NEW in 2019

- New Alliance member ONEOK (pg 2)
- Construction Management for the Project Professional (pg 32)
- Management Systems Lead Auditor with IIRSM approval (pg 25)
- Oil Well Pad Facilities (For Facilities Engineers) (pg 8)
- Oil Well Pad Facilities (For Non-Facilities Engineers) (pg 10)
- Petroleum Project and Program Management Essentials (pg 30)
- Petroleum Project Changes and Claims Workshop (pg 32)
- More Virtual/Blended Learning Options Through PetroAcademy, including:
  - Basics of Rotating Mechanical Equipment (pg 14)
  - Basics of Static Mechanical Equipment (pg 14)
A competent workforce has always been critical for our industry’s success, but it is even more important with challenging product prices. Doing more with less is how we can thrive in hard times, but that requires a very competent workforce.

This guide presents the industry’s most comprehensive workforce development programs — focused on building competent people. PetroSkills brings together industry-driven and industry-approved programs that deliver flexible, practical, fit-for-purpose training and development. This guide can help you find ways to advance your technical competence and build your company’s value.

Since the first offerings of Production Operations 1 and the Campbell Gas Course® over 52 years ago, PetroSkills instructor-led training programs have set the standard for excellence from subsurface to downstream. This guide presents hundreds of sessions offered worldwide by top industry experts in each technical discipline across the value chain. Our competency-based programs are designed and delivered under the direction of the PetroSkills Alliance which includes some of the top petroleum companies worldwide, working together, to offer an industry-driven and vetted set of courses, products and services.

NEW courses to look for in this edition include:

- Applied Environmental Management Systems (AEM) - page 25
- Construction Management for the Project Professional (FPM64) - page 32
- Management Systems Lead Auditor (AUD) - page 25
- Managing Non-Technical Risks (MNTR) - page 26
- Oil Well Pad Facilities (For Facilities Engineers) (OWPF-FE) - page 8
- Oil Well Pad Facilities (For Non-Facilities Engineers) (OWPF-NFE) - page 10
- Petroleum Project Changes and Claims Workshop (PPCC) - page 32

In addition to our instructor-led programs, our digital learning solutions and professional services continue to lead the industry. This guide outlines our electronic solutions ePilot™, ePetro™, ActiveLearner®, Compass® and PetroCore® - see page 3 for more details.

We are also proud to announce the expansion of our blended/virtual learning program, PetroAcademy™. This unique course model delivers the same competency development as our face-to-face courses via virtually delivered Skill Modules™, available from anywhere in the world.

The following blended/virtual courses are available now, and we will be adding more throughout 2019.

- Basic Petroleum Technology Principles - page 36
- Basics of Rotating Mechanical Equipment - page 14
- Basics of Static Mechanical Equipment - page 14
- Gas Conditioning and Processing Principles – page 6
- Process Safety Engineering – page 9
- Production Operations 1 – page 18
- Production Technology for Other Disciplines – page 18

For more information, see the back cover, or petroskills.com/blended.

I hope you find this guide useful. If there is any way that we can help you, your team, or your organization, please don’t hesitate to contact me personally at ford.brett@petroskills.com, or contact our Customer Service Department at +1.918.828.2500.

4 Course Progression Map

GAS PROCESSING
6 Gas Conditioning and Processing (Campbell Gas Course®) – G4
6 Gas Conditioning and Processing Principles - G3 (Virtual/Blended course)
7 Gas Treating and Sulfur Recovery – G6
7 LNG Short Course: Technology and the LNG Chain – G29
7 Overview of Gas Processing – G2
7 Practical Computer Simulation Applications in Gas Processing – G5

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8 Choosing the Right Facilities Equipment for the Reservoir – PF3
10 Fundamental and Practical Aspects of Produced Water Treating – PF23
9 Fundamentals of Process Safety - PS2
8 Introduction to Oil and Gas Production Facilities – PF2
8 Oil Production and Processing Facilities – PF4
8 Oil Well Pad Facilities (For Facilities Engineers) – OWPF-FE
10 Oil Well Facilities (For Non-Facilities Engineers) – OWPF-NFE
11 Offshore Gas Gathering Systems: Design and Operations – PF45
9 Process Safety Engineering – PS4
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11 Relief and Flare Systems – PF44
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**Mission:** Build competent petroleum professionals by delivering learning and development when, where, and how customers need it.

**OBJECTIVES:**

- Provide the highest quality, business relevant programs that span all technical processes, and give management assurance they have the skilled people needed to maximize asset value
- Offer added value to employees via new, broad-reaching courses that fill gaps, deliver the ability to perform, and provide the assurance to prove it
- Ensure PetroSkills instructors are the best available
- Develop and continuously improve PetroSkills Competency Maps and progression trees; continue to align Competency Maps with corporate business goals
- Lower internal training costs by reducing administrative burdens, improving economies of scale, and/or eliminating marginal courses
- Increase the availability of courses in both the number of offerings and the number of delivery locations, thereby delivering competencies at the lowest total cost

For more information on membership, go to petroskills.com/membership
How do you meet the challenges of competency development?

PetroSkills Solutions

**PetroAcademy™**
Blended Learning Skill Modules. Integrating live classroom activities, online learning and technical coaching.

**Competency Maps**
Industry Benchmarks. Developed with industry-leading Alliance members.

**ePilot™ and ePetro™**
e-Learning. Online learning libraries deliver effective training anytime, anywhere.

**ActiveLearner™**
Learning and Compliance Management System. Online, on-the-job access to learning programs, progress tracking, and curriculum development.

**Compass**
Competency Management. Web-based software that builds, manages, and assures competency.

**PetroCore™**
Technical Reference. Online, on-demand access to technical knowledge, documents, and articles.

petroskills.com/solutions
## Facilities Course Progression Map

### Oil and Gas Processing

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<th>Oil / Water</th>
<th>General Processing</th>
<th>Process Safety</th>
<th>Instrumentation, Controls &amp; Electrical</th>
<th>Offshore &amp; Subsea</th>
<th>Pipeline Engineering</th>
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- Onshore Gas Gathering Systems: Design & Operation – PF45 p.11
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### Foundation

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  - Inside Procurement in Oil & Gas – SPP1 p.29

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- **Petroleum Business** p. 25-28
- **Professional Petroleum Development** p. 34-35
- **Multi-Discipline Training** p. 36
Gas Conditioning and Processing – G4
The Campbell Gas Course®

FOUNDATION 10-Day

The Campbell Gas Course® has been the standard of the industry for more than 52 years. Tens of thousands of engineers have attended our G4 program, considered by many to be the most practical and comprehensive course in the oil and gas industry. The Campbell Gas Course® textbooks, Volumes 1 and 2, are routinely updated to reflect evolving technologies in this broad industry.

Both hand-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.

DEIGNED 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 HOW TO
• 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
• Compressors and drivers
• Refrigeration in gas conditioning and NGL extraction facilities
• Fractionation
• Glycol dehydration; TEG
• Adsorption dehydration and hydrocarbon removal
• Gas heating and sulfur recovery
• Overview and summary

BLENDED LEARNING
This course will be delivered virtually through PetroAcademy providing participants with the knowledge they need at their convenience.

The Campbell Gas Course® has been the industry standard for more than 52 years and the core competencies of the Campbell Gas Course are now available in self-paced online Skill Modules™. These competencies set the base knowledge that is required for a successful career as an entry-level facilities engineer, seasoned operator, and/or field supervisor. These modules provide an understanding of common terminology, hydrocarbons and their physical properties, qualitative and quantitative phase behavior, hydrates, and fluid flow. In addition, they provide a systematic approach to understanding the common types of equipment, and the primary unit operations in both offshore and onshore gas conditioning and processing facilities. Each module ranges from 3 – 5 hours of self-paced activities, with pre and post assessments. In addition, the modules have interactive exercises and problems to solve on the various topics.

DEIGNED 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.

SKILL MODULES
• Hydrocarbon Components and Physical Properties
• Introduction to Production and Gas Processing Facilities
• Qualitative Phase Behavior and Vapor Liquid Equilibrium
• Water/Hydrocarbon Phase Behavior
• Thermodynamics and Application of Energy Balances
• Fluid Flow
• Relief and Flare Systems
• Separation
• Heat Transfer Equipment Overview
• Pumps and Compressors Overview
• Refrigeration, NGL Extraction, and Fractionation
• Contaminant Removal - Gas Dehydration
• Contaminant Removal - Acid Gas and Mercury Removal

Self-paced, virtual course – start anytime.
Tuition US$4325

FOR MORE INFORMATION, VISIT PETROSKILLS.COM/G3ONLINE

Gas Conditioning and Processing – LNG
Emphasis – G4 LNG

FOUNDATION 10-DAY

This is the LNG-industry version of our popular G4 course, with expanded coverage of refrigeration and LNG technologies. The course includes in-depth information on basic natural gas conditioning and processing. This is mainly the core G4 Campbell Gas Course® curriculum in an LNG context with the expanded refrigeration coverage. The course covers relevant details of both the mixed refrigerant (APCO) and cascade (Conocochillipips) processes in LNG liquefaction. Other liquefaction processes are discussed including Mixed Fluid Cascade Process, Dual Mixed Refrigerant Process, and Nitrogen (single or dual) Cycles being developed for FLNG projects. This is followed by higher level coverage of the LNG value chain consisting of a gas liquefaction section; LNG run down to LNG storage; loading berth for LNG export; LNG shipping; and LNG receiving and regasification terminals. Versions of this course have been taught in many of the world’s base-load and peak-shaving LNG plants, such as in Australia, Indonesia, Malaysia, Norway, Qatar, UK, and West Indies.

