PetroSkills®

2016 Production and Completions Engineering Training Guide

OGCI® John M. Campbell RDC

Production and Completions Engineering

Course Progression Matrix

The Course Progression Matrix below shows how the Production and Completions courses in this section are structured within each topic, from Basic to Specialized. On either side of the Production and Completions section, you will see courses in associated disciplines for cross-training. These matrices are ideal for building training plans for early-career staff or finding the right course to build upon existing knowledge and experience.

Production Operations 1 – PO1 leads off this section and represents the core foundation of the production engineering course curriculum and is the foundation for future studies in the discipline. The next course, **Completions and Workovers – CAW,** is an introduction to many facets of completion and intervention technology, and is one of our most popular courses. For all of your **Hydraulic Fracturing** needs—both applied and advanced—see pages 4 and 5. We are also happy to offer these two popular courses, **Multiphase Flow in Production Operations – MFP** and **Water Management in Heavy Oil Resource Operations – HOWM**.

The following instructors have been approved by the PetroSkills Curriculum Network:

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Dr. Omar Barkat
Mr. Paul Barry
Mr. Michael Berry
Mr. Larry Britt
Mr. Alexandre Chwetzoff
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Dr. Cliff Redus
Mr. Kenneth Saveth
Mr. Richard Schroeder
Dr. Subhash Shah
Mr. Kyle Travis
Mr. Hugo Vargas
Mr. Bob Westermark
Mr. Scott Wilson
Dr. Ding Zhu

	Geology, Geophysics, and Petrophysics	Reservoir	Well Construction / Drilling	Production and Completions Engineering				Well Construction / Drilling	Data Management, Petroleum Business, and Professional Development	Health, Safety, Environment
				Well System Performance	Completions / Intervention	Stimulation	Artificial Lift			
Specialized	Applied Rock Mechanics (Page 12)	Horizontal and Multilateral Wells: Analysis and Design (Page 13)			Horizontal and Multilateral Wells: Completions and Stimulation (Page 8)	Advanced Hydraulic Fracturing (Page 5)				
Intermediate	Petrophysics of Unconventional Reservoirs (Page 11)	Reservoir Characterization (Page 12)		Gas Production Engineering (Page 7) Flow Assurance for Offshore Production (Page 6) Production Logging (Page 8) Water Management in Heavy Oil Resource Operations (Page 9)	Sand Control (Page 8) Surface Water Management in Unconventional Resource Plays (Page 8) Production Chemistry (Page 7) Formation Damage: Causes, Prevention, and Remediation (Page 7) Acidizing Applications in Sandstones and Carbonates (Page 5)	Hydraulic Fracturing Applications (Page 4)	Gas Lift (Page 6) Beam Pumps (Page 5) Progressing Cavity Pumps (Page 6) Electrical Submersible Pumps (Page 6) Gas Well Deliquification (Page 7)		Petroleum Project Management (Page 16)	
Foundation	Production Geology for Other Disciplines (Page 11) Foundations of Petrophysics (Page 11) Evaluating and Developing Shale Resources (Page 10)	Well Test Design and Analysis (Page 12)		Performance Analysis, Prediction, and Optimization Using NODAL Analysis (Page 4) Multiphase Flow in Production Operations (Page 4) Operations and Development of Surface Production Systems (Page 3) Completions and Workovers (Page 2) Production Technology for Other Disciplines (Page 2) Production Operations 1 (Page 2)	Downhole Remediation Practices (Page 4) Unconventional Resources Completion and Stimulation (Page 3)		Artificial Lift Systems (Page 5)	Fundamental and Practical Aspects of Produced Water Treating (Page 9) Applied Water Technology in Oil and Gas Production (Page 9) Gas Conditioning and Processing (Page 14) Oil Production & Processing Facilities (Page 15)	Team Leadership (Page 16)	Applied HSE Management (Page 17) Applied Safety (Page 17) Applied Environment (Page 17)
Basic	Basic Petroleum Geology (Page 11) Exploration and Production Process Basics: Understanding the Petroleum Industry Value Cycle (Page 10) Basic Petroleum Technology (Page 9)	Basic Reservoir Engineering (Page 12)	Casing and Cementing (Page 13) Basic Drilling Technology (Page 13) Basic Drilling, Completion and Workover Operations (Page 10)	Surface Production Operations (Page 3) Basic Petroleum Engineering Practices (Page 10)	Well Stimulation: Practical and Applied (Page 3)			Concept Selection and Specification of Production Facilities in Field Development Projects (Page 14) Overview of Gas Processing (Page 14)	Introduction to Data Management (Page 15) Essential Technical Writing Skills (Page 15) Essential Leadership Skills for Technical Professionals (Page 15) Basic Petroleum Economics (Page 16)	Basics of Environment (Page 16) Basics of HSE Management (Page 17)

Production Operations 1 – PO1

FOUNDATION

PO1 represents the core foundation course of PetroSkills' production engineering curriculum and is the basis for future oilfield operations' studies. Course participants will become familiar with both proven historical production practices as well as current technological advances to maximize oil and gas production and overall resource recovery. The course structure and pace apply a logical approach to learn safe, least cost, integrated analytical skills to successfully define and manage oil and gas operations. Applied skills learned guide the participant with a framework to make careful, prudent, technical oil and gas business decisions. Currently emerging practices in the exploitation of unconventional resources including shale gas and oil, and heavy oil and bitumen complement broad, specific coverage of conventional resource extraction.

DESIGNED FOR

Petroleum engineers, production operations staff, reservoir engineers, facilities staff, drilling and completion engineers, geologists, field supervisors and managers, field technicians, service company engineers and managers, and especially engineers starting a work assignment in production engineering and operations, or other engineers seeking a well-rounded foundation in production engineering.

YOU WILL LEARN HOW TO

- Recognize geological models to identify conventional and unconventional (shale oil and gas and heavy oil) hydrocarbon accumulations
- Understand key principles and parameters of well inflow and outflow
- Build accurate nodal analysis models for tubing size selection and problem well review
- Design and select well completion tubing, packer, and other downhole equipment tools
- Plan advanced well completion types such as multilateral, extended length, and intelligent wells
- Design both conventional and unconventional multistage fractured horizontal wells
- Apply successful primary casing cementing and remedial repair techniques
- Select equipment and apply practices for perforating operations
- Plan well intervention jobs using wireline, snubbing, and coiled tubing methods
- Manage corrosion, erosion, soluble and insoluble scales, and produced water handling challenges
- Apply well completion and workover fluid specifications for solids control and filtration
- Employ the five main types of artificial lift systems
- Identify formation damage and apply remedial procedures
- Design and execute successful carbonate and sandstone reservoir acidizing programs
- Understand the causes of sand production and how to select sand control options
- Understand the proper use of oilfield surfactants and related production chemistry
- Identify and successfully manage organic paraffin and asphaltene deposits
- Choose cased hole production logging tools and interpret logging results
- Understand modern conventional fracture stimulation practices
- Understand multistage, horizontal well shale gas and shale oil massive frac job design and operations
- Review heavy oil development and extraction including mining operations and current modern thermal processes

COURSE CONTENT

Importance of the geological model • Reservoir engineering fundamentals in production operations • Understanding inflow and outflow and applied system analysis • Well testing methods applicable to production operations • Well completion design and related equipment • Primary and remedial cementing operations • Perforating design and applications • Completion and workover well fluids • Well intervention: wireline, hydraulic workover units, and coiled tubing • Production logging • Artificial lift completions: rod pump, gas lift, ESP, PCP, plunger lift, and others • Problem well analysis • Formation damage • Acidizing • Corrosion control • Scale deposition, removal, and prevention • Surfactants • Paraffin and asphaltenes • Sand control • Hydraulic fracturing • Unconventional resources: shale gas and oil, heavy oil and bitumen

2016 Schedule and Tuition / 10 Days

BAKERSFIELD, US	7-18 NOV	US$7025
CALGARY, CANADA	1-12 FEB	US$7010+GST
	17-28 OCT	US$7010+GST
COVINGTON, US	11-22 JUL	US$7025
DUBAI, UAE	13-24 NOV	US$8980
HOUSTON, US	7-18 MAR	US$7090
	6-17 JUN	US$7090
	12-23 SEP	US$7090
	5-16 DEC	US$7090
LONDON, UK	18-29 JUL	US$8190+VAT

Completions and Workovers – CAW

FOUNDATION

Completions and Workovers provides an integrated introduction to many facets of completion and intervention technology. The material progresses through each of the major design, diagnostic, and intervention technologies concluding with some common remedial measures and well abandonment. The course focuses on the practical aspects of each of the technologies, using design examples—successes and failures—to illustrate the key points of the design and the risks/uncertainties. The overall objectives of the course focus on delivering and maintaining well quality.

DESIGNED FOR

Graduates or engineers with experience engaged in drilling operations, production operations, workover, and completions; petroleum engineers in both the service and operating sectors.

YOU WILL LEARN HOW TO

- Develop a high level completion strategy for wells in a variety of situations
- Select tubing, packers, and completion flow control equipment
- Appraise/design a suitable flow barrier strategy
- Identify key design considerations for vertical and inclined wells, horizontal, multilateral, HPHT, and unconventional resource wells
- Select an appropriate intervention strategy/equipment
- Identify key features/applicability of the main sand control and well stimulation options
- Assess/specify concerns/remedial measures for formation damage/skin removal

COURSE CONTENT

Basic well completion design, practices, and strategies • Well quality and integrity • Safety aspects of well design • Wellheads, trees, subsurface safety valves, and flow control equipment • Material selection guidelines based on corrosion and erosion conditions • The basic interpretation of inflow and tubing performance to aid tubing size selection • Tubing design and selection • Considerations for designing deviated horizontal, multilateral, and multi zone reservoir completions • Basic completion principles and considerations for subsea, HPHT, and unconventional wells • Perforating job selection and design • Formation damage mechanisms and their remediation • Stimulation design considerations • Sand control options and their selection • Wireline, coiled tubing, and hydraulic workover rig operations • Snubbing

2016 Schedule and Tuition / 5 Days

ABERDEEN, UK	4-8 APR	US$4940+VAT
ABU DHABI, UAE	18-22 SEP	US$5390
BAKERSFIELD, US	11-15 JUL	US$4240
CALGARY, CANADA	9-13 MAY	US$4240+GST
DENVER, US	7-11 MAR	US$4240
DUBAI, UAE	24-28 APR	US$5390
HOUSTON, US	22-26 FEB	US$4240
	18-22 APR	US$4240
	20-24 JUN	US$4240
	3-7 OCT	US$4240
	14-18 NOV	US$4240
LONDON, UK	28 NOV-2 DEC	US$4940+VAT
MIDLAND, US	23-27 MAY	US$4240

Production Technology for Other Disciplines – PTO

FOUNDATION

PTO is an asset team course as it introduces a broad array of important daily Production Technology practices to team members. Terminologies, expressions, axioms, and basic calculations regularly utilized by production techs are covered throughout the course. Emphasis is upon proven technology required to effectively develop and operate an asset in a multidiscipline development environment. Practical application of technology is emphasized. Both theory and actual field examples and well completion programs are studied along with class problems, exercises, and videos. Nodal analysis examples to assess well performance are set up. Well completion equipment and tools are viewed and discussed. Participants work several exercises such as basic artificial lift designs, acidizing programs, gravel pack designs, and fracturing programs. Shale gas and oil development challenges are thoroughly explained. Horizontal and multilateral technology is presented.

DESIGNED FOR

Exploration and production technical professionals, asset team members, team leaders, line managers, IT department staff who work with data and support production applications, data technicians, executive management, and all support staff who require a more extensive knowledge of production technology and engineering.

YOU WILL LEARN HOW TO

- Apply and integrate production technology principles for oilfield project development
- Choose basic well completion equipment configurations
- Perform system analyses (Nodal Analysis™) to optimize well tubing design and selection
- Perform basic artificial lift designs
- Apply the latest shale gas and oil extraction technologies
- Understand the chemistry and execution of sandstone and carbonate acid jobs
- Design basic sand control gravel pack completions
- Evaluate well candidate selection to conduct a hydraulic fracturing campaign
- Apply new production technology advances for smart well completions
- Maximize asset team interaction and understand the important dynamics between production technology and other team member disciplines

COURSE CONTENT

Role and tasks of production technology • Completion design • Inflow and outflow performance • Artificial lift well completion systems (beam pump, gas-lift, ESP, PCP, plunger lift) • Formation damage and well acidizing • Perforating practices • Sand control • Hydraulic fracturing • Shale gas and oil development • Smart well completions • Field surveillance and data

2016 Schedule and Tuition / 5 Days

HOUSTON, US	8-12 AUG	US$4065*
KUALA LUMPUR, MY	17-21 OCT	US$4860*
THE HAGUE, NETHERLANDS	14-18 NOV	US$4695*

plus computer charge

PRODUCTION AND COMPLETIONS ENGINEERING

Well Stimulation: Practical and Applied – WS

BASIC

Too often in today's dynamic oil and gas industry, not enough attention is paid to the details of well stimulation treatments. This can result in poor and/or less than optimum results. Those involved in the planning, execution, and evaluation of stimulation treatments need to have the background and training in the basics so better decisions can be made resulting in more gas down the line or oil in the tank! This practical course is designed for those involved in all aspects of well stimulation. To be better able to make decisions it is important to have a basic understanding of the types of formations and basic reservoir properties with which we deal. For this reason, time is spent in the early portion of the course setting the geological and reservoir property stage for vertical, horizontal, and multilateral wells prior to developing the basic formation damage, acidizing, and hydraulic fracturing concepts. The course includes acidizing and fracturing quality control, conducting the treatment, monitoring pressures, and other critical parameters during and after the treatment. An important part of the course is class teamwork whereby the attendees divide into teams to evaluate and design stimulation treatments. These exercises bring out many important parameters discussed during the course. This subject is briefly covered in the PetroSkills Production Operations 1 course (Foundation Level) as well as in the Formation Damage: Causes, Prevention, and Remediation (Intermediate Level) course. However, this course is more concentrated, detailed, and applied in the subject matter than either of the other courses.

DESIGNED FOR

Those involved in the planning, execution and evaluation of well stimulation treatments in conventional as well as unconventional plays, including the shales. This includes completion, production, reservoir, and drilling engineers; field supervisors; production foremen; engineering technicians; and geologists.

YOU WILL LEARN

- How to select stimulation techniques best suited for various formation types and situations
- To apply basic non-acid and acidizing concepts
- To apply basic hydraulic fracturing concepts

COURSE CONTENT

Geological/basic reservoir properties • Formation damage—how and why it happens • Non-acid damage removal techniques • Acidizing—objectives, types, additives • Acidizing placement techniques and the pressure chart • Quality control and safety • Hydraulic fracturing materials and their importance to success, including gel and slick water treatments • The frac chart • Hydraulic fracturing quality control and safety • Energized fluids—application and safety

2016 Schedule and Tuition / 5 Days

HOUSTON, US	12-16 SEP	US$3940

Surface Production Operations – PO3

BASIC

This course presents a basic overview of all typical oilfield treating and processing equipment. Participants should learn not only the purpose of each piece of equipment but how each works. Emphasis is on gaining a basic understanding of the purpose and internal workings of all types of surface facilities and treating equipment. A major goal of this course is to improve communication among all disciplines, the field, and the office. Better communication should enhance operational efficiencies, lower costs and improve production economics. Example step-by-step exercises are worked together with the instructor to drive home the important points.

DESIGNED FOR

All field, service, support, and supervisory personnel having interaction with facilities engineers and desiring to gain an awareness level understanding of the field processing of production fluids.

