python programming and open-source packages essential for data analytics and machine learning. Live demos of codes and workflows in the Jupyter Notebook environment serve as the basis for the entire course. The course will help geoscientists, geophysicists, and petroleum engineers learn python programming at a beginner to intermediate level. Various types of data are used including well logs, core data, well performance data, and production data.

August 12-13, 2025 (Houston, TX)

Siddharth Misra, PhD

Reservoir Characterization for Mudrock Reservoirs

This course provides an introduction to mudrock resource plays. A wide range of topics will be covered to familiarize the participant with the important nuances of both successful and unsuccessful mudrock plays while using the petroleum system approach. A key emphasis will be to show the important elements and processes for development of continuous oil and gas accumulations. Participants will learn screening techniques that help identify commercial accumulations.

Unconventional Resource Plays - Workshop

Learn sound evaluation techniques used in choosing and developing unconventional resource plays with this three-day workshop. Geology, reservoir engineering, reserves evaluation, economic forecasting, and the concepts of multivariate analysis are combined to develop skills that help predict productivity in oil and gas systems. The workshop covers gas and oil plays in shale and stacked tight sands that are developed with horizontal and vertical wells.

Steve Sonnenberg, PhD

Reservoir Management of Unconventional Reservoirs: From Inception to Maturity

This workshop provides a fundamental understanding of well performance with the use of several tools such as RTA and DCA. Suitability of these tools for reserves forecasting will be the cornerstone of this workshop. Although deterministic reserves estimation is emphasized, probabilistic approaches will also be outlined. Obtaining some of the basic reservoir parameters with DFIT entails stress and reservoir properties, such as initial pressure and permeability. However, factors influencing the non-ideal DFIT behavior often present interpretation challenges. We will explore some of these issues while tackling some of the field responses. We will discuss a simplified plunger-lift model to tackle this flow problem at hand.

Shah Kabir

Shale Reservoir Workshop: Analyzing Organic-Rich Mudrocks from Basin to Nano-Scale

This training course can be customized to by choosing between modules of different lengths. The class utilizes lectures, core examination, and exercises to address the reservoir characterization, sedimentology, facies, sequence stratigraphy, petrophysics, fractures, and geochemistry of shale-gas/oil bearing mudrocks. This workshop focuses on rock-based interpretation of mudrocks from basin to nano-scale. Participants will learn how to use core, cuttings, geochemical, and petrophysical data to characterize mudrocks and apply mudrock depositional, sedimentological, sequence stratigraphic, geochemical and petrophysical principles to exploration areas and production assets in shale basins.

Shale Reservoir Core Workshop: Sedimentologic and Stratigraphic Assessment of Organic-Rich Mudrock

This core workshop has classroom sessions, core viewing, and core descriptions exercises, and focuses on rock-based interpretation of mudrocks incorporating lectures and core examinations. Participants will learn how to apply mudrock depositional, sedimentological, and sequence stratigraphic principles and gain an overview of geochemical, petrophysical, geomechanical, and fracture classification principles to exploration areas and production assets in shale basins. Day 3 consists of viewing selected intervals of cores from the Bureau of Economic Geology (ie., Eagle Ford, Haynesville, Bossier,)

Ursula Hammes, PhD

Unconventional Oil and Gas

Participants of this course will discuss characteristics of conventional oil and gas to better understand why other accumulations are considered unconventional. Various unconventional systems currently under exploitation will be presented with specific focus in tight and shale systems, with the highest potential in Argentina and other countries within the region. The complex trapping mechanism of tight and basin-centered gas will be discussed, as well as well completion techniques and results. Participants will identify and understand key factors in defining the quality of plays. Methodologies for assessing technically recoverable resources and different approaches for production forecasting will be analyzed. Horizontal drilling and multiple stage fracturing technologies will also be reviewed. This course is also available in in Spanish.

Ruben Caligari