Clients are invited to evaluate the curriculum for LNG Short Course: Technology and the LNG Chain (G29). The G29 course has more coverage on LNG technology and the LNG value-chain and does not contain the same materials as The Campbell Gas Course® (G4).

DEIGNED FOR
Personnel involved with natural gas processing and LNG production, as well as anyone interested in a solid technical understanding of the principles of an LNG plant.

YOU WILL LEARN
• The basics of LNG gas conditioning and processing
• Selection and evaluation processes used to dehydrate natural gas, remove heavy components and other contaminants, and extract NGLs for LNG plants
• Physical/thermodynamic property correlations and principles, including heating values, etc., as applied to gas processing facilities and LNG plants
• Fundamentals of propane, propane-precoced, mixed refrigerants, and cascade systems used in LNG plants
• Key points in other LNG liquefaction technologies
• How to perform and review equipment sizing for major process equipment
• Solutions to operating problems and control issues in LNG and gas processing facilities

COURSE CONTENT
Basic gas technology principles • Terminology and nomenclature • Physical properties of hydrocarbons • Qualitative phase behavior • Vapor-liquid equilibrium • Water-hydrocarbon system behavior, hydrates, etc. • Thermodynamics of LNG processes • Separation equipment • Gas treatment, CO₂, and H₂S removal • Dehydration of natural gas (TEG and Molecular Sieve) • Heat transfer and exchangers • Pumps and compressors • Refrigeration systems • LNG liquefaction technologies • Fractionation • and more...

2019 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
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<td>ABERDEEN, UK</td>
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2019 Schedule and Tuition (USD)

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FOR MORE INFORMATION, VISIT PETROSKILLS.COM/G4ONLINE
Overview of Gas Processing – G2

G2 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.

**BASIC 3-DAY**

**DEIGNED FOR**

As a wide ranging overview, it is suitable for interested parties, such as geologists, reservoir engineers, line managers, and sales of 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
- Summary of gas processing costs, and commercial and contract issues in liquids extraction
- How gas is transported and sold
- Overview of the common equipment used in the oil and gas industry, including heat exchangers, pumps, and compressors
- Options for various basic gas conditioning and processing steps, including acid gas removal, dehydration, liquid extraction, product fractionation, LNG overview, pipelines, sulfur recovery, and acid gas injection

**COURSE CONTENT**

Natural gas and world energy trends • Hydrocarbon components and physical properties • The role of gas processing in the natural gas value chain • Heat transfer equipment • Pumps and compressors • Acid gas removal • Gas dehydration • NGL extraction • Fractionation and stabilization • LNG • Pipelines and storage • Sulfur recovery and acid gas injection

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LNG Short Course: Technology and the LNG Chain – G29

**BASIC 5-DAY**

This LNG Short Course is designed for participants requiring moderate technical coverage, coupled with information on LNG commerce and all parts of the LNG Value Chain. Over 5-days, the course covers technical LNG basics and facility operation topics, plus technical, design, and commercial issues. Selected exercises and syndicates are used to reinforce the main topics of LNG trade and technology. In-house versions are available with either increased technical and operational emphasis or increased project and development emphasis. More in-depth coverage for technical, production, and processing personnel is available in our 10-day course, G4 LNG, Gas Conditioning and Processing - LNG emphasis.

**DEIGNED FOR**

Commercial and managerial staff looking for a concise overview; engineers new to the LNG industry; operations supervision staff and senior plant personnel; specialists looking to broaden their general knowledge of LNG; and staff involved in LNG commerce and interested in LNG technical fundamentals.

**YOU WILL LEARN**

- What is LNG, why it is produced, and what is the current status of the industry
- LNG facilities world-wide
- The LNG chain and impact of contractual issues on LNG plant design and operation; LNG calculating
- A survey of commercial and contractual issues
- Project costs, feasibility, development, and issues
- Some technical fundamentals of gas processing, such as molecular weight, heating value, Wobbe Index, vapor pressure, multi-component mixtures, thermodynamics
- Refrigeration: single and multi-component refrigeration cycles
- Technologies used in the production of LNG for base-load and small scale production, issues relating to technology selection, and operation
- Equipment used in the production of LNG: heat exchangers, compressors and drivers used for LNG, pumps, and turbo expanders
- To apply knowledge of LNG gas pretreatment, drying, and refrigeration
- About LNG storage, shipping, and terminals, sizing basis, and small scale tanks
- Types of LNG carriers, marine management issues, and LNG transfer
- LNG importing, regasification of LNG and distribution to consumers, basis for sizing, technology selection, and energy integration
- New developments: development of offshore LNG operations to regasification and liquefaction; coal seam gas project issues
- Site selection and HSSE considerations

**COURSE CONTENT**

What LNG is and where it comes from • Physical properties of LNG • Vapor-liquid equilibrium behavior of LNG and refrigerants • Gas pre-treatment • Heat exchangers • Refrigeration • Rotating machinery • Liquefaction processes • LNG storage • LNG shipping • LNG importing

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Practical Computer Simulation Applications in Gas Processing – G5

**INTERMEDIATE 5-DAY**

This full 5-day course covers sweet gas processing and NGL extraction, using a commercial simulator to perform calculations. A basic working knowledge of the commercial process simulation package used (generally UNISIM) is suggested to achieve the course learning objectives. Volumes 1 and 2 of the John M. Campbell textbooks, Gas Conditioning and Processing, are the basis for the material presented, coupled with a ‘red thread’ comprehensive exercise based on a typical gas processing facility (can be applied to onshore or offshore facilities). The exercise is developed in stages as the material is covered. Participants will develop a comprehensive process simulation that includes a dew point control process, a mechanical refrigeration process with economizers, heat inhibition using MEG, and NGL liquid product stabilization with recycle.

**NOTE:** The individual exercises include condensed gas processing fundamentals drawn from the internationally famous Campbell Gas Course textbooks Volumes 1 & 2.

**DEIGNED FOR**

Engineers that require practical in-depth training on natural gas processing and NGL recovery processes, with emphasis on the use and benefits of a simulation package.

**YOU WILL LEARN**

- To develop the optimal water content and hydrate formation conditions for gas streams using both a commercial process simulator and hand calculation methods
- To optimize NGL recovery using both a commercial process simulator and hand calculation methods
- Process design control to use the hydrocarbon dew point of sales gas streams by removing NGLs using mechanical refrigeration processes
- Various techniques to optimize mechanical refrigeration systems
- How to use the process simulator to evaluate the impact that pressure and temperature changes have on the sizing of process equipment and levels of NGL recovery
- How to use short-cut distillation calculations to provide input to rigorous distillation simulation in order to obtain faster convergence
- Which thermodynamic property correlations are appropriate for various gas processing systems
- Limitations associated with commercial simulation packages and how the results can be quickly checked for relative accuracy

**COURSE CONTENT**

Physical properties of hydrocarbons • Qualitative phase behavior • Vapor-liquid equilibrium • Water-hydrocarbon equilibrium • Basic thermodynamic concepts • Separation equipment • Heat transfer • Pumps • Compressors • and more...

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Gas Treating and Sulfur Recovery – G6

**INTERMEDIATE 5-DAY**

This course emphasizes process selection, practical operating issues, technical fundamentals, and integration of the sweetening facilities into the overall scheme of gas processing. Sulfur recovery and tail gas processes are also covered, including standard Claus configurations, SuperClaus, EuroClaus, SCOT, etc. Special design and operation topics, such as trace sulfur compound handling and the importance of H2S:CO2 ratios, are covered as well. Related topics reviewed during the course include liquid product treating, corrosion, materials selection, and NACE requirements.

**DEIGNED FOR**

Production and processing personnel involved with natural gas treating and sulfur recovery, requiring an understanding of the principles of these processes operating. This course is for facilities engineers, process engineers, operations personnel, and field supervisors, as well as others who select, design, install, evaluate, or operate gas sweetening and sulfur recovery facilities.