YOU WILL LEARN

- A practical understanding of all the fundamental field treating facilities: what they are, why they are needed, how they work
- The properties and behavior of crude oil and natural gas that govern production operations
- Field processes for treating and conditioning full wellstream production for sales or final disposition
- The basics of oilfield corrosion prevention, detection, and treatment
- Internal workings of separators, pumps, compressors, valves, dehydrators, acid gas treatment towers, and other treating equipment
- A wide range of produced fluid measurement and metering devices
- A description of treating equipment whether located on the surface, offshore platform, or sea floor

COURSE CONTENT

Properties of fluids at surface • Flowlines, piping, gathering systems; solids and liquid limits • Oil - water- gas - solids - contaminants • Separation and treatment • 2-3 phase separators, free water knockouts, centrifugal, filter • Storage tanks, gun barrels, pressure/vacuum relief, flame arrestors • Stabilizers • Foams, emulsions, paraffins, asphaltenes, hydrates, salts • Dehydrators • Water Treaters: SP packs, plate interceptors, gas floatation, coalescers, hydrocyclones, membranes • Acid Gas Treatment: coatings, closed system, chemicals, solvents, conversion; stress cracking • Valves: all types; regulators • Pumps/Compressors: centrifugal, positive displacement, rotary, reciprocating, ejectors • Metering: orifice, head, turbine, and others • Corrosion/Scales: inhibition and treatment

2016 Schedule and Tuition / 5 Days

CALGARY, CANADA	14-18 MAR	US$3900+GST
HOUSTON, US	16-20 MAY	US$3940
	24-28 OCT	US$3940

Unconventional Resources Completion and Stimulation – URCS

FOUNDATION

This course will focus on some of the key elements of well completions and stimulation practices as they apply to horizontal wells in tight and unconventional reservoirs. Optimization studies will be shown and used to highlight the importance of lateral length, number of fractures, inter-fracture distance, fracture half-length, and fracture conductivity. These results will be used to discuss the various completion choices such as cased and cemented, open hole with external casing packers, and open hole "pump and pray" techniques. This course also will address key risks to horizontal wells and develop risk mitigation strategies so that project economics can be maximized. In addition, tight and unconventional gas field case studies will be used to illustrate the application of these design, optimization, and risk mitigation strategies for horizontal wells in tight and unconventional gas reservoirs.

DESIGNED FOR

Petroleum and production engineers, completion engineers, stimulation engineers, geologists, managers, technical supervisors, service and support personnel.

YOU WILL LEARN HOW TO

- Use key multi-disciplinary tools for successful completions and stimulations in unconventional resources
- Understand the importance of geo-mechanics and rock mechanics to the success of transverse multiple fractured horizontal wells in unconventional resources
- Understand unconventional resource play completion options and selection processes
- Apply principals and design of well stimulation treatments in unconventional resources
- Employ critical data needs and collection techniques with minimal operational impact

COURSE CONTENT

Geo-mechanics: what makes an unconventional shale reservoir prospective • Introduction to the Completions and Multiple Fracture stimulated horizontal wells • Horizontal well objectives in Unconventional Reservoirs • Basis of fracture design in horizontal wells • Horizontal well stimulation objectives • Completion planning for horizontal wells • Horizontal well risks and risk mitigation strategies • Horizontal well case histories

2016 Schedule and Tuition / 5 Days

DENVER, US	22-26 FEB	US$4050
HOUSTON, US	6-10 JUN	US$4040
	10-14 OCT	US$4040

Operations and Development of Surface Production Systems – PO4

FOUNDATION

This course trains the participant to effectively develop and operate an upstream surface production system. Practical application of surface production practices is emphasized. Initially, participants will work as a team in short hands-on exercises that reinforce the lectures. Later on, participants arranged as a technical team will work on an Integrated Surface Production System (ISPS) team assignment. The result of this ISPS project will be presented during the last day of the program.

DESIGNED FOR

Production and technical professionals engaged in upstream operations and development, petroleum engineers, team leaders, production operators, technical assistants, senior technicians and field supervisors, production and development technical professionals, and newly hired field engineers; all technical operating personnel who want to get a solid foundation in principles, challenges, and solutions for upstream surface production systems.

YOU WILL LEARN HOW TO

- Describe the fluid properties that affect the timely delivery of petroleum fluids
- Describe the working principles and main functions of gathering and central production stations
- Identify each equipment/facility composing the integrated production system and state criteria for efficient operation
- Choose basic upstream surface production equipment design configurations
- Discuss best practice in operating upstream surface facilities efficiently within the operating envelope
- Put together a surface production system and manage a smooth operation for optimum delivery
- Develop and maintain a surface production system for various produced fluid systems
- Maximize team interaction to select and operate a workable surface production system

COURSE CONTENT

Applied principles of oil and gas surface operations • Characterization of petroleum fluids • Two-phase oil and gas systems • Two-phase separation operations and selection procedures • Oil-gas-water interaction principles and emulsions • Three-phase separation operations and selection procedures • Upstream crude oil treating operations and selection procedures • Crude oil dehydration, desalting, sweetening, and stabilization • Produced water treating operations and selection procedures • Transportation of petroleum fluids • Pumps and pumping systems • Pressure vessels requirements • Upstream natural gas treating operations and selection procedures • Acid gas treating, gas dehydration, and removal of other contaminants • Compressors and compression systems • Production delivery assurance and maintenance • Measurements in oil and gas operations

See website for dates and locations.

Downhole Remediation Practices for Mature Oil and Gas Wells – DRP

FOUNDATION

Downhole Remediation for Mature Oil and Gas Wells is presented from a practical point of view. Discussions include decision processes for selection, design, and application of methods that are supported by field experiences and research results. Principal focus is production-related near wellbore damage and remedial water control practices.

DESIGNED FOR

Asset managers, drilling and completion engineers, petroleum engineers and geologists, independent producers, production managers and engineers, reservoir managers and engineers, field supervisors, company executives and officials, field personnel with operating and service companies.

YOU WILL LEARN HOW TO

- Diagnose and develop removal and prevention techniques for wellbore damage due to scale, paraffin, asphaltenes, corrosion, and erosion
- Understand sources, causes, and effects of water production
- Design remediation applications (both mechanical and chemical) for reducing excess water production
- Design sand control applications and understand how to fix damaged screens and gravel packs
- Understand how and when to apply remedial cementing practices and what tools and job considerations are critical
- Apply these techniques to a specific well problem that you bring into the classroom from your current field assignment

COURSE CONTENT

Production-related near wellbore damage • Scale • Paraffin • Asphaltenes • Corrosion • Erosion • Well diagnostics • Removal techniques • Prevention techniques • Wellbore stabilization • Understanding unwanted water production • Extent of the problem • Causes and effects of water production • Monitoring and evaluation techniques • Diagnostics • Defining required attributes and placement controls • Fitting solutions to problems • Remedial water control • Challenges and solutions • Environmental considerations • In-Wellbore control • Near-wellbore techniques • Matrix applications • Fractures and voids • Water control • Bringing it all together • Engineered process • Initial screening • Reservoir characterization • Simulation • Case studies

2016 Schedule and Tuition / 5 Days

BARCELONA, SPAIN	19-23 SEP	US$4670
HOUSTON, US	12-16 DEC	US$4040

Multiphase Flow in Production Operations – MFP

FOUNDATION

Multiphase flow seems to be inevitable during the production of oil and gas. It becomes more problematic when producing from low-pressure reservoirs and/or heavy oils and moving them directly to a central production station.

This course presents an improved understanding of multiphase flow in wells and upstream surface transfer systems. This is a true integrated multiphase flow in production systems course. Participants will spend a considerable amount of time dealing with practical applications. Trainees will gain experience in solving problems by hand through the use of spreadsheets and other tools. Participants identify parameters minimizing production loss and controlling operating cost. It covers many field application examples and problems to illustrate key points. Participants will leave this session with a better understanding of the design and operation of multiphase flow systems resulting in huge production cost savings.

DESIGNED FOR

Surface and subsurface engineers, operations engineers, reservoir engineers, petroleum engineers, production technical consultants and other production professionals who have an interest in multiphase flow during the production life cycle of a field.

YOU WILL LEARN HOW TO

- Perform basic calculations of multiphase flow systems during production
- Manage multiphase flow systems from the reservoir to the sales point
- Deal with the variables unique to multiphase flows during production
- Describe the effect of flow variables on the transport of produced fluids
- Utilize multiphase flow problem solving methods
- Prevent and/or mitigate problematic multiphase flow situations
- Competently design multiphase transport systems in production operations

COURSE CONTENT

PVT properties for multiphase flows • Fundamentals and principles of multiphase flows • Multiphase flows in production tubing and casing (horizontal, vertical, and inclined) • Multiphase flows in pipelines and transportation systems • Multiphase flow constraints and flow through restrictions • Discuss the limitations of some tools used to solve multiphase flow problems • Production delivery assurance under multiphase flow conditions • Production assurance considerations in conceptual design and operations

See website for dates and locations.

Performance Analysis, Prediction, and Optimization Using NODAL™ Analysis – PO2

FOUNDATION

Nodal analysis views the total producing system as a group of components potentially encompassing reservoir rock/irregularities, completions (gravel pack, open/closed perforations, open hole), vertical flow strings, restrictions, multi-lateral branches, horizontal/hilly terrain flow lines/risers, integrated gathering networks, compressors, pump stations, metering locations, and market/system rate/pressure constraints. An improper design of any one component, or a mismatch of components, adversely affects the performance of the entire system. The chief function of a system-wide analysis is to increase well rates. It identifies bottlenecks and serves as a framework for the design of efficient field wide flow systems, including wells, artificial lift, gathering lines and manifolds. Software is used extensively during the class. However, if the attendee chooses not to supply his/her own software, nodal analysis, and gas deliverability planning programs can be provided.

DESIGNED FOR

Production, operations, and reservoir engineers; senior technicians and field supervisors with an engineering background.

YOU WILL LEARN HOW TO

- Apply nodal analysis concepts viewing the total producing system as a whole from the reservoir rock through the completion, well bore and gathering system, to the market while honoring system rate/pressure constraints
- Avoid improper design where any one component, or a mismatch of components, adversely affects the performance of the entire system
- Perform a system-wide analysis to increase well rates by identifying bottlenecks and design an efficient field-wide flow system, including wells, artificial lift, gathering lines, and manifolds
- Use nodal analysis, together with reservoir simulation and analytical tools, for planning new field development

COURSE CONTENT

Nodal Analysis Overview • Inflow Performance: Basics, well-test pros and cons, best models for all well types, IPR curves • Completions: Modeling basics, flow patterns in gravel packs, pressure drop in perforations, gravel packs and wellbore, optimal perforation density • Tubing Performance: Videos of flow patterns, flow dynamics, logging in horizontal wells, slugging and pressure changes in all completion types, friction drop in horizontal wells, unloading techniques and examples • Flowlines: Pressure drop models, bottlenecks in a gathering network, line loops and jumpers, gathering systems • Forecast: Field forecasts, economic optimization, evaluation of options • Artificial Lift: Gas lift design, ESP and other methods basics • Liquid in gas streams, what is a "dry" gas well, loaded wells, predicting temperatures

2016 Schedule and Tuition / 5 Days

CALGARY, CANADA	11-15 APR	US$4025+GST*
DENVER, US	15-19 AUG	US$4075*

**plus computer charge*

Hydraulic Fracturing Applications – HFU

INTERMEDIATE

The course takes a practical approach to the applications of hydraulic fracturing. Fracturing technology benefits and limitations in all types of sandstone and carbonate reservoirs are explained. Fracture modeling is used as a tool to demonstrate how modeling software can be used effectively in practical applications. All aspects of the planning, designing, and implementation of fracturing treatments are covered. In addition to the technical presentation, the course contains many practical exercises and class problems based on case histories. You will take home a fresh approach to hydraulic fracturing, eager to select viable candidates for more effective fracturing applications.

DESIGNED FOR

Production, reservoir, and drilling engineers, as well as others who need a better understanding of fracturing applications.

YOU WILL LEARN HOW TO

- Design hydraulic fracture treatments for typical field situations
- Apply the concepts of well stimulation by hydraulic fracturing to various types of reservoir conditions to optimize well productivity
- Recognize opportunities for substantial production improvement by application of effective hydraulic fracturing
- Gather pertinent well data and information to plan, design, implement, and evaluate fracturing treatments for all types of reservoirs
- Realize the strengths and limitations of hydraulic fracture theory as it relates to field applications of fracturing
- Become a participant in each fracturing treatment rather than just a technical observer

COURSE CONTENT

Introduction to the fracturing process and mechanics • Practical fracture design • Fracturing fluid additives and proppant • Strengths and limitations of fracturing applications • Production increase • Factors involved in field implementation • Acid fracturing vs. proppant fracturing • Frac packs • Waterfracs • Fracturing in horizontal wells • QA/QC of fracturing treatments • Evaluation of fracturing treatment success

2016 Schedule and Tuition / 5 Days

ABERDEEN, UK	25-29 JUL	US$4770+VAT
HOUSTON, US	25-29 APR	US$4140

PRODUCTION AND COMPLETIONS ENGINEERING

Advanced Hydraulic Fracturing – AHF

SPECIALIZED

This advanced course is designed for those who have a practical understanding of the applications of hydraulic fracturing and want to increase their expertise. The course will provide the details and discussion of fracturing concepts usually accepted or assumed in fracturing applications. The strengths and limitations of various approaches to fracturing treatment design will be covered. Attendees should leave the advanced course with a better understanding of the hydraulic fracturing process and how it relates to post-frac well performance.

DESIGNED FOR

Production, operations, and completions engineers who are actively involved in hydraulic fracturing applications and desire a more in-depth understanding of hydraulic fracturing theory and applied concepts. It is designed for engineers that have some fracturing experience or those who have already attended the PetroSkills intermediate level Hydraulic Fracturing Applications course.

YOU WILL LEARN HOW TO

- Better understand rock properties and rock mechanics related to fracturing applications
- Better understand fracturing fluid mechanics and proppant transport
- More effectively design fracturing treatments through better understanding of factors influencing hydraulic fracturing applications
- Use pre-frac injection test data and real-time fracturing treatment data in fracturing applications to define fracture parameters and improve frac treatment design
- Consider factors influencing post-frac fracture conductivity and well cleanup
- Realize the strengths and limitations of existing hydraulic fracturing technology and fracture models
- Expand fracturing applications to fit a wider range of reservoir types and conditions

COURSE CONTENT

Rock properties and fracture mechanics related to the fracturing process • Fracturing fluid mechanics • Proppant transport • Pre-frac injection test analysis • Fracture closure • Fracture monitoring and fracture measurement • Fluid leak-off • Re-fracturing considerations • Review of existing fracture modeling software • Evaluation of post-frac well performance

2016 Schedule and Tuition / 5 Days

HOUSTON, US	8-12 AUG	US$4240
MIDLAND, US	12-16 SEP	US$4200

Acidizing Applications in Sandstones and Carbonates – ASC

INTERMEDIATE

Although acidizing is the oldest method of well stimulation, it is often applied with mixed results. It remains, however, a valuable tool for improving well productivity. The key to acidizing success is in the understanding of how it works, the optimum conditions for its application, and proper evaluation of well response after the acidizing treatment. The instructor will present many of the practical aspects of acidizing applications and help provide a better understanding of acidizing as a tool for enhancing well performance.

DESIGNED FOR

Engineers and other personnel involved with the daily operation and management of producing oil and gas wells; production engineers and reservoir engineers involved with well stimulation applications would also benefit from attending this course.

YOU WILL LEARN HOW TO

- Assess a well's need for stimulation
- Recognize the strengths and limitations of acidizing
- Investigate production problems from the standpoint of damage removal and improvement in well production
- Apply acid treatments strategically to improve success
- Approach acidizing applications from a practical viewpoint
- Recognize opportunities for enhancement of acidizing treatments using non-acid fluids

COURSE CONTENT

Well stimulation objectives • Types of formation damage • Influence of skin factor • Production improvement with skin removal • Well stimulation and reservoir management • Perforating techniques and well stimulation • Acidizing for well stimulation • Chemistry of sandstone acidizing • Chemistry of carbonate acidizing • Acid additives • Treatment diversion • Acid fracturing • Rules of thumb • Types of acids • Sandstone acidizing guidelines • Carbonate acidizing guidelines • Re-stimulation of acidized wells • QA/QC in acidizing applications • Safety precautions

2016 Schedule and Tuition / 5 Days

HOUSTON, US	16-20 MAY	US$4140

Artificial Lift Systems – ALS

FOUNDATION

Participants learn how to design and troubleshoot rod pumping, continuous gas lift, and electric submersible pump systems. Other methods such as PCP, plunger lift, jet pump, hydraulic pump, and intermittent gas lift will also be addressed. Participants gain experience in solving problems by hand and also by using advanced computer programs. Troubleshooting is an important part of artificial lift operations and several typical surveillance problems are solved. With increased prices, more emphasis is placed on techniques to maximize production. New developments at various stages of application are also covered. Effect of horizontal wells and deviation for all methods are discussed.