**YOU WILL LEARN**

- Evaluation and selection of processes to remove acid gases (H2S, CO2, COS, CS2, mercaptans, etc.) from gas and NGLs
- The advantages and disadvantages of available gas treating technology and processes
- How to estimate solvent circulation rates, equipment requirements, and equipment sizes
- To recognize and evaluate solutions to common operating and technical problems
- Sulfur recovery technologies, including an overview of the Claus Sulfur process
- How to select among the proper sulfur recovery process given differing process conditions
- Tail gas cleanup

**COURSE CONTENT**

Fundamentals of sour gas processing, sweetening, etc. • Overview of gas treating and sulfur recovery, terminology • Gas specifications and process selection criteria • Generic and specialty amine treating • Common operating and technical problems • Proprietary amine solvents, such as Sulfinol and Flexsorb • Carbonate processes • Physical absorption processes, e.g. Gelsol • Metallurgical issues (corrosion) • Other technologies and new developments • Selective treating, acid gas enrichment • Solid bed and non-regenerable treating; scavengers • Liquid product treating • Sulfur recovery processes (including degassing) • Tail gas clean-up (SCOT, SCS, and others) • Acid gas injection • Membranes • Emerging and new technologies • Course workshop and summary

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**2019 Schedule and Tuition (USD)**

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**2019 Schedule and Tuition (USD)**

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Choosing the Right Facilities Equipment for the Reservoir – PF3

BASIC 5-DAY

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 equipment
• 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 treatment 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

Oil Well Pad Facilities (For Non-Facilities Engineers) – OWPF-NFE

BASIC 4-DAY

This course provides a comprehensive overview of onshore oil well pad facilities as typically utilized for the development of shale/tight oil fields. The course is focused on the purpose, function, and operation of the facilities - what, why, how - on the more detailed engineering aspects which are covered in a companion course OWPF-FE (for Facilities Engineers). A major aspect of the non-Facilities Engineers course is how the pad facilities integrate with the wells/subsurface and also the product (oil, gas, produced water) outlet systems. This course does not contain many calculations; instead the intent is to generate discussion and better understanding of the issues involved with design, operation and maintenance of the pad facilities and their role in providing value to the development as a whole.

DESIGNED FOR

This course is aimed primarily at non-Facilities Engineers, e.g. production/reservoir engineers, operations personnel, environmental staff, etc, or anyone who needs a basic understanding of oil well pad facilities - what they do and how they work.

YOU WILL LEARN

• The different types of process flow schemes typically used for oil well pad facilities
• The various types of engineering drawings used to describe facilities and how to interpret them
• How well production characteristics/ performance should be integrated into the facilities design
• The range of fluid compositions and properties typically encountered in the newer shale/tight oil developments and their impact on facilities design and operation
• The main processing requirements and associated equipment types typically required
• How the various processes and equipment types work together and how they affect facility design
• Effects of third party gas gathering system design and operation on the well pad facilities

COURSE CONTENT

Engineering drawings • Oil well pad process flow diagrams • Well production characteristics • Fluid compositions and properties • Separation equipment • Oil treating • Oil stabilization • Storage tanks and vapor recovery • Facility piping systems • Compressors • Sand handling • Produced water handling • Flow measurement

2019 Schedule and Tuition (USD)

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See website for dates and locations. See website for dates and locations.

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Process Safety Engineering Principles – PSE

BLENDED LEARNING

This course will be delivered virtually through PetroAcademy providing participants with the knowledge they need at their convenience.

COURSE CONTENT

Process Safety Risk Analysis and Inherently Safer Design • Process Hazards Analysis and Layers of Protection analysis techniques • Leakage and dispersion of hydrocarbons • Combustion behavior of hydrocarbons • Sources of ignition and hazardous area classification • Specific plant systems and equipment • Relief and flare systems • Historical incident databases, plant layout and equipment spacing • Fire protection systems • SIS, monitoring and control

YOU WILL LEARN

• How to analyze and assess different types of risk analyses
• How to utilize models that are associated with risk management
• The importance of building safety into processes
• How Inherently Safer Design can be applied and more...

Process Safety Engineering – PS4

This is a competency driven, fundamental course covering the broad scope of process safety engineering. Other topics relevant to process safety are introduced, showing how process safety engineering intertwines with risk management and process safety management, but the emphasis is on the technical content. While many of the examples are drawn from upstream and midstream oil and gas facilities, the principles are applicable across the hydrocarbon processing industries. The course is designed to accelerate the participants process safety learning curve. Serious process safety incidents occur somewhere in the industry nearly every week, and few if any are new; essentially the same ways of going wrong are found repeatedly, in different operating contexts. One of the main objectives of PS-4 is to develop knowledge of the more common ways of going wrong, and one of the ways of doing that is discussion of major incidents, including some of those that have affected our regulatory environment. PS-4 graduates should be able to see their facilities and projects with a new perspective, a new sense of not only how things work, but also of how things fail.

DESIGNED FOR

Anyone who needs to work with process safety engineers, this would include facilities engineers, operations and maintenance supervisors, project engineers and managers, entry level process safety engineers, experienced professionals new to oil and gas, and anyone who needs a general understanding of the breadth of the process safety engineering discipline. Technical staff from insurance companies and regulatory agencies have found the course useful. Those requiring a less technical course may be interested in PS-2, Fundamentals of Process Safety, and risk-based process safety management is the subject of HS45.

YOU WILL LEARN

• Types of equipment and process systems that have historically been problematic in the Upstream and Midstream oil and gas industry
• Basics of risk analysis
• Thinking in terms of Inherently Safer Design
• Most common process hazard analysis methods and where they are used
• Layers of Protection concept - what the different layers are and how they are applied
• Detection and mitigation methods for different types of hazards

COURSE CONTENT

Historical incidents and problem areas • Risk analysis basics • Process hazards analysis techniques - overview • Layers of protection • Inherently safer design • Hazards associated with process fluids • Leakage and dispersion of hydrocarbon releases • Combustion behavior of hydrocarbons • Sources of ignition • Hazards associated with specific plant systems • Plant layout and equipment spacing • Pressure relief and disposal systems and more...

Risk Based Process Safety Management – HS45

This course introduces process safety management in the oil and gas industry, the elements and benefits of process safety management systems, and tools for implementing and managing a system. In this course the participant will learn to use tools and techniques for managing process safety. The Center for Chemical Process Safety’s (CCPS) book titled “Guidelines for Risk Based Process Safety” or “RBPS Guidelines” will be the text for this course. Participant centered exercises and selected case studies will be used to build on the concepts that CCPS advocates for risk based process safety.

Throughout the course, participants will be challenged to think about how their process safety management system can be enhanced and modified to meet the concepts of risk-based decision making. An individual action plan will be developed to apply the information from the course to the workplace.

DESIGNED FOR

HSE professionals, operations and maintenance technicians, engineers, supervisors and project managers requiring a basic foundation in developing and managing process safety. The more technical aspects of process safety engineering are covered in PS4, Process Safety Engineering.

YOU WILL LEARN HOW TO

• Identify processes applicable to Process Safety Management (PSM) and describe relevant terms used
• Identify which standards are to be applied for managing process hazards
• Apply programs and tools for managing a PSM system
• Choose appropriate decision making methods and tools to identify process hazards
• Describe and use techniques available for control of hazards associated with process designs
• Describe the criteria and methods of selecting equipment and safeguarding controls
• Research and apply the performance parameters for the safety systems in operations
• Explain the role of all disciplines and their contribution to the management of potential HSE hazards

COURSE CONTENT

Process safety culture and competency • Compliance with standards • Understand hazards and risk • Operating procedures and safe work practices • Asset integrity and reliability • Management of change • Conduct of operations • Incident investigation (associated with plant failures) • Measurement and metrics • Management review and continuous improvement

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2019 Schedule and Tuition (USD)

DENVER, US
22-26 JUL $4320
30 SEP-4 OCT $4320
25-29 NOV $5035+VAT

HOUSTON, US
9-13 SEP $4435
21-25 OCT $5160+VAT
16-20 NOV $6475+VAT

PERTH, AUS
14-18 OCT $6475+VAT

2019 Schedule and Tuition (USD)

DUBAI, UAE
24-28 NOV $5900+VAT

LONDON, UK
29 JUL-2 AUG $5035+VAT

AHMADABAD, IND $540

DENVER, US
28 OCT-1 NOV $4320

DUBAI, UAE
6-10 OCT $5445+VAT

HOUSTON, US
8-12 APR $4320

LONDON, UK
Applied Water Technology in Oil and Gas Production – PF21

FOUNDATION 5-DAY

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 discharged/disposal and treatment principles • Produced water treatment 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

2019 Schedule and Tuition (USD)
HOUSTON, US 19-23 Aug | $4255
LONDON, UK 1-5 Apr | $5035 + VAT

Fundamental and Practical Aspects of Produced Water Treating – PF23

FOUNDATION 5-DAY

This course covers topics related to Produced Water Treatment in upstream oil and gas operations. 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 freshwater. 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. This course will provide participants with an understanding of the technical aspects required to select, design, maintain, and troubleshoot produced water equipment.