DESIGNED FOR

Engineers, technicians, field supervisors, and others who select, design, install, evaluate, or operate artificial lift systems.

YOU WILL LEARN HOW TO

- Use principles and content mentioned below to focus on maximizing oil production with artificial lift systems
- Make basic PVT properties and inflow performance calculations related to artificial lift
- Understand and apply multiphase tubing and pipe flow principles
- Select the appropriate artificial lift system
- Compare systems to determine which one is most economically feasible?
- Specify components and auxiliary equipment needed for each system
- Know what best practices are available to extend the life of equipment and installed lift systems
- Apply basic design and analysis concepts
- Design system features that allow for gassy production, production with solids, viscous production, and for other harsh environments

COURSE CONTENT

Overview of artificial lift technology • Criteria for selection of artificial lift system • Reservoir performance: inflow and outflow relationships • Artificial lift screening • Introduction to rod-pumping, gas lift, and ESP systems • Rod-pump design: pumping unit, rods, pump, prime movers, gas anchor, pump-off controls • Gas lift design: mandrels, valves, injection gas requirements, temperature, chokes, spacing, equilibrium curve, continuous flow design • ESP design: pump performance curves, pump intake curves, typical problems, installation, troubleshooting • Best practices for installation and maintenance • Economic analysis

2016 Schedule and Tuition / 5 Days

CALGARY, CANADA	23-27 MAY	US$4025+GST*
HOUSTON, US	11-15 JUL	US$4065*
LONDON, UK	12-16 DEC	US$4695+VAT*

*plus computer charge

Beam Pumps – BP

INTERMEDIATE

This course will allow the user to become familiar with the system and when it should be used. All components will be described in detail. Design and analysis will be done using advanced computer programs. Some films will be show mostly illustrating either new products or best practices. A few problems will be solved by the class members each day. Comparisons with other systems to select the best system for a given well, whether it may be beam pumping or another method of lift; design and analysis using computer programs; and films and example problems will all be part of the class. Problems addressing solids, gas handling, and viscosity are addressed. Best practices are stressed throughout so a long lasting system can be developed for maximum profit. New material will also be presented on Beam Pumps in horizontal wells, rod protection in horizontal wells, placement of pump, deviation surveys, and performance of gas separators.

DESIGNED FOR

Engineers and field technicians who are responsible for the selection, operation, and maintenance of beam pumping systems.

YOU WILL LEARN HOW TO

- Maximize oil production using beam systems
- Identify components of the system
- Design and analyze a system using up to date computer programs
- Apply best practices for longer system life
- Improve efficiency of the system
- Combat gas, solids, and viscosity in the produce fluids
- Make informed comparisons to other methods

COURSE CONTENT

Reservoir considerations • Overview of artificial lift • Design and analysis of the beam pump system • Prime mover • Belts • Sheaves • Gear box • Unit • Polished rod • Wellhead/ stuffing box • Rods • Pump • Tubing • Artificial lift efficiency • Heavy oil considerations • Gas separation/handling • Best practices for operation • Component design • System analysis • Pump off controllers

See website for dates and locations.

Electrical Submersible Pumps – ESP

INTERMEDIATE **FIELD TRIP**

This course will allow the user to become familiar with the ESP system and when it should be used. All components will be described in detail. Design and analysis problems will be done using advanced computer programs. Problems will be solved and discussed by the class members each day. Problems addressing solids, gas handling and viscosity are addressed. Best practices are stressed throughout so a long lasting system can be developed for maximum profit. SCADA controls and VSDs are discussed. The attendee will learn the function of the various components, and the concerns about installation, operation, and removal of failed equipment. The participant will be able to evaluate the design a system for current and future conditions, analyze an installed system, and many other operational concerns of the ESP system. Although the course contains use of advanced computer programs for design and analysis, much of the material is devoted to best practices, which is usable by both engineers and technicians. Deviation is not such a problem with ESPs but is discussed nonetheless.

DESIGNED FOR

Engineers and field technicians who are responsible for the selection, operation, and maintenance of ESP.

YOU WILL LEARN HOW TO

- Maximize oil production using ESP Systems
- Identify components of the ESP system
- Design and analyze a system using up to date computer programs
- Implement best practices for longer system life
- Improve power efficiency of the system
- Combat gas, solids, corrosion, and viscosity in the produced fluids
- Compare to other artificial lift methods

COURSE CONTENT

Introduction to artificial lift and electrical submersible pumping • Introduction for reservoir and production considerations • Description of all components of the electrical submersible system starting at the surface to the pump; transformers; controllers/VSD; wellhead; tubing cable; cable guards; motor lead cable; pump; intake/gas separator; equalizer/protector; motor; instrumentation • Installation considerations and cautions • Design of an ESP system to fit current and future well conditions • Operation of a given design • Analysis of an ESP system using diagnostics from installed instrumentation and using diagnostic computer programs • Removal of failed equipment • Controls for ESP systems including variable speed drives • ESP instrumentation available in the industry • Failure analysis • Data keeping • Maintenance and monitoring

2016 Schedule and Tuition / 5 Days

HOUSTON, US †	18-22 APR	US$4265*

**plus computer charge*
† includes field trip

Gas Lift – GLI

INTERMEDIATE

Gas lift is one of the most widely used artificial lift techniques. Participants will investigate the impact of tubing sizing, gas lift valve selection, gas lift mandrel spacing, gas lift valve design, casing pressure, surface choke size, gas volume, etc., on well design and operation. Participants practice mandrel spacing design and gas lift valve design, surveillance, and optimization at the well and field level using actual field data including the use of software programs. After attending this course, participants will be able to identify, diagnose, analyze, and solve gas lift problems. Up to date computer programs will be used/demonstrated during the course. The class includes pictures and videos of most important equipment components while being applied, to further participant understanding. With increased prices, more emphasis is placed on techniques to maximize production. New developments at various stages of development and application are also covered.

DESIGNED FOR

Production engineers and operations staff responsible for designing gas lift installations and/ or performing surveillance and optimization on wells using gas lift; appropriate for staff at all levels of gas lift expertise and has been given with good results to both production engineers new to gas lift as well as industry gas lift consultants.

YOU WILL LEARN HOW TO

- Select the appropriate gas lift systems and equipment
- Design continuous-flow gas lift systems
- Analyze operating gas lift systems
- Increase production from your wells using gas lift technology and optimization
- Improve the economics of gas lift operation

COURSE CONTENT

Gas lift concepts and data • Inflow/Outflow • Nodal analysis • Equilibrium curves • Gas lift equipment and valve mechanics • Valve selection and calibration • Unloading • Mandrel spacing and step-by-step, complete gas lift design for a well • Temperature effects on valves • Determine the Ptro • Orifice sizing techniques • Lift gas rates for best economies • Causes and solutions of instability • Gas lift surveillance and measurement • Analysis of flowing pressure gradient surveys • Analysis of GL surface charts and measurements • Gas allocation and field optimization • Use of computer programs for gas lift design, troubleshooting, and optimization

2016 Schedule and Tuition / 5 Days

DUBAI, UAE	4-8 SEP	US$5215*
HOUSTON, US	4-8 APR	US$4165*

**plus computer charge*

Progressing Cavity Pumps – PCP

INTERMEDIATE

The participant will become familiar with the PCP system and where PCP technology may be applicable. All components of the PCP system will be described and discussed in detail. The key steps taken to ensure correct elastomer selection and rotor fit will be discussed. Design and analysis problems will be performed using standard industry software. The attendee will learn the function of the various components and the concerns about installation, operation, and removal of failed equipment. A manufacturing plant visit (location dependent) will be made to see the manufacture of a PCP pump. Design and operating philosophy solutions to common operating problems such as high solids content, CO_2, high temperature, pump off conditions, gas, viscous crude, etc. will be discussed. The participant will be able to evaluate the design of a system for current and future conditions, analyze an installed system, and many other operational concerns of the PCP system. Automation concepts, system protection, SCADA control, and alarming of key events will be discussed in order to understand how to identify and mitigate potential well or PCP problems resulting in lost production. The focus of the course will be on developing fit for purpose systems to ensure lowest total cost of operation and lowest $/bbl lift cost. Although the course contains use of advanced computer programs for design and analysis, much of the material is devoted to best practices, which is usable by both engineers and technicians.

DESIGNED FOR

Engineers and field technicians who are responsible for the selection, operation, and maintenance of PCP systems.

YOU WILL LEARN HOW TO

- Identify components of the PCP system
- Evaluate applicability compared to other artificial lift methods
- Design and analyze a system using up-to-date computer programs
- Combat gas, pump off, solids, corrosion, and viscosity in the produced fluids
- Review a proposal from equipment suppliers
- Prolong system life by using best practices
- Diagnose and troubleshoot well and pump problems resulting in lost production

COURSE CONTENT

Introduction to artificial lift and progressing cavity pumps • Introduction for reservoir and production considerations • Description of all components of the PCP • Installation considerations and cautions • Design of a PCP system to fit current and future well conditions • Operation and monitoring the PCP system, set-up of system protection • Diagnosis and troubleshooting of the PCP system • Removal of failed equipment and failure analysis • PCP instrumentation, automation, and control • Data storage and archival • Maintenance and monitoring

See website for dates and locations.

Flow Assurance for Offshore Production – FAOP

INTERMEDIATE

Flow assurance is a critical component in the design and operation of offshore production facilities. This is particularly true as the industry goes to deeper water, longer tiebacks, deeper wells, and higher temperature and pressure reservoirs. Although gas hydrate issues dominate the thermalhydraulic design, waxes, asphaltenes, emulsions, scale, corrosion, erosion, solids transport, slugging, and operability are all important issues which require considerable effort. The participant will be presented with sufficient theory/correlation information to be able to understand the basis for the applications. This intensive five day course has considerable time devoted to application and design exercises to ensure the practical applications are learned.

DESIGNED FOR

Engineers, operators, and technical managers who are responsible for offshore completions, production, and development; technical staff needing a foundation in principles, challenges, and solutions for offshore flow assurance. The course is also appropriate for persons involved in produced fluids flow in onshore production operations.

YOU WILL LEARN HOW TO

- Identify the components of a complete flow assurance study and understand how they relate to the production system design and operation
- Interpret and use sampling and laboratory testing results of reservoir fluids relative to flow assurance
- Understand the basic properties of reservoir fluids and how they are modeled for the production flowline system
- Understand the thermohydraulic modeling of steady state and transient multiphase flow in offshore production systems
- Evaluate and compare mitigation and remediation techniques for: gas hydrates, paraffin (waxes), asphaltenes, emulsions, scale, corrosion, erosion and solids transport, and slugging
- Understand the elements of an operability report for subsea production facilities, flowlines, and export flowlines

COURSE CONTENT

Overview of flow assurance • PVT analysis and fluid properties • Steady state and transient multiphase flow modeling • Hydrate, paraffin, and asphaltene control • Basics of scale, corrosion, erosion, and sand control • Fluid property and phase behavior modeling • Equations of state • Fugacity and equilibrium • Viscosities of oils • Thermal modeling • Multiphase pressure boosting • Slugging: hydrodynamic, terrain induced, and ramp up • Commissioning, start-up, and shutdown operations

2016 Schedule and Tuition / 5 Days

ABERDEEN, UK	22-26 AUG	US$4770+VAT*
HOUSTON, US	7-11 MAR	US$4140*
KUALA LUMPUR, MY	21-25 NOV	US$4935*
PERTH, AUSTRALIA	28 NOV-2 DEC	US$5000+GST*

**plus computer charge*

PRODUCTION AND COMPLETIONS ENGINEERING

Formation Damage: Causes, Prevention, and Remediation – FD

INTERMEDIATE

Formation damage seems to be inevitable and it is costing your company money! Whether formation damage can be prevented, removed economically, or must be accepted as the price for drilling and producing a well will depend upon many factors. Concerns for formation damage have been with our industry from the early days. These concerns become more prevalent as we embark on more challenging reservoirs utilizing even more challenging drilling, completion, and production methods. Additional concerns relate to the common lost production or injectivity following workovers in these challenging environments. These subjects and many more are addressed in this fast-paced, informative course covering all aspects of formation damage. Examples, case histories, and class team exercises are used throughout the course to emphasize key points on this important industry subject. This subject is briefly covered in the PetroSkills Production Operations 1 course (Foundation Level) as well as in the Well Stimulation: Practical and Applied (Basic Level) course. However, this course is more concentrated, detailed, and applied in the subject matter than either of the other courses.

DESIGNED FOR

Production, completion, reservoir, and drilling engineers; geologists concerned with well performance and production enhancement; field supervisors, production foremen, engineering technicians, production and exploration managers; those involved in vertical, horizontal, and multilateral wells, conventional and unconventional reservoirs.

YOU WILL LEARN HOW TO

- Recognize formation damage and damage mechanisms in carbonates, sandstones, and shales
- Prevent and overcome damage, when it exists, through the application of non-acid approaches, acidizing, and small fracturing treatments

COURSE CONTENT

Geological/depositional environment, reservoir properties review • Properties influencing formation damage • Damaging sandstones, shales and carbonates, clay mineralogy • Damage mechanisms—causes of damage: fluids and polymers, during drilling, running pipe and cementing, from perforating, during well completions, during production (fines migration, paraffin, scale, etc), during workovers, and damage to injection wells • Evaluating damage potential: laboratory testing • Evaluating wells that may be damaged: production performance, pressure analysis, production logging • Damage removal: non-acid approaches, acidizing, and bypassing damage with hydraulic fracturing

2016 Schedule and Tuition / 5 Days

HOUSTON, US	28 NOV-2 DEC	US$4140
LONDON, UK	11-15 JUL	US$4770+VAT

Gas Production Engineering – GPO

INTERMEDIATE

Learn the latest methods for calculating gas well performance from reservoir to sales. Reservoir performance covers the fundamentals of reservoir gas flow and details the best methods for testing wells, according to the time and money available. Reserve calculations and diagnostic testing from production data are covered. The importance of flow regime and non-Darcy flow on test design and interpretation is emphasized for new wells and for the possibility of improving the performance of older wells. Also discussed are performances of tight formations, horizontal wells, fractured wells, and methods for estimating gas reserves. Participants will learn to calculate and determine the effect of each system component on total well performance, which permits optimum sizing of tubing, flowlines, separators, and compressors. Participants receive complimentary software at the end of the course.

DESIGNED FOR

Production, reservoir and facilities engineers, and others involved in gas production, transportation, and storage including field supervisors.