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 overhead disposal, for injection disposal, or for 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 treatment problems and how to diagnose and resolve them
• Typical PFDS used to illustrate operational issues

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, 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

2019 Schedule and Tuition (USD)
HOUSTON, US 26-30 Mar | $4255

Oil Well Pad Facilities (For Facilities Engineers) – OWPF-FE

FOUNDATION 5-DAY

This course is focused on onshore well-pad facilities that are typically used for the development of shale/tight oil fields. The course starts with the review of typical well-pad facility process flow diagrams (PFDs) and the considerations involved in selecting a suitable PFD for the given conditions. Variations on the different PFDs are evaluated and their applications, pros and cons discussed. The main equipment types utilized are reviewed with focus on selection and sizing. A key aspect of this course is understanding the interfaces between the producing wells, the well-pad facility, and the gas, oil and produced water export systems. Numerous exercises and calculations will be utilized throughout the course to develop solid understanding and competence level in the areas covered. This course offers the OWPF-NFE (Non-Facilities Engineers) course in that it is longer, goes into more detail in the subject areas, and is focused on facilities engineering aspects and calculations.

Note: This course has some overlap of content with PF-4 Oil Production & Processing Facilities which is a 10-day Intermediate level course.

2019 Schedule and Tuition (USD)
LONDON, US 12-16 Aug | $5135

Separation Equipment - Selection and Sizing – PF42

INTERMEDIATE 5-DAY

This course covers the different types of separation equipment typically encountered in oil and gas production facilities. Fractionation equipment and produced water treatment equipment are not covered in this course. You will learn where the different types of separation equipment are used based on operating conditions and separation performance requirements. Frequent references will be made to real production facility process flow diagrams (PFDs). Typical operational problems and their solutions will also be discussed. Exercises requiring calculations are utilized throughout the course as well.

Please be aware that due to overlap in content, it is not necessary to take the PF-42 course if you have already taken the PF-4 Oil Production and Processing Facilities course.

DESIGNED FOR
Process/Facilities engineers who need skills for design and troubleshooting of separators.

YOU WILL LEARN
• Different types of separation equipment utilized in the oil and gas industry and where they are used
• Separation performance capabilities of the different types of equipment
• How to size the different types of separation equipment
• How to troubleshoot and debottleneck separation equipment
• How to calculate the wall thickness and estimate the weight of separators
• Instrumentation and controls used on separation equipment

COURSE CONTENT
Fluid properties and phase behavior • Phase separation processes • Gas-liquid separation equipment: slug catchers, conventional separators (horizontal and vertical), scrubbers, compact separators, filter separators/coalescing filters • Separator internals: inlet devices, mist extractors, baffles, weirs, etc. • Emulsions • Oil-water separation equipment: conventional 3-phase separators and free-water knockouts, wash tanks • Oil treatment and desalting equipment: mainly electrostatic coalescers • Liquid-liquid coalescing filters • Mechanical design aspects: pressure vessel codes, wall thickness and vessel weight estimation, material selection, relief requirements • Operational problems

2019 Schedule and Tuition (USD)
HOUSTON, US 22-26 Jul | $4255
LONDON, UK 12-16 Aug | $5135

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### Relief and Flare Systems – PF44

**INTERMEDIATE 5-DAY REvised**

This intensive course provides a comprehensive overview of relief and flare systems for oil and gas processing facilities. The course begins with the need for pressure control/overpressure protection, continues with the key engineering and design aspects including code considerations, and concludes with selecting and sizing the components of a relief and flare system. The material of the course is applicable to onshore field production facilities, pipelines, gas plants, terminals, refineries, and offshore production facilities. The use of dynamic simulations for relief load determination is discussed and demonstrated.

**DESIGNED FOR**

Engineers responsible for designing, operating, and maintaining relief and flare systems in oil and gas facilities.

**YOU WILL LEARN**
- Codes and Standards used in relief systems
- Ways to mitigate relief, such as HIPPS
- How to define the possible relief scenarios and calculate their relief loads
- Commonly used pressure relieving devices, and how to size them
- How to calculate relief valve inlet losses
- How to relieve excess relief loads
- How to size relief valve outlet piping and flare headers
- How to calculate relief valve backpressure
- How to size flare kno drums
- How to calculate flare stack height based on radiation limits
- Flare gas recovery systems
- Flare ignition systems available
- Advantages of using dynamic simulation for calculating relief loads

**COURSE CONTENT**
Overview of typical relief and flare systems and key components • Codes and standards as well as good practices typical in oil and gas facilities • Safety implications and causes of overpressure • Overpressure protection philosophy including source isolation and relief • Determination of relief requirements and defining setpoint pressures • Types, applications, and sizing of common relief devices • Blowdown/depresurizing - purpose and design/operational considerations • Design and specification considerations for relief valves and header systems, including fluid characteristics, services conditions, material selection, and header sizing • Environmental considerations • Radiation calculations and the impact of flare tip design • Selection and sizing of key components: knockout and seal drums, vent/flare stack, vent/flare tips, and flare ignition systems • Defining need and quantity of purge gas • Flare gas recovery, smokeless flaring, and purge gas conservation • Operational and troubleshooting tips • The use of dynamic simulations to determine relief loads

### Onshore Gas Gathering Systems: Design and Operations – PF45

**INTERMEDIATE 5-DAY**

This course deals with the design, operation, and optimization of onshore gas gathering systems and their associated field facilities, from the wellhead to the central gas processing facility. From a design perspective, the main variables that impact the flexibility and operational characteristics of an onshore gas gathering system will be discussed. Typical operating problems are covered including hydrates, multiphase flow issues, corrosion, declining well deliverability, etc. Exercises will be utilized throughout the course to emphasize the key learning points.

**DESIGNED FOR**

Production and facilities department engineers/ senior operating personnel responsible for the design, operation and optimization of onshore gas gathering systems and their associated field facilities.

**YOU WILL LEARN**
- The impact of gathering system pressure on gas well deliverability
- The impact of produced fluids composition on gathering system design and operation
- How to evaluate field facility and gathering system configurations for different applications
- To recognize and develop solutions to operating problems with existing gathering systems

**COURSE CONTENT**
Gas well inflow performance and deliverability • Overview of gas well deliquification methods for low-rate, low pressure gas wells • Effect of gathering system/abandonment pressure on reserves recovery • Impact of produced fluids composition • Sweet/sour • CO2 content • Rich/Leyan • Produced water • Hydrates and hydrate prevention • Dehydration • Heating • Chemical inhibition • Multiphase flow basics • Corrosion/materials selection • Gathering system layout • Wellsite/field facilities options • Provisions for future compression

### Troubleshooting Oil and Gas Processing Facilities – PF49

**INTERMEDIATE 5-DAY**

This course will cover how to establish and apply a general troubleshooting methodology as well as how to conduct process/equipment specific troubleshooting. Definitions of good/normal performance will be discussed for each process/equipment type covered. Data gathering, validation and utilization procedures will be discussed. Criteria to use when evaluating possible problem solutions will also be covered. Real-world exercises will be utilized throughout the class to reinforce the learning objectives. Both onshore and offshore facilities will be discussed. It is assumed that course participants have a solid understanding of how typical oil and gas production and processing facilities work, including the commonly used processes and equipment involved.

**DESIGNED FOR**

Process/Facilities engineers with 5-10 years of experience, facilities engineering team leaders/supervisors, and senior facilities operational personnel.

**YOU WILL LEARN**
- The difference between troubleshooting, optimization, and debottlenecking
- How to recognize trouble when it is occurring
- How to develop a methodical approach to troubleshooting
- To recognize how different components of a facility interact with each other, and the significance of these interactions
- How to gather, validate, and utilize the data needed for troubleshooting
- The criteria to be considered for identifying the best solution when several feasible solutions are available
- Typical causes of problems, and their solutions, for the main types of processes and equipment used in the upstream/midstream oil and gas industry

**COURSE CONTENT**
Troubleshooting methodology fundamentals and data reconciliation • Gas - Liquid separators • Reciprocating compressors • Amine gas sweetening • Glycol dehydrator units • 3-phase separators • Centrifugal pumps • Oil treating • Produced water treating systems • Shell and tube heat exchangers • Centrifugal compressors • Molecular sieve dehydration units • NGL recovery processes

### CO2, Surface Facilities – PF81

**SPECIALIZED 4-DAY FIELD TRIP**

This course emphasizes the effect of carbon dioxide on the selection and operation of equipment (separators, compressors, and dehydrators), as well as sweetening process equipment. This program, first introduced in 1985, assists those working with carbon dioxide or high carbon dioxide content natural gas. This course is particularly applicable to those persons who operate and/or design enhanced oil recovery (EOR) facilities using CO2 as a miscible agent. Physical and thermodynamic property data for carbon dioxide/natural gas mixtures are discussed. Calculations are performed to illustrate principles and techniques. Midland is a four-day session including a CO2 plant tour on Thursday, contingent on plant availability.