YOU WILL LEARN HOW TO

- Apply proven techniques to field problems to increase profitability
- Calculate gas well performance from the reservoir to the sales line
- Optimize gas well production
- Relate reservoir and well performance to time
- Predict when a well will die due to liquid loading

COURSE CONTENT

Gas properties: real gas behavior equations of state, impurities, mixtures, phase behavior dew point, retrograde behavior, flash calculations; classifying gas reservoirs • Reservoir performance: gas well testing; turbulence and skin effects; perforation effects; tight well analysis; horizontal wells; hydraulically fractured wells • Reserve calculations: P/Z plots, energy plots, water influx, abnormal pressure effects; diagnostic testing based on production data • Flow in pipes and restrictions: pressure loss; effects of liquids-liquid loading, liquid removal methods, multiphase flow correlations; erosional velocity • Compression: types of compressors; compressor selection; effects of variables; capacity and horsepower • Total system analysis: tubing and flowline size effects; perforating effects; relating deliverability to time; evaluating compressor installations; analyzing injection wells • Flow measuring: orifice metering; other metering methods •Condensate reservoirs: reservoir types; reserve estimates, laboratory simulation; gas cycling • Field operations problems: interpreting P/Z plots; hydrate formation

2016 Schedule and Tuition / 5 Days

CALGARY, CANADA	21-25 NOV	US$4100+GST*
HOUSTON, US	14-18 MAR	US$4140*

*plus computer charge

Gas Well Deliquification – GWD

INTERMEDIATE

As gas wells deplete, the velocity in the tubing drops and eventually liquids from the well and from condensation begin to accumulate in the tubing. This increase of liquids in the tubing adds back pressure on the formation, which in turn reduces flow or even stops flow all together. The course introduces this problem and discusses how to recognize liquid loading as opposed to other possible well problems. The course will then cover the various methods of solving the problem of liquid loading, showing how to apply the various solutions and the advantages and disadvantages of each method. Solution methods include use of surfactants, velocity strings, compression, use of plunger lift, various other pumping methods, gas lift, and the injection of fluids below a packer so gas can flow up the annulus. The attendee should be able to recognize the problem of liquid loading and have a good idea of which methods can solve the problem and select the best method/s for solution after attending the course. There are about 400,000 gas wells in the USA and most are liquid loaded. Solving this problem may on the average increase production by ~40% per well. The course will consist of slide presentations, example problems, and discussion. Some films will be shown. Effects of deviated or horizontal well applications on all methods are discussed.

DESIGNED FOR

Engineers, field technicians, field supervisors, and others who select, design, install, evaluate, or operate artificial lift systems for use in dewatering gas wells.

YOU WILL LEARN HOW TO

- Maximize gas production using optimized dewatering techniques
- Recognize liquid loading in a gas well using field symptoms, critical velocity, and nodal analysis
- Recognize the advantages and disadvantages of various methods of liquid removal
- Install and troubleshoot several methods
- Understand economics of each method covered

COURSE CONTENT

Recognize symptoms of liquid loading in gas wells • Critical velocity • Systems nodal analysis • Sizing tubing • Compression • Plunger lift • Use of foam to deliquefy gas wells • Hydraulic pumps • Use of beam pumps to deliquefy gas wells • Gas lift • Electrical submersible pumps • Progressive cavity pumps • Other methods to attack liquid loading problems

2016 Schedule and Tuition / 5 Days

CALGARY, CANADA	7-11 MAR	US$4125+GST*
HOUSTON, US	6-10 JUN	US$4165*

*plus computer charge

Production Chemistry – OGPC

INTERMEDIATE

This course covers the selection and use of chemicals used in oil and gas production. As oilfields mature more water is produced which requires the use of more chemicals to maintain production. Chemicals used for controlling corrosion, emulsions, foaming, mineral scales, paraffins (waxes), asphaltenes, gas hydrates, hydrogen sulfide scavengers, and water clarifiers are covered. The course includes methods to determine the need for chemical treating, how to select the proper chemicals, and how testing for chemical compatibility with the formation and other chemicals is performed. Requirements for environmentally friendly products and products for deep water production are discussed. The course will include how the use of chemicals can prevent problems, improve production and economics, and extend the life of the production equipment.

DESIGNED FOR

Production engineers, facilities engineers, chemists, and technicians involved with production systems from the wellbore through the topside production equipment, transmission pipelines, and storage facilities who are responsible for recognizing and treating problems which might require treatment chemicals.

YOU WILL LEARN HOW TO

- Recognize corrosive conditions and monitor corrosion rates
- Select and apply corrosion inhibitors
- Predict and treat emulsions
- Understand causes and control of foaming
- Predict scale forming conditions
- Select and apply scale inhibitors
- Control gas hydrate formation
- Predict and control paraffin (wax) deposition
- Evaluate methods for asphaltene control
- Scavenge low concentrations of H_2S
- Select and apply water clarifiers
- Select chemicals for use in deep water
- Select environmentally friendly chemicals

COURSE CONTENT

Corrosive agents • Corrosion inhibitor selection and application • Predicting and monitoring corrosion rates • Basics of oilfield emulsions • Demulsifier selection and field application • Foams • Defoamers • Foam basics • Field application of foams • How defoamers work • Compounds that cause scaling • Prediction of scaling tendency • Scale inhibitors • Solvents to dissolve scales • Requirements for gas hydrates to form • Types of compounds used to control hydrate formation • Causes of paraffin (wax) problems • Paraffin treatment chemicals • Asphaltene stability tests • Asphaltene treatment chemicals • Chemicals used as H_2S scavengers • Application of H_2S scavengers • Oil carryover in water • Removal of oil and oily solids • Tests required for chemicals used in deep water • Green chemicals (environmentally friendly chemicals)

2016 Schedule and Tuition / 5 Days

HOUSTON, US	25-29 APR	US$4140

Production Logging – RMP

INTERMEDIATE

Production logging refers to a suite of logs that are normally run on completed injection or production wells to evaluate the performance of the well itself or of the reservoir as a whole. Other production logs can evaluate the well completion or look behind pipe to evaluate the formation and its fluids in the near-well vicinity. Production logs are playing an increasing role in modern reservoir management by providing the only means of identifying downhole fluid movements directly. This course will cover fluid flow in pipes (both single and multiphase flow), the theoretical bases of production logging techniques, production log interpretation, and operational considerations. Numerous field examples are used to illustrate the principles of production log interpretation.

DESIGNED FOR

Petroleum and drilling engineers and managers, reservoir engineers, production engineers/ technologists, petrophysicists, log analysts, and anyone interested in understanding what production logs and cased-hole surveys.

YOU WILL LEARN HOW TO

- Select the most appropriate production logging services for well diagnosis and reservoir surveillance
- Define injection well profiles using temperature, radioactive tracer, and spinner flowmeters
- Measure zonal inflows in production wells using temperature logs
- Locate behind-pipe channels with temperature, tracer, or noise logs
- Apply combinations of flowmeters, fluid density, and fluid capacitance logs to measure multiphase flow profiles
- Interpret cement bond logs and ultrasonic logs to determine cement quality
- Measure flow inside and outside casing with pulsed neutron tools
- Apply specialty tools for flow profiling in horizontal wells

COURSE CONTENT

Problem identification and solution with production logs • Temperature logs • Radioactive tracer logs • Spinner flowmeter logs • Log combinations for injection well profiling • Multiphase flow effects • Deflector or basket flowmeters • Fluid density logs • Fluid capacitance logs • Slip velocity correlations • Multiphase log interpretation • Noise logs • Cement bond logs • Ultrasonic pulse-echo logs • Pulsed neutron logs for flow identification • Horizontal well production logs

2016 Schedule and Tuition / 5 Days

LONDON, UK	11-15 JUL	US$4770+VAT*

*plus computer charge

Sand Control – SNDC

INTERMEDIATE

Sand causes a wide variety of costly problems when oil and gas are produced from unconsolidated reservoirs. The most costly problem is usually the loss of production resulting from formation damage caused by poorly planned and/or executed sand control applications. This course will identify the parameters that must be considered when selecting the sand control technique to be used. Examples, problems, and case histories will be examined to illustrate key points. Sand control failures will be used to illustrate the types of problems that can lead to early well failures. The course will also teach how to perform quality control checks during the sand control application to help insure successful wells. Because Sand Control in horizontal wells often proves to be short-lived when incorrectly applied, examples and class problems will focus on correctly choosing successful completion techniques for horizontal wells. Several new promising sand control technologies have been introduced in the last few years, such as expandable screens of several different types. The proper application of these new technologies will also be covered. Attendees will leave this course with a thorough understanding of what is necessary to design and implement cost-effective sand control in both producing and injection wells.

DESIGNED FOR

Drilling, completion, production, and research engineers; field supervisors and production foremen; technical personnel who supply services and equipment.

YOU WILL LEARN HOW TO

- Determine the causes of sand production
- Determine the need for sand control
- Select the best sand control method
- Prepare the well for the proper application of sand control
- Apply best practices to ensure successful sand control completions
- Conduct successful frac packs
- Evaluate sand control performance
- Minimize production losses
- Evaluate new technologies for proper applications

COURSE CONTENT

Sand control techniques • Radial flow and formation damage • Causes and effects of sand production • Predicting sand production • Gravel pack design • Slotted liners and wire wrapped screens • Gravel pack completion equipment and service tools • Well preparation for gravel packing • Perforating for gravel placement techniques • Perforation prepacking and enhanced prepacking • Frac packing • Open hole gravel packing • Expandable screens • Gravel pack performance • Horizontal well completions

2016 Schedule and Tuition / 5 Days

BAKERSFIELD, US	25-29 APR	US$4100
HOUSTON, US	24-28 OCT	US$4140
LONDON, UK	14-18 MAR	US$4770+VAT

Surface Water Management in Unconventional Resource Plays – SWM

INTERMEDIATE

In order to establish and implement an optimized water management plan for hydraulic fracturing operations, operators and service companies need an understanding of a broad array of subjects, including water chemistry, systems modeling, water treatment technology, the regulatory landscape, and best practices for field operations. This course first establishes a foundation of knowledge regarding water awareness, water chemistry, fluid dynamics, and water analysis tools. Upon this foundation the course will build a model for optimizing water management in support of hydraulic fracturing operations, providing reviews of best practices and the latest industry technology, while always considering key stakeholders

DESIGNED FOR

Production, completion, operations, and surface facilities engineers; operations managers, logistics coordinators, field superintendents; any personnel involved in establishing, improving, or supervising the implementation of an organization's water management plan; personnel in service organizations seeking a more thorough understanding of the water system in unconventional resource plays.

YOU WILL LEARN HOW TO

- Design and implement a water management plan for an unconventional resource play
- Assess the regional hydrological cycle in the operational area
- Adopt emerging best practices regarding water management
- Establish a water sampling and analysis program
- Design and run a water treatment technology pilot test
- Find the lowest cost solution for sourcing fluid for hydraulic fracturing operations
- Select a water treatment technology for a project
- Manage the primary service/equipment providers critical to water management
- Establish basic water quality requirements necessary for frac fluid
- Build a water management plan that complies with regulations
- Build a water management cost model to use as a tool to optimize a water management plan

COURSE CONTENT

Global water awareness and the oil and gas industry's impact • Flowback and produced fluid • Basic water chemistry focused on oilfield concerns • Water quality considerations for hydraulic fracturing operations • Water sampling and analysis, in the field and in the lab • Water treatment for reuse and recycling programs • Acquisition, storage, transportation, disposal, and treatment of water • Holistic field water management • Regulations applicable to water management • Water management system cost modeling

2016 Schedule and Tuition / 3 Days

HOUSTON, US	19-21 SEP	US$3075

Horizontal and Multilateral Wells: Completions and Stimulation – HML2

SPECIALIZED

Successful multilateral and horizontal wells require new considerations, interdisciplinary planning, and special techniques. This intense course addresses the critical need for a proper understanding of all aspects of horizontal and multilateral design, completion, and stimulation that make these wells unique. It is designed for those planning or working with horizontal and multilateral wells and interested in effective use of the latest technology. Basic understanding of important reservoir characteristics, hole stability, formation damage, crucial zonal isolation, and hydraulic fracturing are just some of the critical issues addressed by this course. Hydraulic fracturing aspects of unconventional resources plays, including conductivity, proppant selection, and practices, are discussed. A combined practical and technical theme is employed, with emphasis on economy and efficiency in designing, completing, and producing horizontal and multilateral wells.

DESIGNED FOR

Completion, production, reservoir, and research engineers; geologists; managers in completion, production, drilling, and exploration; others involved in various phases of horizontal and multilateral wells or interested in gaining an interdisciplinary up-to-date understanding of this continually evolving technology.

YOU WILL LEARN HOW TO

- Successfully design and optimize horizontal and multilateral well completions
- Engineer wells, taking into account limitations imposed by well bore stability and borehole friction
- Determine the appropriate zonal isolation methods for horizontal and multilateral wells
- Perform hydraulic fracturing of horizontal wells
- Design damage removal, stimulation, and workover operations

COURSE CONTENT

Reservoir characteristics for horizontal and multilateral well applications • Well performance prediction • Wellbore stability of horizontal wells • Stress field effect on drilling, completion, production, and stimulation • Geosteering • Multilateral well structure, junction, and application • Formation damage and its effect on horizontal well performance • Well completion and its effect on horizontal and multilateral wells • Intelligent completion: downhole monitoring and control • Well trajectory and completion optimization• Horizontal well fracturing • Acidizing of horizontal wells • Other stimulation methods

2016 Schedule and Tuition / 5 Days

HOUSTON, US	4-8 APR	US$4240*
	12-16 DEC	US$4240*
OKLAHOMA CITY, US	29 AUG-2 SEP	US$4200*

*plus computer charge

Water Management in Heavy Oil Resource Operations – HOWM

INTERMEDIATE

This course will review the basics of heavy oil extraction and the characteristics, quality, and quantities of waters in heavy oil resource operations. It will examine the interpretation of analytical results and simulation resources including heavy oil and bitumen extraction use of water, limitations, and typical ratios. The scientific basis and principles of de-oiling technologies, chemical (hot and warm) lime softening (including sludge disposal), ion exchange SAC and WAC technologies, BFW chemistry, and OTSG boilers. Equipment scaling and corrosion problems will be included. It will review technologies of evaporators. Recent and developing new technologies for produced water recovery will be discussed. Real life cases will be reviewed and evaluated. Finally, this course will review the most prominent environmental limitations.

DESIGNED FOR

Process designers and CPF operators dealing with heavy oil produced water separation, recovery and treatment for reuse or disposal. Personnel involved in establishing, improving or supervising the implementation of technology improvements. This course will be useful to managers in completion, production and optimization of operations.

YOU WILL LEARN HOW TO

- Understand technology options, advantages, and limitations
- Choose the most advantageous technology given the site conditions
- Design or specify the equipment capable to fulfill the operations intended
- Optimize design conditions and operating efficiency
- Troubleshoot field situations
- Understand water mass and ionic/solids balance
- Review field cases

COURSE CONTENT

Heavy oil review • Water properties and analytical key parameters, review of analytical results, what is logic, what is out of line? • Thermo-extraction produced water, the process (SAGD and CSS), ratios • De-oiling technologies, traditional, deviations, and future • Softening and silica removal, hot and warm lime softening • Ion exchange technology, SACs and WACs technologies, the out of vessel regeneration • Backwash, regeneration and separation sludge: collection, thickening, and dehydration • Boiler feed water final treatment, standard requirements and chemical conditioning • Evaporator alternatives and ZLD technology • Tube corrosion and scaling in boilers and evaporators • Mining bitumen extraction, tailings pond, process affected waters, their treatment and reuse • Cooling tower requirements, water conditioning, and treatments • Deep well injection of waste water: requirements and treatment

See website for dates and locations.

Applied Water Technology in Oil and Gas Production – PF-21

FOUNDATION

This course provides an overview of the main water handling systems typically encountered in upstream (E&P) production operations, both onshore and offshore. The chemistry of the main water-related problems of mineral scales, corrosion, bacteria, and oily water will be reviewed both from the theoretical and practical aspects. Produced water treatment equipment and typical water quality specifications will also be reviewed, as well as water injection and disposal systems. An exercise will be given to identify typical system problems and to apply the knowledge you gained to propose solutions. Emphasis will be placed on understanding and resolving operational problems in process equipment.

DESIGNED FOR

Managers, engineers, chemists, and operators needing to understand water-related problems in oil and gas production and their solutions.

YOU WILL LEARN

- The basics of oilfield water chemistry
- How to monitor and control corrosion, scale, and bacterial growth in produced water and water injection/disposal systems
- How to implement system surveillance programs to detect potential problems before system damage occurs
- Produced (oily) water treatment options and related treatment equipment
- How to use the knowledge gained to identify typical system problems and be able to propose solutions

COURSE CONTENT

Water chemistry fundamentals • Water sampling and analysis • Water formed scales • Corrosion control • Water treatment microbiology • Produced water discharge/ disposal and treatment principles • Produced water treating equipment – theory of operation, advantages and disadvantages, and the importance of oil droplet size • Water injection and disposal systems – theory of operation, corrosion, scale, and biological control • Case study

2016 Schedule and Tuition / 5 Days

HOUSTON, US	8-12 AUG	US$4150
LONDON, UK	24-28 OCT	US$4780+VAT

Fundamental and Practical Aspects of Produced Water Treating – PF-23

FOUNDATION

This course will provide participants with an understanding of the technical aspects required to select, design, maintain, and troubleshoot produced water equipment. Produced water composition and physical properties are covered. Water quality requirements for various disposal methods are addressed, including onshore surface discharge, offshore discharge to sea, and reinjection for disposal or waterflood. Regulatory requirements and analytical methods used to monitor and ensure regulatory compliance are discussed. Treatment technology is presented along with practical considerations for selecting and operating typical water treatment equipment. Representative process flow diagrams illustrate equipment selection, design features, layout, and processes. Chemical treatment options are also considered.

DESIGNED FOR

Managers, engineers, chemists, and senior operations personnel responsible for designing, operating, and maintaining facilities that process and manage produced water.

YOU WILL LEARN

- How produced water compositions affect water treatment system design and performance
- How to interpret produced water analytical data and calculate common Scale Indices
- How emulsions form and contribute to water treatment challenges
- How Total Suspended Solids (TSS) affects water quality—and what to do about it
- What water quality is required for surface or overboard disposal, injection disposal, or beneficial use
- The regulatory requirements for offshore water disposal and what is in an NPDES Permit
- What analytical methods actually measure and how to select an appropriate method
- How separators, clarifier tanks, CPIs, hydrocyclones, flotation cells, and bed filtration work and how to improve their performance
- The most common causes of water treating problems and how to diagnose and resolve them
- Typical PFDs and operational issues associated with various processes

COURSE CONTENT

Introduction to water treatment technology and issues • Produced water chemistry and characterization • Defining and characterizing emulsions that impact water quality and treatment • Water quality requirements for injection or surface disposal, NPDES permits, and analytical methods • Primary water treatment technologies: separators, hydrocyclones, and CPIs • Secondary water treatment: induced gas flotation • Tertiary water treatment technologies: media and membrane filtration • Chemicals and chemical treatment • Diagnostic testing and in-field observations • Diagnosing and resolving water treatment issues based on actual field experiences

2016 Schedule and Tuition / 5 Days

HOUSTON, US	7-11 NOV	US$4150

Basic Petroleum Technology – BPT

BASIC

This course presents a non-technical, practical understanding of petroleum industry technology in an interesting and effective manner. Industry technology basics and terminology are learned by progressing through the E&P asset management cycle from exploration to abandonment. Participants are placed in the position of Reservoir Engineer, and "Our Reservoir" is defined, analyzed and put in production. Participants are then placed in the position of Drilling/Completion Engineer, and the drilling/ completion program for "Our Well" is analyzed. Participation results in greater job confidence, enthusiasm and productivity. Basic Petroleum Technology is ideal for staff who need to be able to understand the various aspects of oil and gas operations and speak the language of the oilfield. The first day will give an introduction to the industry and cover reservoir fluids. The next two days will include petroleum geology and reservoirs, and introduce exploration technology. The fourth day will cover drilling engineering, operations, and well completion technology. The course will wrap up with production technology, reservoir development, and surface processing.

DESIGNED FOR

Administrative, support personnel, management, field support, accounting, purchasing, economics, legal, finance, human resources, drafting, land and data processing personnel, as well as investors and royalty owners. Participants involved at the technical level of the industry, particularly engineers, should register for the Basic Petroleum Engineering Practices course.

YOU WILL LEARN

- Terminology of exploration and production (language of the oil field)
- Basic geology as related to oil and gas reservoirs
- Reservoir fluid and rock properties
- Basics of seismic technology
- Reservoir definition and development; production and recovery
- Unconventional reservoirs
- Fundamentals of drilling, well completions and production operations
- Basic concepts of primary and enhanced recovery operations
- Surface operations

COURSE CONTENT

E&P asset management process overview • Reservoir fluid properties • Petroleum geology • The petroleum reservoir • Unconventional reservoirs • Exploration technologies • Drilling technology • Well completions and workovers • Production operations • Reservoir recovery mechanisms • Surface processing

2016 Schedule and Tuition / 5 Days

ABERDEEN, UK	14-18 MAR	US$4570+VAT
HOUSTON, US	8-12 FEB	US$3940
	11-15 JUL	US$3940
	17-21 OCT	US$3940
KUALA LUMPUR, MY	7-11 NOV	US$4735
LONDON, UK	16-20 MAY	US$4570+VAT
	8-12 AUG	US$4570+VAT

Exploration and Production Process Basics: Understanding the Petroleum Industry Value Cycle – EPB

BASIC

This workshop describes the petroleum value chain from prospect identification, to project commissioning, to final abandonment. Participants will leave this course with a firm understanding of the petroleum industry, including the knowledge and tools necessary to understand the relationships and dependencies across the E&P industry. The course offers a fresh look at a range of critical, inter-related topics and will be taught with the modern learner in mind. Multiple tools, such as peer-based learning, internet resources, hands-on exercises, in-depth team workshops, and group discovery sessions, will be used to ensure learning retention and recall. Participants work as members of multi-disciplinary teams using real oilfield data in interactive workshops that illustrate technology/business concepts. Each team will be accountable for the results of their interpretations in a safe, constructive learning environment. Other skills will be learned in short hands-on exercises that reinforce the lectures. Lecturers are widely experienced oil field professionals who can share experiences from a number of technical settings and organizational approaches to give the students a broad view of the industry and its participants. The extended workshops conducted during the course include an exploration/discovery workshop, an appraisal workshop to define the static and dynamic models for a new discovery, and a facilities workshop in which the students fit the facilities to their newly-defined discovery. Uncertainties, risk management, business practices, and project management lessons are learned through these team events.

DESIGNED FOR

Newly-hired engineers and geoscientists.

YOU WILL LEARN

- Exploration/production overview
- Basic petroleum geology and geophysics principles
- Log interpretation basics
- Drilling basics
- Basic reservoir, production, and facilities engineering
- Business principles governing E/P

COURSE CONTENT

Opportunity identification • Elements of petroleum environment • Play to prospect to field technologies • Concessions and contracts • Find and define an asset • Appraise an opportunity • Build a field development plan • Facilities: gas, oil, design, construction, processing, maintenance, decommissioning • Building an effective team • Company/industry processes and procedures

2016 Schedule and Tuition / 10 Days

HOUSTON, US	16-21 MAY	US$6890*

*plus computer charge

Basic Petroleum Engineering Practices – BE

BASIC

This course is a basic introduction to most aspects of the Petroleum Engineering discipline, which includes Reservoir, Production, and Drilling Engineering as well as related topics. This course lays the groundwork for further specialized training in advanced courses for oil company and service company personnel. The course focuses on the field and application approach and includes classroom exercises, fundamental engineering problems, and basic field exercises. Basic Petroleum Engineering Practices will set the foundation for technical professionals with regards to technology and its engineering applications. The course starts out with a brief introduction of the history and current state of the oil and gas industry. Next, reservoir fluids, petroleum geology, and petroleum reservoirs are discussed. Then, various facets of exploration technology, drilling engineering and operations, well completion technology, and production technology are covered before finishing with surface processing of produced fluids.

DESIGNED FOR

Engineers, engineering trainees, technical managers and assistants, technicians, geologists, geophysicists, chemists, physicists, service company personnel, sales representatives, and data processing personnel.

YOU WILL LEARN

- Basic petroleum geology
- Reservoir fluid and rock properties
- Fundamentals of reservoir fluid flow
- Oil and gas reservoir classification, definition, delineation, and development
- Unconventional resources
- Fundamentals of drilling, well completion, and production operations
- Basics of casing design and primary cementing
- Primary and enhanced recovery mechanisms
- Surface operations

COURSE CONTENT

Reservoir fluid properties • Petroleum geology • Reservoir properties and evaluation • Unconventional resources • Exploration technology • Drilling engineering • Well completion, stimulation, and workover • Well testing and formation damage • Production operations • Recovery methods • Surface processing

2016 Schedule and Tuition / 5 Days

ABERDEEN, UK	6-10 JUN	US$4570+VAT
DENVER, US	1-5 AUG	US$3950
DUBAI, UAE	8-12 MAY	US$4990
HOUSTON, US	28 MAR-1 APR	US$3940
	27 JUN-1 JUL	US$3940
	29 AUG-2 SEP	US$3940
	12-16 DEC	US$3940
KUALA LUMPUR, MY	15-19 AUG	US$4735
LONDON, UK	19-23 SEP	US$4570+VAT

Basic Drilling, Completion and Workover Operations – BDC

BASIC

This course presents the basics of drilling and completion operations, plus post-completion enhancement (workovers). Participants will learn to visualize what is happening "downhole", discover what can be accomplished, and learn how drilling and completion can alter reservoir performance.

No experience or prerequisites required.

Learn to communicate with drilling and production personnel.

DESIGNED FOR

Technical, field, service, support, and supervisory personnel desiring to gain an awareness of wellbore operations. Excellent for cross-training of other technical disciplines such as reservoir and facility engineers, geoscientists, supervisors, service personnel, and anyone who interacts with drilling, completion, or workover engineers.

YOU WILL LEARN

- How to comprehend drilling and workover reports
- What can be done within open-hole and cased wells, as a part of reservoir management
- How drilling practices can optimize cash flow and ultimate recovery
- How to communicate with drilling and production personnel

COURSE CONTENT

Overview of the drilling process • Language of drilling, completing, and well intervention • Drill string components: bits and accessories • Drilling fluids and hydraulics • Hole problems, stuck pipe, side-tracking and fishing • Cores and coring • Electric logging, MWD, LWD • Casing design and installation • Primary and remedial cementing • Directional, horizontal, multilateral, and under-balanced drilling • Wellhead equipment and trees • Options for completions and workovers • Tubing, packers, and completion equipment • Safety and flow control devices • Open hole completions • Perforating • Coil tubing operations • Wireline techniques • Well stimulation – surfactants, solvents, acidizing, hydraulic fracturing • Formation and sand control – mechanical retention, chemical consolidation, and gravel packing • Scale and corrosion • Directional drilling and multi-laterals • Scale and corrosion • Paraffin and asphaltenes

2016 Schedule and Tuition / 5 Days

ABERDEEN, UK	8-12 FEB	US$4570+VAT
DALLAS, US	27 JUN-1 JUL	US$3900
HOUSTON, US	14-18 MAR	US$3940
	23-27 MAY	US$3940
	31 OCT-4 NOV	US$3940
	5-9 DEC	US$3940
KUALA LUMPUR, MY	14-18 NOV	US$4735
LONDON, UK	15-19 AUG	US$4570+VAT

Evaluating and Developing Shale Resources – SRE

FOUNDATION

This course will cover current practices for evaluating, drilling, and completing these challenging reservoirs. Discussions and exercises will include a focus on the limitations of many of the current tools and technologies. Information and opportunities for many current and international shale plays will be described. The participant should leave the course with a foundational understanding of value-adding shale gas resource practices and an insight into determining the critical reservoir and stimulation parameters used to predict a potential commercial resource play.

DESIGNED FOR

Reservoir, production and completion engineers, petrophysicists, geologists, geophysicists and other professionals who desire a thorough overview of shale resource development.

YOU WILL LEARN HOW TO

- Describe the resource potential and economic importance of shale gas and shale oil
- Describe the similarities/differences between shale gas, tight gas and coalbed methane
- Describe shale play differences and critical reservoir properties to identify "sweet spots"
- Estimate gas and oil in place
- Apply different resource evaluation techniques recognizing the advantages and disadvantages of each technique
- Apply drilling, completion, and stimulation technology to shale gas and shale oil
- Evaluate and forecast individual well and reservoir performance
- Determine how to estimate well reserves in both PDP (proved developed producing) and PUD (proved undeveloped) categories.

COURSE CONTENT

Current shale plays and their global impact • Organic quality, rock quality and mechanical quality properties; geological setting; rock properties; petrophysical considerations; the role of seismic data in field evaluation • Drilling: vertical vs. horizontal wells; pilot holes; fluids; MWD and LWD; wellbore sizes and lateral; drilling challenges; mechanical considerations • Completions: cased vs. open hole; perforation schemes; stimulation design and considerations; case histories • Field trials and pilots: pilot program to optimize well drilling, completion, understanding Stimulated Rock Volume (SRV) using microseismic, fiber optics, production logs, and other resources • Production forecasting and reserve calculations: volumetrics; performance analysis; simulation; resource development; decline curve analysis; handling uncertainty in estimates • Logistics, pad design, field development, water resources, and the social license

2016 Schedule and Tuition / 5 Days

DENVER, US	7-11 NOV	US$4050*
HOUSTON, US	11-15 APR	US$4040*
	12-16 SEP	US$4040*
SAN ANTONIO, US	5-9 DEC	US$4000*

*plus computer charge

Basic Petroleum Geology – BG

BASIC **FIELD TRIP**

What is Basic Petroleum Geology? For all practical purposes it closely resembles the freshman level course that a non-science major at a university would take to satisfy the science requirement. Presentation is oriented toward topics of interest to the petroleum industry. While high school chemistry and physics might help in understanding a very few selected topics, the course is designed for those with no technical training (and those who studiously avoided science in school). Primary objectives of the course are to broaden your geological vocabulary, explain selected geological principles and processes, and describe how certain petroleum reservoirs and source rocks are formed.

DESIGNED FOR

Petroleum industry personnel in need of basic geological training, including engineering, geophysical, technical support, and administrative personnel.

YOU WILL LEARN

- About plate tectonics and petroleum
- About geological time and history
- The fundamentals of rock formation and deformation
- The essentials of various depositional environments and the reservoirs created by them
- The distribution of porosity and permeability in reservoirs produced in different depositional environments
- How rock characteristics are related to modern geological processes and applied to the ancient record
- About petroleum reservoir and source rocks
- Of petroleum origin, migration, and trapping
- How to correlate electric logs and recognize depositional environments on logs
- How to make contour maps and cross sections
- Elements of geophysics and exploration
- How geology bears directly on engineering practices

COURSE CONTENT

Minerals and rocks • Plate tectonics • Geological time • Weathering and erosion • Deposition • Diagenesis • Reservoirs • Structural geology and petroleum • Origin, migration, and trapping of petroleum

2016 Schedule and Tuition / 5 Days

CALGARY, CANADA	13-17 JUN	US$3900+GST
DENVER, US †	9-13 MAY	US$4075
HOUSTON, US	14-18 MAR	US$3940
	3-7 OCT	US$3940
LONDON, UK	16-20 MAY	US$4570+VAT

† includes field trip

Foundations of Petrophysics – FPP

FOUNDATION

Petrophysics is fundamental to all aspects of the petroleum business. Principles, applications, and integration of petrophysical information for reservoir description will be discussed in depth. Through a combination of class discussion and exercises/workshops, participants will learn how to conduct competent quick-look evaluations. Using data from open hole logs, logging-while-drilling, and core data you will evaluate porosity, permeability, and saturation in a variety of reservoirs. Knowing how to integrate petrophysical information with other data sources will improve participants' ability to assess technical risk when examining hydrocarbon opportunities.

DESIGNED FOR

Geoscientists and engineers with less than twelve months experience using petrophysical data and other technical staff at all experience levels wanting a fundamental background in the petrophysics discipline.