**DESIGNED FOR**

Engineers and senior operating personnel involved with carbon dioxide/natural gas/CO2 EOR systems.

**YOU WILL LEARN**
- What to expect over the life of a CO2 EOR system
- Impact of CO2 on the design and operation of oil production equipment
- Physical and thermodynamic properties of pure CO2, and the impact of CO2 in hydrocarbon mixtures
- Dehydrate high CO2-content gases
- Best practices to deal with Dense Phase pipelines, metering, flaring etc.
- How to pump and compress CO2
- Using pipeline processes: membranes, Ryan-Holmes, amines, hot carbonate, etc.

**COURSE CONTENT**
Overview of CO2 injection and process facilities • Heavy emphasis on CO2 for enhanced oil recovery • Physical and thermodynamic properties of CO2, and high CO2 mixtures • Materials selection and design consideration in CO2 systems • Process vessel specification • Fluids and compressors • Fluid flow and special pipeline design considerations such as the control of dustline fractures • Dehydration of CO2 and CO2-rich gases • General overview of processes to treat/recover CO2

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Instrumentation, Controls and Electrical Systems for Facilities Engineers – ICE21

**FOUNDATION 5-DAY**

This foundation-level course provides an introduction and overview of electrical systems, instrumentation, process control, and control/safety systems typically encountered in oil and gas facilities. The focus is to understand terminology, concepts, typical equipment configurations, and common pitfalls in order to improve communication with electrical and I&C professionals. This course covers the following content to our E3 and IC3 courses, but at a more conceptual level. This course is not a prerequisite for taking E3 or IC3, but rather a replacement for those that are not able to take both E3 and IC3.

**DESIGNED FOR**
Process, chemical, and mechanical engineers, (i.e. non-instrumentation and non-electrical disciplines), as well as other technical and non-technical professionals with little or no background in I&C systems. Electrical and Instrumentation Engineers should consider E3 and IC3 for more in-depth coverage.

**YOU WILL LEARN**
- Fundamentals of electricity, such as voltage, current, resistance, power factor, and single/multi-phase power systems
- Electrical specifications, such as voltage selection, load lists, and power
- How to read one-line diagrams and understand the function of the components of power distribution, including transformers, switchgear, MCCs, VFDs, and power distribution
- The function and considerations of infrastructure components, such as cable, conduit, cable tray, and duct banks
- Awareness of the concepts behind classification of hazardous locations and equipment specifications
- Safety risks and mitigation strategies for power systems, including short circuit and overcurrent protection, ground faults, shock hazards, and arc flash

**COURSE CONTENT**
- Fundamentals of electricity • Control system fundamentals • Field measurement and control devices • Hazardous area classification for oil and gas applications • Programmable electronic systems (PLC, DCS, SIS, SCADA) • and more...

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<tr>
<th>2019 Schedule and Tuition (USD)</th>
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<tr>
<td><strong>HOUSTON, US</strong></td>
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<td>3-7 JUNE</td>
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**Electric Engineering Fundamentals for Facilities Engineers – E3

**FOUNDATION 5-DAY**

This course applies fundamental electrical engineering principles to oil and gas facilities. The course is designed for Facilities Engineers who interface with electrical systems, and provides practical insight and development of new Facilities Electrical Engineers. Through the use of individual and group problem solving, attendees will learn about field measurement devices, valves and actuators, documentation, programmable logic controllers, power supplies, PLC, SCADA, DCS, SIS, hazardous areas, and installation methods. This course is a more in-depth version of the content of ICE21 and ICE22. This course is not a prerequisite for taking this course.

**DESIGNED FOR**
Those facilities personnel who interface with facility electrical power systems, including project engineers, operation leads, instrumentation, controls personnel, and electrical engineers who are new to electrical power systems within oil and gas facilities.

**YOU WILL LEARN**
- Fundamental concepts of electricity including voltage, current, resistance, power, induction, capacitance, and power factor
- The key components of facilities electric power distribution, which include circuit arrangements, low and medium voltage switchgear, and single-phase and three-phase systems
- Transformer operation, components, turns and voltage ratios, losses, efficiency, rating, and connections
- The difference between direct current, induction and synchronous current motors, motor enclosures, and how to select, start, protect, and control motors
- The principles of protecting electrical equipment, including time current curves, fuses, circuit breakers, and coordination
- The purposes and sizing criteria for backup power, including generators and UPS power systems
- The considerations and sizing criteria for on-site power generation, which includes standby, prime, peak, and co-generation
- What grounding and bonding systems are, with an overview of ignition sources, shock protection, separately derived systems, and substation grounding
- The concepts, terminology and application of hazardous area classification standards, equipment protection methods, and installation requirements for NEC and IEC projects

**COURSE CONTENT**
- Fundamentals of insulation and conduction • Direct current, alternating current • Transformers power and instrument • Motors induction and synchronous • Power distribution • System protection and coordination • Standby power systems • Power generation • Variable speed drive principles • Grounding, bonding, and electrical safety • Hazardous area identification

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<td><strong>HOUSTON, US</strong></td>
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**Instrumentation and Controls Fundamentals for Facilities Engineers – IC3

**FOUNDATION 5-DAY**

This course applies fundamental instrumentation and control engineering principles to oil and gas facilities design and operation, and is designed to accelerate the development of new Facilities Instrumentation and Control Engineers. Through the use of individual and group problem solving, attendees will learn about field measurement devices, valves and actuators, documentation, programmable logic controllers, power supplies, PLC, SCADA, DCS, SIS, hazardous areas, and installation methods. This course is a more in-depth version of the content of ICE21 and ICE22. This course is not a prerequisite for taking this course.

**DESIGNED FOR**
Facilities and Project Engineers as well as newly graduated Electrical, Controls and Instrument Engineers (0-5 yrs.) with a need to improve basic understanding of instrumentation and control systems within oil and gas facilities.

**YOU WILL LEARN**
- Operating principals and specification criteria for field measurement devices including level, pressure, temperature, and flow
- Final elements and actuators including control loops, control valves, shut-off valves, actuators, and transducers
- P&ID symbols and instrument tags, loop and logic diagrams, pitfalls and best practices
- ISA symbology, and creation of instrument and I/O lists
- Signal types and wiring requirements for analog/ digital inputs and outputs as well as other signals such as thermocouple, RTD, pulse, and digital communications
- Typical control system functions, limitations, and architectures for PLC and DCS systems including programming methods such as ladder logic and function block
- Process control basics with an emphasis on control loops, types, and configurations for common oil and gas process equipment such as separators, pumps, distillation towers, filters, contactors, compressors, heat exchangers, and fired heaters
- Understanding of the PID algorithm, loop tuning, and advanced process control techniques such as feed forward, cascade, selective, and ratio control
- Supervisory Control and Data Acquisition (SCADA) Systems to include telemetry, RTUs, internet, and web based communications
- Common networking systems including Ethernet, Modbus, and Fieldbus
- Risk mitigation, technologies, and architecture of Safety Instrumented Systems (SIS)
- The concepts, terminology, and application of hazardous area classification standards, equipment protection methods, and installation requirements for NEC and IEC projects

**COURSE CONTENT**
- Fundamentals of control signals and wiring • Control system basics • and more...

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<td><strong>HOUSTON, US</strong></td>
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**PLC and SCADA Technologies – IC71

**INTERMEDIATE 5-DAY**

This workshop provides engineers and technicians with the basic theoretical and practical understanding of PLC and SCADA systems. It traces the evolution of the PLC as an intelligent ‘black box’ replacement for the relay panel and how, with the advent of modern communications architectures, it may be combined with Supervisory Control and Data Acquisition (SCADA) systems to allow standalone control systems to be configured. Throughout the workshop, participants will learn through active participation using exercises, questionnaires, and practical PC-based simulation (LogiPro), covering: basic ladder logic programming; hardware diagnostics; and implementation of various communication strategies. Participants will also examine the basic requirements of a safety PLC and the various voting system architectures required to meet different Safety Integrity Levels (SIL3).

**DESIGNED FOR**
This workshop is specifically tailored for any personnel who are responsible for designing, selecting, specifying, installing, testing, operating, and maintaining programmable logic controllers (PLCs) and supervisory (SCADA) systems. This course could include facilities, process, chemical, electrical, instrumentation, maintenance, and mechanical engineers and technicians.