YOU WILL LEARN HOW TO

- Understand and apply at a basic level the theory and operation of major petrophysical tools
- Calibrate porosity and permeability values from core and log sources for improved saturation calculations
- Apply basic open hole logging, borehole seismic, image, and LWD/MWD
- Analyze and integrate log, core, geoscience, and engineering well data for well and field development projects
- Select petrophysical tool combinations for specific applications
- Assess the impact of petrophysical analyses on technical uncertainty estimates of reservoirs

COURSE CONTENT

- Fundamental concepts of petrophysics
- Depositional systems and petrophysical rock parameters
- Nature of porosity and permeability
- Basic rock properties; theory and quicklook techniques
- Mudlogging
- Core analysis, acquisition, interpretation, and quality checks
- Theory and basics of resistivity, radioactivity, acoustic tools
- LWD/MWD versus open hole logging
- Determination of rock types using core and logs
- Petrophysical impact on economic uncertainty
- Evolving petrophysical technologies
- Overview of cased hole logging

2016 Schedule and Tuition / 5 Days

CALGARY, CANADA	18-22 APR	US$4000+GST
HOUSTON, US	11-15 APR	US$4040
	20-24 JUN	US$4040
	31 OCT-4 NOV	US$4040
LONDON, UK	7-11 MAR	US$4670+VAT

Production Geology for Other Disciplines – PGD

FOUNDATION

Have you ever wondered why it seems like Geologists rarely give you a straight answer? Do they appear to be constantly avoiding direct answers to apparently simple questions? Are there never-ending "qualifiers" tacked to the answers they provide? "Usually, for the most part, chances are, often, almost all the time, maybe, could be, should be, can be, it depends..." What do you do with the ranges of the interpretations offered? This course will clear these questions... you will understand what makes the Production Geosciences tick; you will be able to phrase the appropriate questions, and then you will be able to deal with the answers. This course assumes the participant has some understanding of elementary geology, but it will provide a review of key geological principles and environments of deposition, all keyed to focus on the practical impact of geological models and uncertainty on appraisal and development. Engineering, financial, and geological coordination and understanding are the objectives of this course.

DESIGNED FOR

Production/Completion/Reservoir Engineers, financial staff, professional staff from disciplines other than geology, and managers involved with reservoir management, and development/production, who might require an understanding of geological data, its variability, and the effects of the data, and its interpretation, on their projects and jobs. This course is also appropriate for geologists early in their career development that are slated for production/development positions.

YOU WILL LEARN HOW TO

- Understand the sources of geological data and the interpretation of that data, including maps, cross-sections, electric logs, and seismic sections
- Recognize the relationships between paleo-environmental interpretations and the practical application of these interpretations to field development
- Recognize and appreciate uncertainty in geological and geophysical data/interpretation
- Understand the uncertainty surrounding the geologist's interpretation.... "Why won't they give me a straight answer?"
- Recognize ways in which geological data is presented for evaluation in integrated asset teams
- Understand and more realistically evaluate geological data and interpretation
- Understand geological interpretation impact on production and development...pro and con

COURSE CONTENT

Correlation and stratigraphy • Structural interpretation • Seismology • Clastic/carbonate deposition including an introduction to Unconventional Reservoirs • Reservoir geology • Reservoir characterization and modeling • Volumetrics • Well planning • Reservoir appraisal • Field development • Uncertainty analysis

2016 Schedule and Tuition / 5 Days

HOUSTON, US	7-11 MAR	US$4040

Petrophysics of Unconventional Reservoirs – PUR

INTERMEDIATE

Petrophysics is central to the integration of a wide spectrum of related geoscience and engineering disciplines. However, students should also be familiar with at least two or more of the following topics: horizontal well drilling, wireline logging and log analysis, coring and core analysis, petrophysics, geophysics, geochemistry, formation testing, rock mechanics, hydraulic fracturing, and petroleum economics.

DESIGNED FOR

Geoscientists involved with the evaluation and exploitation of unconventional reservoirs including tight gas sands, shale gas, and coal-bed methane.

YOU WILL LEARN HOW TO

- Interpret petrophysical data gathering from unconventional reservoirs from both core and log data
- Assess TOC and maturity indicators
- Evaluate measurement provided by service companies
- Gauge gas-in-place and reserves in unconventional reservoirs
- Consequences and magnitudes of shale anisotropy
- Interpret NMR and capillary pressure measurements made on shale
- Interpret microstructural imaging of shale

COURSE CONTENT

Overview of unconventional reservoirs • Geochemistry of unconventional rocks • Special coring and core analysis techniques for unconventionals • Wireline logging of unconventional reservoirs • Assessment of formation organic content (TOC) and maturity • Gas-in-place and reserve and flow potential estimates • Geomechanics and fracturing

2016 Schedule and Tuition / 3 Days

HOUSTON, US	13-15 JUN	US$3075

Applied Rock Mechanics – ARM

SPECIALIZED

Understanding the stress, strain, and failure mechanics of rocks and their response to earth stresses can lead to enormous economic benefits in all phases of petroleum reservoir development. Over the last ten years, rock mechanics has emerged as a critical technology capable of lowering financial risk in drilling and well completions, qualifying exploration and development opportunities, and improving hydrocarbon productivity. Rock mechanics is a vital decision-making tool for high-angle and horizontal drilling, unconventional reservoirs, deepwater drilling, massive hydraulic fracturing, and completing poorly cemented formations. Borehole instability, casing shear, subsidence, stuck pipe, and sand control issues cost the petroleum industry many billions of dollars annually. New theory and experimental methods as well as straightforward computer modeling techniques have provided insight into developing prospects in complex geological basins and harsh drilling environments. In Applied Rock Mechanics, students are provided with basic theory, laboratory demonstrations, hands-on exercises, and computer modeling demonstrations. In addition to a comprehensive manual, software is provided for the student to perform wellbore stability calculations. The practical application of rock mechanics is emphasized. Applied Rock Mechanics is designed to familiarize engineers and geoscientists with the necessary tools for immediate field application.

DESIGNED FOR

Petrophysicists, drilling engineers, completion engineers, exploration and development geologists, reservoir engineers, core and log analysts, geophysicists, and oil company research and development staff.

YOU WILL LEARN HOW TO

- Determine the stress, strain, and failure mechanics of rocks
- Apply rock mechanics concepts and generate economic benefits in all phases of reservoir development

COURSE CONTENT

Introduction to rock mechanics and geomechanical principals • Basic mechanics • Rock mechanical properties • Pressure, stresses, and loads • Geomechanics and structural geology • Wellbore and field measurement of in-situ (earth) stresses • Overview of common rock mechanics tests (lab demonstrations) • Stress orientation techniques • Elastic, plastic, and viscous models of rock behavior • Borehole stability • Sand control • Fracture mechanics • Unconventional reservoir applications • Reservoir engineering applications • Wireline log predicted mechanical properties • Data integration

2016 Schedule and Tuition / 3 Days

HOUSTON, US	25-27 APR	US$3135
	24-26 OCT	US$3135

Basic Reservoir Engineering – BR

BASIC

Basic Reservoir Engineering is a course designed to help the participants develop a more complete understanding of the characteristics of oil and gas reservoirs, from fluid and rock characteristics through reservoir definition, delineation, classification, development, and production. Data collection, integration, and application directed toward maximizing recovery and Net Present Value are stressed. Basic reservoir engineering equations are introduced with emphasis directed to parameter significance and an understanding of the results. The course includes class exercises designed to be solved with a calculator or spreadsheet. Participants are welcome to bring their own laptop computers.

DESIGNED FOR

Geologists, geophysicists, engineers, engineering trainees, technical managers, technical assistants, technicians, chemists, physicists, technical supervisors, service company personnel, sales representatives, data processing personnel, and support staff working with reservoir engineers and wanting to understand the process of reservoir definition, development, and production, or engineers newly placed in a reservoir engineering position.

YOU WILL LEARN

- How to collect and analyze the data needed for reservoir engineering tasks
- The fundamentals of fluid flow in porous media
- How reservoirs are characterized by fluid type and drive mechanisms
- The basis for reservoir fluid distribution
- About oil and gas well performance and pressure buildup analysis
- About oil displacement and optimizing reservoir performance
- The basics of enhanced oil recovery
- How oil and gas in place can be estimated and recovery predicted

COURSE CONTENT

Reservoir fluid properties • Coring practices and reservoir rock properties • Fundamentals of fluid flow • Reservoir fluid distribution • Reservoir classification • Reservoir drive mechanisms • Oil and gas well performance, including inflow and outflow concepts • Pressure buildup analysis • Oil displacement concepts • Estimation of oil-in-place and gas-in-place • Recovery techniques

2016 Schedule and Tuition / 5 Days

ABERDEEN, UK	12-16 DEC	US$4570+VAT
BAKERSFIELD, US	7-11 NOV	US$3900
CALGARY, CANADA	7-11 MAR	US$3900+GST
DENVER, US	23-27 MAY	US$3950
HOUSTON, US	1-5 FEB	US$3940
	4-8 APR	US$3940
	8-12 AUG	US$3940
	28 NOV-2 DEC	US$3940
JOHANNESBURG, SOUTH AFRICA	5-9 SEP	US$5230
KUALA LUMPUR, MY	22-26 AUG	US$4735
LONDON, UK	21-25 MAR	US$4570+VAT
PERTH, AUSTRALIA	8-12 FEB	US$4800+GST

Well Test Design and Analysis – WTA

FOUNDATION

This course stresses practical application of well test theory to design and interpret pressure transient tests. An integrated approach to well test interpretation is emphasized throughout the course. Class exercises involving hand calculations and simple spreadsheet applications will reinforce the concepts illustrated by both synthetic data sets and real field examples. Participants will be able to apply the knowledge and skills they gain in this course to their job assignments upon course completion.

DESIGNED FOR

Engineers and geoscientists who want to understand well testing principles and interpretation techniques to design, analyze, report, evaluate results or intelligently participate in the well testing process. Previous experience in production and/or reservoir engineering is recommended. Previous experience in well testing is helpful but is not required.

YOU WILL LEARN HOW TO

- Analyze drawdown and buildup tests in oil and gas wells
- Identify flow regimes using the log-log diagnostic plot
- Describe characteristic pressure behavior for common bounded reservoir geometries
- Identify well test data affected by various wellbore and near-wellbore phenomena
- Design a well test to meet desired objectives
- Estimate average drainage area pressure
- Analyze well tests in hydraulically fractured wells, horizontal wells, and naturally fractured reservoirs

COURSE CONTENT

Introduction to well testing • Radial flow • Log-log type curve analysis • Pressure transient testing for gas wells • Flow regimes and the log-log diagnostic plot • Bounded reservoir behavior • Wellbore and near-wellbore phenomena • Well test interpretation • Well test design • Estimation of average drainage area pressure • Hydraulically fractured wells • Horizontal wells • Naturally fractured reservoirs

2016 Schedule and Tuition / 5 Days

HOUSTON, US	12-16 SEP	US$4065*

plus computer charge

Reservoir Characterization: A Multi-Disciplinary Team Approach – RC

INTERMEDIATE

The modern team approach to Reservoir Characterization describes productive zones more reliably through the integration of disciplines, technology, and data. Increase your proven reserves, discover by-passed pay, reduce development time and costs, improve production rates, and rejuvenate old fields through the skills learned in this course.

During the course, particular attention will be paid to uncertainties and risks. It will be shown how these can be handled and their impact on the economics of hydrocarbon projects. The instructor is willing to accept examples from your company for analysis in the class as one of the demonstration exercises. It is also possible to design a course specifically for your own company around such a case study. Please contact PetroSkills for a list of the information and support data required, as well as the necessary lead-time.

DESIGNED FOR

Geologists, geophysicists, reservoir engineers, production engineers, petrophysicists, exploration and production managers, team leaders, and research scientists.

YOU WILL LEARN HOW TO

- Develop a business proposal for any Reservoir Characterization project
- Apply the concept of correlation length to understand reservoir continuity
- Define hydraulic flow units in a reservoir
- Assess the economics of oil and gas projects across their entire life cycle
- Carry out the integrated Reservoir Characterization process

COURSE CONTENT

Business value drivers and selection criteria • The scale and resolution of data • Variograms, correlation length • Time, rock, and flow units • Seismic attributes • Upscaling, streamline simulation • Decision trees; value of Information • Giving and receiving feedback • The future of Reservoir Characterization

2016 Schedule and Tuition / 5 Days

HOUSTON, US	15-19 AUG	US$4140
LONDON, UK	25-29 JUL	US$4770+VAT

Horizontal and Multilateral Wells: Analysis and Design – HML1

SPECIALIZED

The complex, interdisciplinary decisions in advanced well projects are emphasized in this course. The process of candidate screening and selection, involving geological, reservoir, and production characteristics are considered, as well as constraints on drilling and completion options. Methods to predict well performance and recovery from horizontal and multilateral wells are presented with integration of inflow and wellbore flow performance for individual and multilateral wells. Well completion options and its impact on well performance for horizontal and multilateral wells are summarized. The improvement by multistage hydraulic fracturing and matrix acidizing is evaluated. Economic and risk analysis are also presented with a number of case histories to highlight the performance and benefits of horizontal wells and the elements of risk and uncertainty at the initial design stage. The instructor will use the examples from participants' field cases for analysis in the class.

DESIGNED FOR

Geologists, reservoir engineers, production and completion engineers, and development, asset, and project managers.

YOU WILL LEARN HOW TO

- Identify the applications of horizontal, multilateral, and intelligent wells from geological and reservoir aspects
- Assess multidisciplinary inputs for successful screening of advanced well projects
- Predict horizontal and multilateral well productivity with integrated reservoir flow and well flow models
- Evaluate formation damage and well completion effects on advanced well performances
- Diagnose problems in advanced wells and conduct the necessary sensitivity analyses
- Evaluate well stimulation treatments, including multiple-stage fractured horizontal well performance and matrix acidizing results
- Intelligent well concept, design and field applications
- Minimize technical and economic risk in advanced well projects

COURSE CONTENT

Technical and economic benefits of advanced well systems • Reservoir applications for various well types • The screening of applications for advanced well applications • Geological structure characteristics • Classification of advanced wells • Reservoir inflow performance at different boundary conditions • Wellbore flow and integrated well performance • Commingled production and cross flow in multilateral wells • Formation damage in horizontal and multilateral wells • Well completion and combined effect of completion and damage on well performance • Well stimulation evaluation by productivity improvement • Optimal design of stimulation • Reservoir simulation considerations • Applications of intelligent completion in advanced wells • Risk identification and assessment

See website for dates and locations.

Basic Drilling Technology – BDT

BASIC

FIELD TRIP

This basic drilling technology course addresses the technology used to drill wells from a fundamental view point. Equipment and procedures involved with drilling oil and gas wells are described for those who are interested in understanding the drilling process regardless of academic background. During the first day, the overall drilling process is presented along with definitions and descriptions of drilling equipment. This provides the vocabulary to understand the drilling process. During the remainder of the week, the various components and procedures are discussed in greater detail with explanations of the basic science concepts which guide these processes. Subjects include descriptions of drill bits, directional drilling, drilling fluids, solids control, cementing, casing, well bore stability, well control, measurement-while-drilling techniques, stuck pipe, lost circulation, and well bore hydraulics. Some technology enhancements are included to improve understanding of drilling operations for all participants, with or without a science background. A discussion of clay mineralogy helps understand well bore instability and drilling fluids. A discussion of pressure and pressure effects helps explain many of the procedures and problems associated with drilling wells. Rocks behave differently under pressure and understanding this behavior helps in understanding drilling performance.

Some discussions of the art and science of drilling include mathematical explanations for those involved with the engineering aspects of drilling operations; however, the concepts and intent of these mathematical equations will also be explained in simple terms. After all various components and procedures are discussed, the information contained in morning reports is explained and used as a summary of the course content.

DESIGNED FOR

Petroleum and production engineers, completion engineers, geoscientists, managers, technical supervisors, service and support personnel, entry level drilling engineers, drilling operations personnel, drilling office support staff.

YOU WILL LEARN

- About drilling equipment and how it is used
- Drilling terminology and abbreviations
- Keys to planning a successful well
- Common drilling problems and how to avoid them
- How to read a morning report
- Technology behind information in a morning report

COURSE CONTENT

- The overall drilling process and equipment
- The language of drillers—understanding their terminology
- Understanding the abbreviations and acronyms associated with drilling
- Rig equipment and types
- Types of drill bits
- MWD
- Drill strings
- Drilled solids management
- Mud tank arrangements
- Drilling fluid properties
- Well control
- Cementing
- Casing design
- Hole problems (stuck pipe, lost circulation)
- Well control
- Directional drilling operations and tools
- Safety

2016 Schedule and Tuition / 5 Days

HOUSTON, US †	22-26 FEB	US$3940
	18-22 APR	US$3940
	18-22 JUL	US$3940
	19-23 SEP	US$3940
	7-11 NOV	US$3940

† includes field trip

Casing and Cementing – CAC

BASIC

This course builds a firm foundation in the principles and practices of designing, planning and conducting successful casing and cement jobs. The course uses a process-based perspective that takes participants from initial casing depth and size selection, casing and liner design procedures, casing running practices, and planning and executing primary cementing through remedial cementing and plugging operations. In addition to the necessary technical information and procedures, the course is laced with considerable practical, experience-based content. Participants will be furnished Dr. Byrom's textbook, "Casing and Liners for Drilling and Completion," and computer spreadsheets to facilitate routine calculations.

DESIGNED FOR

Personnel responsible for planning, overseeing, and conducting casing and cementing operations; operator and service personnel.

YOU WILL LEARN

- Selection of casing sizes and setting depths to achieve well objectives
- Determination of casing loads for design purposes
- To design casing properties to meet burst, collapse, and tensile strength requirements
- To conduct casing running operations safely and successfully
- Specification of cement slurry properties and volumes to meet well objectives
- Determination of best procedures for attaining successful primary cementing
- To conduct stage jobs, squeeze jobs, and set cement plugs

COURSE CONTENT

Selecting casing and hole sizes • Setting depths • Casing loads • Selecting casing and connections • Casing stress calculations • Cement and cement additives • Selecting appropriate slurries • Mud removal and cement placement • Stage cementing, squeezes, and plugs • Preventing gas migration • Cementing calculations • Cementing equipment • Well head equipment

2016 Schedule and Tuition / 5 Days

HOUSTON, US	15-19 AUG	US$3940

Overview of Gas Processing – G-2

BASIC

G-2 is a versatile overview of the gas conditioning and processing industry. This course is designed for a broad audience and is participative and interactive, utilizing basic technical exercises and terminology to communicate key learning points. This course does not cover the technology and engineering principles in depth, and is only recommended for those needing an overview of the industry and common processes and equipment used.

DESIGNED FOR

As a wide ranging overview, it is suitable for interested parties, such as geologists, reservoir engineers, line managers, and sales or business development staff; related specialists like environmental staff, operational staff, and shift foremen; those new to the industry, such as entry-level (1-2 year) engineers; or anyone interested in a general, technically-oriented overview of the gas processing industry.

YOU WILL LEARN

- An overview of natural gas and world energy trends
- Natural gas sources, makeup, properties, specifications, and related oil and gas terminology
- Markets and uses for NGL, LPG, ethane, propane, and butane
- Options for various basic gas conditioning and processing steps, including treating, dehydration, liquid extraction, and product fractionation
- Summary of gas processing costs, commercial and contract issues in liquids extraction
- How gas is transported and sold
- Review of gas measurement and common measurement devices
- Key pieces of equipment used in natural gas production and processing facilities
- Overview of related specialty processes, such as LNG, nitrogen rejection, and helium recovery, plus sulfur recovery and acid gas reinjection

COURSE CONTENT

Natural gas and world energy trends • The role of gas processing in the natural gas value chain • Technical engineering principles (common conversions, gas density, phase behavior) • Gas sweetening • Gas hydrates and dehydration • Gas conditioning (dew point control) and NGL extraction • Stabilization and fractionation concepts and facilities • Gas processing key equipment and support systems (heat transfer, compression, pipelines and gathering systems, and measurement) • Specialty processes in gas processing (LNG, nitrogen rejection and helium recovery, sulfur recovery, and acid gas reinjection)

2016 Schedule and Tuition / 3 Days

HOUSTON, US	23-25 AUG	US$2995
KUALA LUMPUR, MY	29 NOV-1 DEC	US$3675
LONDON, UK	11-13 APR	US$3475+VAT
PITTSBURGH, US	7-9 NOV	US$3025

Concept Selection and Specification of Production Facilities in Field Development Projects – PF-3

BASIC

This course is similar to Introduction to Oil and Gas Production Facilities (PF-2), but is presented in the context of concept selection and front-end field development planning.

DESIGNED FOR

This course is intended for those working on field development teams, as well as those who need to better understand how surface facilities are selected and how subsurface characteristics affect facility design and specification.

YOU WILL LEARN

- How to develop the project framework and decision making strategy
- How the specification of production/processing facilities is influenced by reservoir type, drive mechanism, fluid properties, location, and contractual obligations
- Operating conditions that affect the specification of the production facilities from the wellhead through initial separation
- Parameters that affect the design and specification of oil stabilization and dehydration equipment
- The design and specification of produced water systems appropriate for the rate and composition of the produced water to meet the required environmental regulations and/or injection well capacity
- The design and specification of gas handling facilities, including compression dehydration and sweetening
- The impact of artificial lift systems and secondary/tertiary production projects on facilities selection and design
- The principles of asset integrity and inherently safe design given the rate, composition, temperature, and pressure of the production stream
- About midstream facilities required downstream of the primary production facility to deliver saleable products to the market, and how these facilities are affected by production rates, composition, and production facility performance

COURSE CONTENT

Reservoir types, fluid properties, and typical product specifications • Flowlines, gathering systems, flow assurance, and production separation • Oil dehydration and stabilization • Produced water treating and water injection systems • Gas handling, including compression, dehydration, and sweetening • The effect of artificial lift systems, and secondary and tertiary recovery projects • Midstream facilities – gas processing, pipelines, product storage, and LNG • Other facility considerations – utility systems, process safety and asset integrity, and environmental regulations

2016 Schedule and Tuition / 5 Days

HOUSTON, US	25-29 APR	US$4150
STAVANGER, NORWAY	21-25 NOV	US$4780

Gas Conditioning and Processing – G-4 Campell Gas Course®

FOUNDATION

The Campbell Gas Course® has been the standard of the industry for more than 46 years. Over 36,500 engineers have attended our G-4 program, considered by many to be the most practical and comprehensive course in the oil and gas industry. Both hands-on methods and computer-aided analysis are used to examine sensitivities of technical decisions. To enhance the learning process, about 30 problems will be assigned, reviewed, and discussed throughout the course. Problems will be solved individually and in teams.

DESIGNED FOR

Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities. A broad approach is taken with the topics.

YOU WILL LEARN

- Application of gas engineering and technology in facilities and gas plants
- Important specifications for gas, NGL, and condensate
- About the selection and evaluation of processes used to dehydrate natural gas, meet hydrocarbon dewpoint specifications, and extract NGLs
- How to apply physical/thermodynamic property correlations and principles to the operation, design, and evaluation of gas processing facilities
- Practical equipment sizing methods for major process equipment
- To evaluate technical validity of discussions related to gas processing
- To recognize and develop solutions for operating problem examples and control issues in gas processing facilities

COURSE CONTENT

- Gas processing systems
- Physical properties of hydrocarbons
- Terminology and nomenclature
- Qualitative phase behavior
- Vapor-liquid equilibrium
- Water-hydrocarbon phase behavior, hydrates, etc.
- Basic thermodynamics and application of energy balances
- Process control and instrumentation
- Relief and flare systems
- Fluid hydraulics; two-phase flow
- Separation equipment
- Heat transfer equipment
- Pumps
- Compressors and drivers
- Refrigeration in gas conditioning and NGL extraction facilities
- Fractionation
- Glycol dehydration; TEG
- Adsorption dehydration and hydrocarbon removal
- Gas treating and sulfur recovery

2016 Schedule and Tuition / 10 Days

ABERDEEN, UK	4-15 APR	US$9620+VAT
	12-23 SEP	US$9620+VAT
BRISBANE, AUSTRALIA	5-16 DEC	US$9720+GST
DENVER, US	13-24 JUN	US$8670
DOHA, QATAR	8-19 MAY	US$9620
DUBAI, UAE	6-17 NOV	US$9620
HOUSTON, US	18-29 APR	US$8760
	11-22 JUL	US$8760
	24 OCT-4 NOV	US$8760
KUALA LUMPUR, MY	8-19 AUG	US$9720
	10-21 OCT	US$9720
LONDON, UK	1-12 FEB	US$9620+VAT
	20 JUN-1 JUL	US$9620+VAT
	5-16 DEC	US$9620+VAT
PERTH, AUSTRALIA	1-12 AUG	US$9720+GST
PITTSBURGH, US	1-12 AUG	US$8670
STAVANGER, NORWAY	7-18 MAR	US$9620
	7-18 NOV	US$9620

Oil Production and Processing Facilities – PF-4

FOUNDATION

The emphasis of this course is on oil production facilities—from the wellhead, to the delivery of a specification crude oil product, to the refinery. Both onshore and offshore facilities are discussed. Produced water treating and water injection systems are also covered. Solution gas handling processes and equipment will be discussed at a relatively high level. In addition to the engineering aspects of oil production facilities, practical operating problems will also be covered, including emulsion treatment, sand handling, dealing with wax and asphaltenes, etc. Exercises requiring calculations are utilized throughout the course. This course is intended to complement the G-4 Gas Conditioning and Processing course, which is focused on the gas handling side of the upstream oil and gas facilities area.

DESIGNED FOR

Process/facilities engineers and senior operating personnel involved with the design and operation of oil and produced water processing facilities.

YOU WILL LEARN

- Well inflow performance and its impact on production/processing facilities
- About oil, gas, and water compositions and properties needed for equipment selection and sizing
- How to select and evaluate processes and equipment used to meet sales or disposal specifications
- To apply physical and thermodynamic property correlations and principles to the design and evaluation of oil production and processing facilities
- How to perform equipment sizing calculations for major production facility separation equipment
- To evaluate processing configurations for different applications
- How to recognize and develop solutions to operating problems in oil/water processing facilities

COURSE CONTENT

Reservoir traps, rocks, and drive mechanisms • Phase envelopes and reservoir fluid classification • Well inflow performance • Artificial lift • Gas, oil, and water – composition and properties • Oil gathering systems • Gas-liquid separation • Emulsions • Oil-water separation • Oil treating • Desalting • Oil stabilization and sweetening • Oil storage and vapor recovery • Sand, wax, asphaltenes, and scale • Pipeline transportation of crude oil • Pumps • Produced water treatment • Water injection systems • Solution gas handling

2016 Schedule and Tuition / 10 Days

DENVER, US	18-29 JUL	US$8670
DUBAI, UAE	4-15 DEC	US$8760
HOUSTON, US	25 JAN-5 FEB	US$8760
	28 NOV-9 DEC	US$8760
KUALA LUMPUR, MY	28 MAR-8 APR	US$8760
STAVANGER, NORWAY	5-16 SEP	US$8760

Essential Technical Writing Skills – ETWS

BASIC

Writing for work-related purposes ought to be brief, clear, informative and above all, readable. In this practical hands-on course, you gain a solid foundation in technical writing skills. The primary theme for the course is that a writer must "think constantly about their readers." Examples and exercises provide hands-on experience. You may choose to bring a sample of your writing for one-on-one feedback.

DESIGNED FOR

All engineers, managers, IT/computer support staff, team leaders, supervisors, and individuals responsible for writing letters, memos, reports, procedures, test results, and proposals that are clear, concise, and professional.

YOU WILL LEARN HOW TO

- Focus on the reader as the receiver of the information
- Develop quality writing that will:
- Improve business relationships and communication
- Write better and faster
- Make your writing more credible
- Make you more confident in your writing

COURSE CONTENT

Develop essential technical writing skills to convey a convincing message • Compose clear messages using a structured writing approach • Adapt your writing style to your audience's needs • Edit at the word level to improve persuasiveness and impact • Write precise and concise memos, letters, summaries, and reports • How to best display visual information • Create informative content using lists, bullets, and short paragraphs as the primary writing mode

2016 Schedule and Tuition / 3 Days

HOUSTON, US	11-13 APR	US$2955

Essential Leadership Skills for Technical Professionals – OM23

BASIC

In the oil and gas industry, skillful and competent leadership is extremely important for safety, productivity, and asset management. The 21st century brings new emphasis on leaders, new communication technologies, increased focus on safety, information overload, workforce dynamics, asset integrity, and many other concerns which challenge even the most proficient leader/manager. How do we blend these new challenges with tried and true wisdom of success? There are skills to learn that will help you be more effective, with less stress. In this seminar/workshop you will explore your internal drivers and learn how to combine them with new skills for greater effectiveness. This seminar/workshop will include self-assessment, discussion, lecture, readings, role-playing, games, video examples, and creation of participant action plans. This course will help you unleash natural motivation in your team. Your stress level can be lowered by working more efficiently and effectively by tapping the emotional intelligence of your team and co-workers.

DESIGNED FOR

Anyone who has new responsibilities to lead a team. Supervisors, team leads, managers, and others interested in becoming a better leader and a contributing team member will greatly benefit from this one week experience. Many may want to take this seminar/workshop more than once for continuous improvement.

YOU WILL LEARN HOW TO

- Become a more effective leader by overcoming the "tyranny of the urgent" with better time management
- Make better decisions by assessing when to make what kind of decisions
- Help others develop themselves by unleashing their career motivation
- Have more effective communications with technical and non-technical teams by developing the patience to let the team do its work
- Recognize and resolve conflicts before they get out of control by early detection of conflicts, when they're simpler and have less impact
- Develop the ability to lead an empowered team of technical professionals by more effective delegation
- Reduce your own stress level by teaching yourself how to lower your stress with clearer thinking
- Learn assessment techniques for yours and other's people skills by raising the competency levels of yourself and your team
- Walk your talk by getting buy-in for your ideas and vision
- Leading by example

COURSE CONTENT

The nature of teams • Leadership vs. management • Self-centering and tangential leadership • Listening • Motivation • Group dynamics • Conflict management • Team-building • Critical thinking and taking action

2016 Schedule and Tuition / 5 Days

HOUSTON, US	29 FEB-4 MAR	US$3860
ORLANDO, US	5-9 DEC	US$3920

Introduction to Data Management – IDM

BASIC

This course provides an overview of data management in E&P, focusing on the subsurface domain. The need to deliver good data management is increasingly being seen as providing competitive advantage across the E&P industry, since wise business decisions depend on sound data and information. Participants will leave this course with an understanding of the core E&P data types, their use in the business, and data management issues and challenges facing companies. You will have the knowledge and tools necessary to participate in developing a structured data management framework, which will deal with these issues in a practical and effective manner to ensure business efficiency and value is realized. This course provides an understanding of essential E&P data management principles and concepts using an interactive classroom format; participants will have the opportunity to learn from presentations, exercises, and interactive discussions. Course instructors are experienced data management practitioners, who have delivered services and projects to many E&P companies, from small independents to super majors.

DESIGNED FOR

As this course is foundational it will be of most benefit to those with little or basic prior understanding of technical data used in the E&P industry. Course attendees may hold a variety of roles such as data or information managers, technical managers and assistants, technologists, geologists, geophysicists, etc.

YOU WILL LEARN

- What is data management, why it is important, understanding of data as an asset, its lifecycle, benefits of good data management, and its potential value
- The core data types in the E&P industry and valuable best practices for them
- Common data management issues and challenges, and the impact on the business
- The important components of a data management framework
- How to map issues onto a data management framework

COURSE CONTENT

Data types: definitions • Common data management issues: causes of data issues, data management best practices, business impact • Overview of data management: definition, data lifecycle, importance and value of data management, benefits of good data management, business case aspects and barriers • Data management framework: governance, architecture, security, reference and master data management, data quality management

See website for dates and locations.