**YOU WILL LEARN HOW TO**
- Describe the fundamental principles of the PLC
- Identify the basic components
- Write a ladder logic program
- Explain the basics of advanced programming according to IEC 61131-3
- Compare different methods of analog processing
- Apply common-sense installation practices
- Examine the different components of a SCADA system
- Describe the basic principles of serial communications
- Evaluate the requirements for PLC-to-SCADA communications
- Distinguish the specific requirements of the PLC in safety-related applications

**COURSE CONTENT**
- Introduction to control systems • SCADA versus DCS • PLC environmental enclosures • Processing and scanning • Digital processing • Analog processing • Installation practices • Interference or noise reduction • Cable spacing and routing • Earthing and grounding • Bipolar and hexade cimal numbering systems • The IEC 61131-3 standard • Ladder logic diagrams • Functional block diagrams • Derived function blocks • Structured text • Instruction lists • Sequential function chart • SCADA basics • SCADA set-up and simulation • System architecture • Communication strategies • Asynchronous transmission • Coding • The RS 232 standard • The RS 485 standard • Modbus

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<td><strong>HOUSTON, US</strong></td>
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<td>23-27 SEPT</td>
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### Valve and Actuator Technologies – IC72

**INTERMEDIATE 5-DAY**

This workshop provides a total in-depth insight into valve and actuator technology, covering: control valves, check valves, shut-off valves, solenoid valves, and pressure relief valves. A methodology is presented to ensure the optimum selection of size, choice of body and trim materials, components, and ancillaries. Whilst studying both liquid and gas valve sizing, delegates will also learn the correct procedures for calculating the spring ‘wind-up’ or ‘bend set’. Maintenance issues also include: testing for dead-band/hysteresis, stick-slip, and non-linearity; on-line diagnostics; and signature analysis. Throughout the workshop, participants will learn through active participation using exercises, questionnaires, and practical sessions covering: systems choice; basic sizing calculation; computer-based sizing; and maintenance diagnostics.

### Flow and Level Custody Measurement – IC73

**INTERMEDIATE 5-DAY**

This course is designed to acquaint users with the problems and solutions for high accuracy transfer of liquid and gas petroleum products from supplier to customer. These needs have been brought about by major changes in the manufacturing processes and because of several dramatic circumstantial changes such as: the increase in the cost of fuel and raw materials; the need to minimize pollution; and the increasing pressures being brought to bear to adhere to the requirements for health and safety.

### Practical PID Control and Loop Tuning – IC74

**INTERMEDIATE 5-DAY**

This workshop provides instrumentation, automation, and process engineers and technicians with the basic theoretical and practical understanding of regulatory control systems and how this can be applied to optimize process control in terms of quality, safety, flexibility, and costs. Centered on the ISA-recommended PC-Control LAB simulator, participants will learn through active participation using exercises, questionnaires, and a series of 16 practical simulation sessions covering: process reaction; tuning methods; diagnostic tools; effect of different algorithms; surge tank level control; analysis of such problems as valve hysteresis, friction and non-linearities; and the impact on controllability; and integral windup.

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**2019 Schedule and Tuition (USD)**

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<th>Course</th>
<th>Location</th>
<th>Dates</th>
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<tr>
<td>Valve and Actuator Technologies – IC72</td>
<td>HOUSTON, US</td>
<td>30 SEP-4 OCT</td>
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<tr>
<td>Practical PID Control and Loop Tuning – IC74</td>
<td>HOUSTON, US</td>
<td>16-20 DEC</td>
<td>$4425</td>
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* plus computer charge

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**You plan the agenda**

**We’ll handle the rest**
Corrosion Management in Production/Processing Operations - PF22

FOUNDATION 5-DAY

This course will cover the main causes of corrosion in upstream oil and gas operations, as well as monitoring and mitigation methods. The various corrosion mechanisms give rise to a number of different forms of corrosion damage, which will all be considered. Participants will estimate the corrosivity of a given environment through analysis of the chemical and physical characteristics of the system, review approaches to selecting materials and coatings for corrosion resistance for different conditions and applications (including the use of NACE MR0175/ISO 15156), and be introduced to cathodic protection (CP) surveys, selecting the CP system type, estimating current requirements, and the design principles of simple cathodic protection systems. The participant will learn how to select and utilize corrosion inhibitors for different systems, and how to select and apply corrosion monitoring techniques to create an integrated monitoring program. The course content is based on a field facilities engineering point of view, as opposed to a more narrowly-specialized corrosion engineering or chemistry viewpoint. It provides an appropriate balance of necessary theory and practical applications to solve/mitigate corrosion-related problems.

DESIGNED FOR
Managers, engineers, chemists, and operators who need to understand corrosion and its control management in oil and gas production and processing.

YOU WILL LEARN
- The basics of corrosion chemistry
- The main corrosion mechanisms occurring in oil and gas production/processing systems
- The various types of damage caused by corrosion
- Materials selection for corrosion prevention
- Some methods for conducting cathodic protection (CP) surveys
- Items to consider in corrosion inhibitor selection
- Key advantages and disadvantages of the various corrosion monitoring methods
- Where the main locations of corrosion concern occur within oil production systems, gas processing facilities (including amine units), and water injection systems

COURSE CONTENT
Fundamentals of corrosion theory • Major causes of corrosion (O₂, CO₂, H₂S, microbiologically influenced corrosion) • Forms of corrosion damage • Materials selection • Protective coatings and linings • Cathodic protection • Corrosion inhibitors • Corrosion monitoring and inspection • Corrosion in gas processing facilities • Corrosion in water injection systems • Corrosion management strategy and life-cycle costs

2019 Schedule and Tuition (USD)

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<tr>
<th>Location</th>
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<tr>
<td>DUBAI, UAE</td>
<td>8-12 DEC</td>
<td>$5445+VAT</td>
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<tr>
<td>HO CH MINH CITY, VNM</td>
<td>14-18 OCT</td>
<td>$5460</td>
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<tr>
<td>HOUSTON, US</td>
<td>6-10 MAY</td>
<td>$4325</td>
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<td>KUALA LUMPUR, MYS</td>
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<td>$4325</td>
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<td>LONDON, UK</td>
<td>8-12 APR</td>
<td>$5035+VAT</td>
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<tr>
<td>MELBOURNE, AUS</td>
<td>29 JUL-2 AUG</td>
<td>$4270</td>
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<tr>
<td>THE HAGUE, NLD</td>
<td>2-6 DEC</td>
<td>$5035</td>
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Piping Systems - Mechanical Design and Specification - ME41

INTERMEDIATE 5-DAY

This 5-day, intermediate level course for engineers and piping system designers reviews the key areas associated with the design of piping systems for oil and gas facilities. The course is focused on four areas: codes and standards, pipe materials and manufacture, piping components, and piping layout and design. Applicable piping codes for oil and gas facilities (ISO, B31.3, B31.4, B31.8, etc.), piping sizing calculations, pipe installation, and materials selection are an integral part of the course. The emphasis is on proper material selection and specification of piping systems.

DESIGNED FOR
This PetroSkills training course is ideal for mechanical engineers, facilities, plant, or pipeline engineers and piping system designers who are involved in the design of in-plant piping systems for oil and gas facilities.

YOU WILL LEARN
- To apply piping codes and standards
- About line sizing and layout of piping systems in various types of facilities
- How to specify proper components for process and utility applications
- To compare alternative materials of construction
- The process of steelmaking, pipe manufacturing, and material specifications
- Joining methods and inspection techniques
- Key considerations for flare and vent systems, including PSV sizing

COURSE CONTENT
Piping codes and standards (ANSI/ASME, API, ISO) • Pipe materials and manufacturing • Basic pipe stress analysis methods • Valves and actuators • Welding and non-destructive testing • Line sizing basics (single-phase and multiphase flow) • Pipe and valve material selection • Piping layout and design • Manifolds, headers, and flare/vent systems • Non-metallic piping systems • Operations and maintenance considerations of facilities and pipelines

2019 Schedule and Tuition (USD)

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<th>Location</th>
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<td>BRISBANE, AUS</td>
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<td>$5700+GST</td>
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<td>DENVER, US</td>
<td>10-14 JUNE</td>
<td>$4420</td>
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<td>DUBAI, UAE</td>
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<td>$4425</td>
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<tr>
<td>MELBOURNE, AUS</td>
<td>19-23 JULY</td>
<td>$5135+VAT</td>
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Mechanical Specification of Pressure Vessels and Heat Exchangers – ME43
INTERMEDIATE 5-DAY

FIELD TRIP
This 5-day, intermediate level course for facility engineers and project engineers reviews the key areas associated with the mechanical design of pressure vessels and heat exchangers for oil and gas facilities. The course is focused on vessels, heat exchangers built in accordance to ASME VIII Div 1, considering material selection, key design calculations, and manufacturing processes. The course is not aimed at process engineers sizing equipment (PF-42 covers these elements), although a brief review of the sizing correlations is included. The course is delivered from the perspective of a vessel fabricator to better understand the dos and don’ts of ideal mechanical specification of pressurized equipment by owner/operators, in order to optimize material utilization and minimize construction costs. The Houston session features an afternoon field trip to a large pressure vessel fabricator.