Basic Petroleum Economics – BEC3

BASIC

Could you answer the following three questions for your next project? What will it cost? What is it worth? Will it earn sufficient profit? Before undertaking any project, these questions should be answered, and this course will provide the fundamentals necessary to enable you to do so. Contractual arrangements, which also significantly impact the economic viability of a project, are covered. Participants practice cash flow techniques for economic evaluations and investigate frequently encountered situations. Each participant will receive Economics of Worldwide Petroleum Production, written specifically for PetroSkills courses. Individuals may wish to participate in either this course or Expanded Basic Petroleum Economics, which is the five day version that includes expanded material covering finance, accounting, and budgeting.

DESIGNED FOR

Managers, engineers, explorationists, field accounting supervisors and other personnel who need to develop or improve their skill and understanding of basic economic analysis and profitability of petroleum exploration and production.

YOU WILL LEARN

- How to evaluate the economic viability of a project
- Cash flow techniques applicable in economic evaluations
- How to use economic criteria to choose investments
- Models to weigh risk and uncertainty

COURSE CONTENT

Forecasting oil production • Defining: "reserves", operating expenses, capital expenditures, inflation, factors effecting oil and gas prices • Cash flow techniques • Economic criteria: interest, hurdle rate, time value of money, selection, ranking criteria • Risk, uncertainty: types of risk, mathematical techniques, probabilistic models, uncertainty in economic analysis • Tips on economic factors in computer spreadsheet analysis • Ethics in economic analyses

2016 Schedule and Tuition / 3 Days

CALGARY, CANADA	11-13 APR	US$2925+GST
DENVER, US	8-10 AUG	US$2955
HOUSTON, US	1-3 FEB	US$2955
	2-4 MAY	US$2955
	11-13 JUL	US$2955
	10-12 OCT	US$2955
KUALA LUMPUR, MY	15-17 AUG	US$3550
LONDON, UK	6-8 JUN	US$3430+VAT
	12-14 SEP	US$3430+VAT
SAN FRANCISCO, US	14-16 NOV	US$2925

Team Leadership – TLS

FOUNDATION

This program will develop and refine the skills essential for leading a high performance team. Emphasis is placed on the leader's role in effectively enhancing total team functionality and maximum team productivity. Individual communication styles will be assessed and examined to identify the most appropriate communication style to use with your team. This will be an active experience. In addition to receiving individual assessment information, participants will be exposed to team concepts, theories, and skill development through the use of lectures, videos, readings, role plays, case studies, and discussions. This course has been constructed to maximize opportunity to improve both knowledge and practical skills in leading a team and being a team player. (This is a great course to attend immediately following PetroSkills' course titled: Leading and Managing Others.) In addition to this program designed specifically for Team Leaders, PetroSkills has a two day course titled: Team Building for Intact teams.

DESIGNED FOR

Team leaders, supervisors, managers, and others responsible for leading a team and interested in establishing and/or being a part of a highly productive team.

YOU WILL LEARN HOW TO

- Characterize high performance teams
- Gain clarity of goal and worthiness
- Develop a team charter
- Gain commitment
- Build team collaboration and trust
- Establish operational norms
- Recognize stages of team development
- Define team roles and relationships
- Understand system influences
- Promote conditions for effective team building
- Conduct individual and team assessments
- Improve team communications
- Improve group dynamics
- Develop personal plans to improve team effectiveness
- Foster team leadership
- Monitor team progress

COURSE CONTENT

Definition and purpose of teams • Characteristics of a high performance team • Gaining clarity of goal and worthiness • Developing a team charter • Gaining commitment • Team collaboration and trust • Establishing operational norms • Stages of team development • Team roles and relationships • System influences • Conditions for effective team building • Individual and team assessments • Team communications • Group dynamics • Developing a personal team leadership plan • Monitoring team progress • Developing a team leadership action plan

See website for dates and locations.

Petroleum Project Management: Principles and Practices – PPM

INTERMEDIATE

Running a successful petroleum operation requires a blend of technology, business savvy, and people skills. If you already have a firm grasp of exploration or production technology, learn to amplify its effectiveness with applied project management techniques. This course is aimed at helping technical personnel make the best business decisions that lead to lowest project cost while still meeting all production or exploration goals. Petroleum Project Management covers the principles and application of project management to the upstream oil and gas business. Participants may choose a case study from a number of real-life exploration, production, facilities, and general management situations, or they may bring the details of one of their own current projects. Because of this experience with practical situations, participants can use these project management principles their first day back on the job.

DESIGNED FOR

Exploration, production, and management personnel interested in applying project management techniques to their operations. If you are a facilities engineer, we refer you to our Project Management for Engineering and Construction (FPM22) and Project Management for Upstream Field Development (FPM2) courses.

YOU WILL LEARN HOW TO

- Properly define a project's scope
- Use project management tools to create a project schedule to meet goals, deliverables, and resource constraints
- Use practical tools to identify and manage a project's risks
- Manage a project team
- Organize your project to capture lessons learned

COURSE CONTENT

The project management process • Scope definition • Scheduling tools • Manpower resources • Project risk management • Learning, continuous improvement, and quality management in projects • Project team management • Case studies and exercises

2016 Schedule and Tuition / 5 Days

HOUSTON, US	7-11 NOV	US$4140*
KUALA LUMPUR, MY	3-7 OCT	US$4935*

**plus computer charge*

Basics of Environment – HS13

BASIC

Provide proof of your environmental credentials anywhere in the world with the NEBOSH Certificate in Environmental Management. Our program starts in advance of the taught course, as participants undertake a review of their own site's environmental performance using documentation supplied to them. This review sets the context for this five day class, which comprises a blended learning approach with tutorials, workshops, problem-solving and practical activities. At the end of the course, there is a formal examination and project, successful completion of which results in the award of the NEBOSH Certificate in Environmental Management.

DESIGNED FOR

Managers, supervisors, and employees throughout the world who have responsibility for managing environment issues as part of their day to day duties. This course is particularly suitable for entry level HSE professionals, as the NEBOSH Certificate in Environmental Management is the first step in a career in environmental management.

YOU WILL LEARN

- Environmental management, and what this means for your organization
- Ethical, legal, and financial reasons for maintaining and promoting environmental management
- The importance of sustainability
- Principles and sources of environmental information
- The purpose and importance of setting environmental policy
- Key features and content of an effective environmental management system (EMS) such as ISO 14001
- Active (leading) and reactive (lagging) monitoring, including inspections and investigations of environmental incidents
- Environmental impact assessments (EIA)
- Emissions to atmosphere and abatement measures
- Water pollution and methods to avoid contamination of water resources
- The importance of and techniques for minimizing waste
- Risks associated with contaminated land
- Energy efficiency
- Potential sources and consequence of environmental noise and nuisance
- Emergency preparedness and response
- Environmental auditing, and reporting the results to management
- NEBOSH examination and project (optional).

COURSE CONTENT

Foundations in environmental management • Environmental management systems • Assessment of environmental impacts • Control of emissions to air • Control of contamination of water resources • Solid waste and land use • Sources and use of energy and energy efficiency • Control of environmental noise • Planning for and dealing with environmental emergencies • NEBOSH Examination and Project

nebosh Accredited Centre 490

2016 Schedule and Tuition / 5 Days

LONDON, UK	6-10 JUN	US$4770+VAT

Basics of HSE Management – HS18

BASIC

Recognition and effective management of HSE risks/impacts is a fundamental requirement of companies operating in our sector.

This course provides participants with the underpinning knowledge on how to specify and implement an effective HSE management system at the technical level. The course is based upon a common HSE management system which explains the elements and their interaction.

A variety of exercises and case studies based on our Petros on- and off-shore case studies, as well as readings and videos will be used to develop understanding and practice the skills.

The course is designed for the oil, gas and petrochemicals industries around the PetroSkills competence maps for HSE Management at the "Awareness" level.

This class can be taken alone, or together with our Basics of Safety (HS10). It provides the underpinning knowledge for participants seeking a career first-step qualification - the NEBOSH International General Certificate in Occupational Health and Safety (IGC).

For holders of the NGC gained within the last five years, this class provides for conversion to the IGC (upon request).

DESIGNED FOR

All workers requiring basic awareness and/or a qualification in HSE management. These may include field/operations staff, office workers, engineers, supervisors, project managers, and aspiring HSE professionals.

It is ideal for anyone with no prior HSE management knowledge.

YOU WILL LEARN

- The principle elements of an HSE management system, and how these interact to promote performance improvement
- How to use ISO 14001, OHSAS 18001/ISO 45001, HSG65, and ILO OSH-2001
- Key tools for assessing risks, risk control, and active/reactive monitoring
- The roles and responsibilities of individuals within the management system and how these can affect the safety culture of the organization
- Examination techniques for the NEBOSH IGC1 exam (if required)

COURSE CONTENT

Leadership, policy, objectives • Responsibilities, resources and competence • Risk assessment and control • Planning, safe systems of work • Contractor controls • Emergency preparedness and response • Incident reporting and investigation • Inspections and audits • Management review

2016 Schedule and Tuition / 5 Days

LONDON, UK	14-18 MAR	US$4570+VAT
	12-16 SEP	US$4570+VAT

Applied Safety – HS20

FOUNDATION

This course teaches participants about a selection of advanced safety tools and facilitates practice use of these in a case study setting.

During just five days, we learn about safety techniques for the oil, gas, and petrochemicals industries including the HSE case, Bowtie, JHA/JSA, HAZOP, fault, and event tree analysis.

We use a rich blend of exercises, problem-solving, videos, and case studies to support the learning in realistic situations. These come together to challenge participants in our case study scenario Petros Barola – see www.petrosbarola.com.

The class concludes with participants defending the company before the HSE regulator explaining why the company should retain its operating license following a serious incident.

The course content is built around the PetroSkills competence maps at the Fundamental Application level. It may be taken either independently or in conjunction with other Foundation level courses - Applied HSE Management, Applied Health, and/or Applied Environment.

This course also provides practical learning for participants seeking professional accreditation through our Accredited H&S Practitioner program (to CMIOSH) – HS70.

DESIGNED FOR

HSE specialists as well as operations engineers, supervisors and project managers, and other staff with responsibility for designing, implementing, or supporting safety techniques in their respective positions.

Some prior knowledge of safety science is desirable but not essential.

YOU WILL LEARN HOW TO

- Design and use a common set of safety techniques (as listed above)
- Apply factors relating to people, equipment, materials, and the working environment to the establishment of safe working environments
- Identify common asset safety hazards and design and implement systems to control and subsequently monitor these
- Conduct a fire risk assessment for their own facility
- Implement a motor vehicle safety program

COURSE CONTENT

Safety techniques for hazard and effect management • Safety culture and maturity; errors and violations, Stroop test • Creating safe work environments – hard and soft controls • Chemical handling / HAZCOM / product stewardship • Fire safety • Electrical safety • Confined space safety • Lockout and tagout (LOTO) • Logistics and motor vehicle safety • Measuring and improving safety performance

2016 Schedule and Tuition / 5 Days

HOUSTON, US	31 OCT-4 NOV	US$4040
LONDON, UK	22-26 FEB	US$4670+VAT

Applied Environment – HS23

FOUNDATION

This course provides hands-on opportunities to learn and apply tools, techniques, and systems of environmental management in oil, gas, and petrochemicals industries. Participants work as a member of a team to develop and improve the environmental management system (EMS) and environmental performance of company Petros, a fictitious but highly-realistic case study. Application of the learned techniques is practiced at the upstream Caspian Explorer platform and the downstream Orkney Depot.

Well-blended exercises, problem-solving, and scenarios are used to practice the application of learning in authentic situations. The course is designed to introduce participants to solutions to environmental challenges and to become an agent for change in their own organization.

The course follows-on from HS13, and is recommended for those developing a career in environmental management and/or planning to progress towards Full or Associate membership of the Institute of Environmental Management and Assessment (IEMA) using our Accredited Environmental Practitioner program (HS71).

DESIGNED FOR

Environmental professionals, H&S practitioners wishing to broaden their skills, operational managers, engineers, supervisors, project managers, and other staff who have delegated responsibilities for implementing environmental improvement(s).

YOU WILL LEARN HOW TO

- Apply environmental management systems and environmental controls which bring enhanced legal, financial, and reputational improvement
- Communicate effectively with management and staff at all levels of the organization on environmental improvement
- Incorporate EMS into strategic plans, operational activities, products, and services
- Identify environmental aspects, and how to assess the environmental impacts of activities, products, and services in normal, abnormal, and emergency situations
- Use an EMS to confirm legal compliance
- Plan and implement improvements in environmental performance
- Develop monitoring procedures and environmental performance indicators
- Develop and implement an environmental audit program
- Engage in environmental reporting, including use of recognized methods and formats for presenting reports internally and externally

COURSE CONTENT

Effective use of an EMS • Identifying aspects and assessing impacts • Environmental improvement programs, including pollution abatement and control techniques • Emergency preparedness and response • Environmental communication • Environmental performance monitoring • Environmental auditing and reporting • Management review

2016 Schedule and Tuition / 5 Days

HOUSTON, US	10-14 OCT	US$4040
LONDON, UK	11-15 APR	US$4670+VAT

Applied HSE Management – HS28

FOUNDATION

In just five days, learn how to develop and use an HSE management system to drive improvement and learning into your organization!

This course is about understanding and applying common HSE management systems in oil, gas and petrochemical industries. It includes a rich blend of knowledge development sessions, individual and team exercises, problem-solving, and sector case studies. These come together to challenge participants in a realistic but fictional case study facility, Petros Barola Limited – see www.petrosbarola.com

The course may be taken either independently or in conjunction with our Applied Safety, Applied Health, and/or Applied Environment courses.

This course also provides practical learning for participants seeking professional accreditation through our Accredited H&S Practitioner (to CMIOSH) or Accredited Environmental Practitioner programs (to MIEMA and CEnv) – HS70 and HS71 respectively.

DESIGNED FOR

Functional specialists seeking to improve their knowledge and application of HSE management systems, including operations supervisors, engineers, contract managers, project managers, and all staff who have the responsibility for designing, implementing, or supporting HSE management.

Some prior knowledge of HSE management related topics is desirable but not essential.

YOU WILL LEARN HOW TO

- Successfully apply the principle elements of an HSE management system aligned to the international standards ISO 14001 (environment) and OHSAS 18001 / ISO 45001 (occupational health and safety), and how to relate these to company management systems
- Explain responsibilities for HSE management and the characteristics of successful leadership and management styles
- Use key tools associated with HSE management including HazID, risk assessment, JHA, JSA, PTW, LOTO, and active (leading) and reactive (lagging) monitoring
- Shape and initiate improvement in the safety culture of their own organizations

COURSE CONTENT

Leadership and commitment • HSE policy and strategic objectives • Legislation and regulation • Organization, responsibilities, and resources • Professional training and behaviors • Risk assessment and hierarchy of control • Planning and procedures • Contractor controls • Security • Emergency preparedness and response • Performance management • Incident reporting and investigation • Auditing • Management review and improvement

2016 Schedule and Tuition / 5 Days

DUBAI, UAE	31 JUL-4 AUG	US$5090
HOUSTON, US	7-11 MAR	US$4040
KUALA LUMPUR, MY	25-29 JUL	US$4835
LONDON, UK	10-14 OCT	US$4670+VAT

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Geophysics
Petrophysics
Reservoir Engineering
Well Construction/Drilling
Production & Completions Engineering
Unconventional Resources
Integrated - Heavy Oil
Petroleum Data Management

Facilities

Gas Processing
Process Facilities
Water & Corrosion
Offshore
Pipeline
Instrumentation, Controls, & Electrical
Mechanical
Reliability Engineering
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Refining

Operations & Maintenance

Health, Safety, Environment

Petroleum Business and Professional Development

Petroleum Professional Development
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- ✓ **Reduced time to competency**
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- ✓ **Flexibility—less time away from work**
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