DESIGNED FOR
Mechanical, facilities, construction, or project engineers and plant piping/vessel designers who are involved in the specification and purchasing of pressure vessels, heat exchangers, and other pressure-containing equipment for oil and gas facilities.

YOU WILL LEARN
• About ASME B&PV code and the commonly used sections relevant to oil and gas equipment
• To specify correctly and commonly used materials according to ASME II
• How to design vessel shells, heads, nozzles, and heat exchanger details
• How to provide accurate equipment specification documents and review documentation for code compliance
• Key fabrication processes used in the workshop and how to simplify construction through correct vessel specification
• About welding processes and inspection requirements per ASME IX

COURSE CONTENT
Vessel codes and standards (ASME B&PV Code, TEMA, API) • Vessel material selection, corrosion mechanisms, heat treatment, and basic metallurgy • Essential design calculations for vessels and heat exchangers • Welding process overview and inspection requirements • Constructability and operability considerations • Vessel integrity, evaluation, and re-purposing of pressure-containing equipment according to API/ASME

Fundamentals of Pump and Compressor Systems – ME44
INTERMEDIATE 5-DAY

This is an intensive 5-day course providing a comprehensive overview of pumps and compressor systems. The focus is on equipment selection, type, unit, and station configuration, and integration of these units in the process scheme and control strategy in upstream and midstream oil and gas facilities. The material of the course is applicable to field production facilities, pipelines, gas plants, and offshore systems.

DESIGNED FOR
Engineers, senior technicians, and system operators designing, operating, and maintaining pump and compressor systems in oil and gas facilities.

YOU WILL LEARN
• Selecting the appropriate integrated pump and compressors units (drivers, pumps, compressors, and auxiliaries) • Integrating the pump or compressor units with the upstream and downstream piping and process equipment • Evaluating pump and compressor units and their drivers in multiple train configurations, parallel and series • Identifying the key local and remote control elements of pumps and compressors as well as their drivers • Defining the major life-cycle events, such as changes in flows, fluid composition, and operating conditions that can affect equipment selection and operating strategies • Assessing the key pump hydraulics and compressor thermodynamics, and their effect on selection and operation • Identifying significant operating conditioning monitoring parameters and troubleshooting techniques

COURSE CONTENT
Types of pumps, compressors, and drivers, and their common applications and range of operations • Evaluation and selection of pumps and compressors, and their drivers for long-term efficient operations • Unit and station configuration including multiple trains in series and/or parallel operations • Integration with upstream and downstream process equipment, local and remote control systems, and facilities utilities • Key auxiliaries systems including monitoring equipment, heat exchangers, lube and seal systems, and fuel/power systems • Major design, installation, operating, troubleshooting, and maintenance considerations

Compressor Systems - Mechanical Design and Specification – ME46
SPECIALIZED 5-DAY

This 5-day, specialized level course is for facility design engineers, operations engineers, and technicians seeking an in-depth understanding of centrifugal, reciprocating, and screw compressors. This course provides basic knowledge of compressor types and associated auxiliaries, mechanical design of equipment, operating and performance characteristics, control and monitoring systems, maintenance practices, and codes and standards.

DESIGNED FOR
Mechanical, facilities, plant, or pipeline engineers and technicians needing an in-depth understanding of the different types of compressors.

YOU WILL LEARN
• How to apply thermodynamics to compressor performance and operating characteristics • How to size, specify, and select compressors • Compressor auxiliary systems • Series and parallel application of compressors • How to integrate compressor systems into process facilities used in the oil and gas industry • How to use state-of-the-art monitor control devices in the operation, maintenance, and troubleshooting of compressor systems • How to apply maintenance practices to improve compressor reliability • Shop and field performance testing • Compressor economics including OPEX vs. CAPEX considerations

COURSE CONTENT
Types and application of compressors • Selection criteria of dynamic and positive displacement compressors • Compressor thermodynamics and operating characteristics • Performance curves and off-design evaluations • Key compressor components and other auxiliaries systems • Equipment specifications • Compressor controls and monitoring devices • Driver and gear involvement • Installation, operation, maintenance practices, and troubleshooting • Economic considerations

Process Plant Reliability and Maintenance Strategies – REL5
INTERMEDIATE 5-DAY

This course is designed to teach reliability engineering skills as they apply to improving process system reliability and developing maintenance strategies. You will use modern software and analysis methods to perform statistical analysis of failures and model system performance, plus develop maintenance and reengineering strategies to improve overall performance.

DESIGNED FOR
Maintenance, engineering, and operations personnel involved in improving reliability, availability, condition monitoring, and maintainability of process equipment and systems. Participants should have foundation skills in statistical analysis and reliability techniques for equipment.

YOU WILL LEARN
• Improving reliability in new facilities/systems • Reliability design for maintainability • Developing initial maintenance strategies • Virtual equipment walk-down; critically using simulation and modeling; developing baseline condition monitoring programs; developing lubrication programs, and developing process-specific maintenance strategies with reliability-centered maintenance (RCM) • Improving reliability in existing facilities/systems • Analyzing process reliability plots to determine the amount of opportunity • Continuous improvement through failure reporting, analysis, and corrective action systems (FRACS) • Developing policies and procedures; developing failure reporting codes; statistical analysis of failures using Weibull; and developing root cause analysis (RCA) programs (triggers for RCM and analyzing recommendations) • Developing maintenance strategies with condition monitoring • Identifying applicable condition monitoring methods; using critically to determine level of condition monitoring application; and reporting asset health • Developing maintenance strategies with RCM • Developing policies and procedures; identifying systems for analysis; analyzing recommendations with simulation and modeling; and implementing recommendations • Monitoring results • Understanding the true purpose of key performance indicators (KPIs) • Developing appropriate reliability and maintainability KPIs

COURSE CONTENT
Critically analyze • Availability simulation and modeling • Statistical analysis of failures using Weibull • Maintenance strategy development; condition monitoring; reliability-centered maintenance; and essential care • Process reliability analysis • Root cause analysis • Failure reporting, analysis, and corrective action systems • Key performance indicators • Reliability definitions

2019 Schedule and Tuition (USD)
HOUSTON, US 23-27 SEP $4600
† includes field trip

2019 Schedule and Tuition (USD)
HOUSTON, US 26-30 AUG $4625
2019 Schedule and Tuition (USD)
HOUSTON, US 29 MAR-3 APR $4425

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- Salt Caverns and Underground Storage
- Solid Desiccants
- Tower Fouling and Corrosion Cleaning
- and more...

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**Onshore Pipeline Facilities - Design, Construction and Operations – PL42**

**FOUNDATION 5-DAY**

Successful onshore pipeline businesses require personnel competent in fully integrated approaches to evaluation, planning, design, construction, operations, and asset integrity management. This intensive, 5-day foundation level course explores best practices for developing and maintaining pipeline systems that maximize life cycle reliability; employee, public, and environmental safety; and cost effectiveness. Design and team exercises are an integral part of this course.

**DESIGNED FOR**
Pipeline project managers and engineers, operations and maintenance supervisors, regulatory compliance personnel, and other technical professionals with 1-3 years of experience in natural gas, crude oil, refined petroleum products, LPGs, NGL, chemical, carbon dioxide pipeline engineering, construction, operations, or maintenance. This course is intended for participants needing a broad understanding of the planning, development, construction, start-up, and operating and asset integrity management of onshore pipelines.

**YOU WILL LEARN HOW TO**
- Apply regulatory codes, standards, and industry guidelines (API and others) that control and guide the permitting, design, construction, operation, and maintenance of pipeline facilities
- Apply mechanical and physical principles to pipeline design, hydraulics, and material selection
- Apply mechanical and physical principles to pump and compressor selection
- Describe the important factors in station design
- Describe the importance of route selection and hydraulics for long term profitability, reliability, and safety
- Identify special design and construction challenges of onshore pipeline systems

**COURSE CONTENT**
- Overview of oil and gas transportation systems
- Review pipeline hydraulics, focusing on those aspects that affect design, construction, and operations
- Pipeline systems definition, survey, and route selection
- Safety, environmental, and regulatory considerations, focusing on Codes and Standards related to pipelines
- Conceptual and mechanical design for strength, stability, and constructability
- Pipeline materials and components selection including line pipe, corrosion and cathodic protection, and coatings
- Specialized equipment and materials for integrating with subsea, wellhead/manifold systems, side taps, insulation, and pipe-in-pipe will be reviewed
- Special design and construction considerations for risers and umbilicals, foreign pipeline crossings, single point moorings, and shore approaches
- Introduction to flow assurance considerations and pipeline integrity aspects including in-line inspection, leak detection and emergency planning considerations
- Pipeline operations, maintenance and repair considerations and their impact on design and material selection

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**Offshore Pipeline Design and Construction – PL43**

**FOUNDATION 5-DAY**

This intensive five-day foundation level course covers the principal aspects of design, construction, and operations of offshore pipeline systems. The course focuses on pipeline mechanical, strength, and stability design, and construction. Special challenges, such as shoreline crossings, foreign pipeline crossings, repair methods, flow assurance, corrosion control and cathodic protection are an integral part of this course. Participants will acquire the essential knowledge and skills to design, construct, and operate pipelines. Design problems and team projects are part of this course.

**DESIGNED FOR**
Engineers, designers and operators who are actively involved in the design, specification, construction, and operation of offshore pipeline systems.

**YOU WILL LEARN HOW TO**
- Apply mechanical, strength, and physical principles to pipeline design, material selection, construction, and operation
- Define the importance of environmental conditions, construction methods, and pipeline system hydraulics in design, installation, and operations of offshore pipeline systems
- Identify special design and construction challenges of offshore pipeline systems
- Incorporate construction methods into the design of a pipeline system
- Identify the principal interfaces of pipeline facilities, such as platforms, floating production systems, sub-sea wellheads, and SPMs on design, construction, and operations of offshore pipeline systems
- Identify offshore safety and environmental practices and their effect on design, construction, and operations

**COURSE CONTENT**
- Overview of oil and gas transportation systems
- Review pipeline hydraulics, focusing on those aspects that affect design, construction, and operations
- Pipeline systems definition, survey, and route selection
- Safety, environmental, and regulatory considerations, focusing on Codes and Standards related to pipelines
- Conceptual and mechanical design for strength, stability, and constructability
- Pipeline materials and components selection including line pipe, corrosion and cathodic protection, and coatings
- Specialized equipment and materials for integrating with subsea, wellhead/manifold systems, side taps, insulation, and pipe-in-pipe will be reviewed
- Special design and construction considerations for risers and umbilicals, foreign pipeline crossings, single point moorings, and shore approaches
- Introduction to flow assurance considerations and pipeline integrity aspects including in-line inspection, leak detection and emergency planning considerations
- Pipeline operations, maintenance and repair considerations and their impact on design and material selection

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**Terminals and Storage Facilities – PL44**

**FOUNDATION 5-DAY**

This 5-day, foundation level course reviews key issues associated with development, design, construction, and operation of terminals and storage facilities for liquid hydrocarbons and NGLs. The course content includes nine areas: 1) terminal and site layout, 2) terminal design and equipment layout, 3) types of storage and selection criteria, 4) design considerations for loading tanks, fire protection, vapor recovery, blending equipment, and water treatment, 5) detailed design of storage tanks, vessels, and caverns, and 6) operations and maintenance. Safety, quality control, system reliability, availability, and regulatory compliance are integrated throughout the course. Case studies and team exercises are used to reinforce key points.

**DESIGNED FOR**
Project managers, engineers, operations and maintenance supervisors, and regulatory compliance personnel with 1-3 years of experience in planning, engineering, constructing and/or operating terminals and storage facilities for hydrocarbon liquids, NGLs, and petrochemical feedstocks. This course is for participants needing a foundation level understanding of the planning, engineering, construction, operations, and maintenance of storage and terminals connected to pipelines, rail, barges/tankers and/or truck loading facilities.

**YOU WILL LEARN**
- Storage and terminals basics for hydrocarbon liquids, NGLs, and petrochemical feedstocks
- Design and operation of atmospheric storage tanks and pressurized bullet and spheres
- Fundamentals of underground storage (salt and rock caverns)
- Safety, product quality, and reliability/availability concerns

**COURSE CONTENT**
- Sizing criteria and economics for storage and terminal facilities
- Various storage types (atmospheric storage tanks, pressure vessels, salt or rock caverns) and appropriate applications
- Terminal and tank farm layout constraints
- Details of industry codes and standards, plus regulatory and environmental compliance
- Selection of equipment for delivery and receipt from/from pipelines, barges and ships, trucks, and rail, including metering options, loading arms, pumps, and control systems
- Blending options and equipment, VRU/VCU, water treating, and fire protection
- Key factors affecting safety, product quality, system reliability, and profitability in design, construction, and operations
- Atmospheric storage tank design, layout, construction, corrosion prevention, and operations covering API 650 and API 602
- Overview of pressure vessel and sphere design and construction
- Design, development, and operation of underground cavern storage facilities
### Overview of Offshore Systems – OS21

**BASIC 5-DAY**

This five-day course will accelerate the learning and productivity of individuals with little to no experience working in the offshore oil and gas industry. The course provides an overview of field development concepts and explains how offshore structures and facilities function as integrated systems. The content includes the full range of water depths from shallow water to ultra-deepwater. All major components required for offshore developments such as fixed and floating platforms, drilling and workover rigs, pipelines, risers, process and utilities and construction equipment are discussed. The importance of life-cycle considerations during development planning is emphasized. Individual and group exercises, including a case study, are used throughout the course. The course instructors are experienced offshore managers.

**DESIGNED FOR**

Technical staff, business professionals, technicians, analysts and other non-technical staff who are involved but have limited experience, or will be involved, with offshore oil and gas facilities. The course provides a basic understanding of offshore systems in all water depths, from shallow to ultra-deepwater, including design, construction, and operations.

**YOU WILL LEARN HOW TO**

- Identify the key steps in the development of offshore fields from discovery through decommissioning
- Understand the elements of field architecture to define a workable field development
- Recognize key stakeholder issues
- Recognize offshore production facilities and structures, fixed and floating
- Understand the impact of the ocean environment on facilities design and operations
- Identify major design, construction, and operational issues and interfaces of offshore systems
- Recognize important forces on offshore structures and their influence on design and cost
- Understand strategic options for well drilling (construction) and servicing
- Appreciate the basic processes and equipment involved in the topsides design and operation
- Understand fluid transportation options and equipment
- Recognize the marine environment used in the construction of offshore facilities
- Understand basic issues in life-cycle and decommissioning decisions
- Appreciate advances in offshore technology

**COURSE CONTENT**

Field development concepts, fixed and floating offshore systems. Wells, wells construction and servicing. Topsides; facilities; processing; utilities; Oil and gas transportation systems. Flow assurance; installation, construction and maintenance; Production operations. Offshore construction equipment. Fabrication, transportation, integration, installation project management. Life-cycle considerations, including decommissioning.

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### Overview of Subsea Systems – SS2

**BASIC 5-DAY**

An overview of subsea components and how they are integrated into field architecture is provided during this five-day course. Individuals will develop a basic understanding of the various subsea components used in all water depths, from relatively shallow to ultra-deepwater. The participants will all learn how the components are integrated into subsea field developments, which will accelerate learning and productivity. Installation and flow assurance are emphasized as key drivers in subsea design. The course emphasizes a systems approach to design. Individual and group exercises are used throughout the course, including a case study to develop field architecture recommendations, basic component selection, and high level project execution plans for a subsea development. Course instructors are experienced offshore managers.

**DESIGNED FOR**

Technical staff who are beginning or transitioning into the design, construction, and operation of subsea systems. Non-technical staff working with a subsea development team will benefit by developing an awareness of subsea systems.

**YOU WILL LEARN HOW TO**

- Recognize the integrated nature of field architecture, system design, and component selection
- Identify appropriate applications for subsea systems
- Identify the main subsea components, their functions, strengths, weaknesses, and interfaces from the well to the production facility
- Understand key design, construction, and installation issues
- Describe basic operating and maintenance considerations
- Understand the key steps, from drilling through startup, for the design, fabrication, testing, installation, and operation
- Understand the importance of an integrated approach to design, flow assurance, installation, and life-cycle considerations

**COURSE CONTENT**

Applications for subsea systems. Flow assurance considerations in system design and configuration. Field architecture considerations. Subsea component descriptions and functions. Fabrication, testing, installation, commissioning, and operational issues. Production, maintenance, and repair considerations.

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### Fundamentals of Offshore Systems Design and Construction – OS4

**FOUNDATION 10-DAY**

This 10-day course provides a fundamental understanding of the technology and work processes used for the design and construction of all types of offshore systems, including consideration of asset development, surveillance, and management. The content includes the full range of water depths from shallow water to ultra-deepwater and will also address life-cycle considerations in all phases of offshore field development and operation. All major components required for offshore developments, such as fixed and floating platforms, drilling rigs, workover equipment, pipelines, risers, process, and utilities and construction equipment are discussed. Emphasis is placed on the multidiscipline team approach needed to manage the myriad interfaces of offshore facility design, construction, and operations. Individual and group exercises are used throughout the course. A case study for an offshore project development is included.

**DESIGNED FOR**

Individuals with a basic awareness of or experience in offshore engineering and operations. Technical staff, project engineers, engineering discipline leads, engineering specialists, and operating staff find this course accelerates their capability to contribute to offshore field development planning, design, and construction projects and field operations.

**YOU WILL LEARN HOW TO**

- Identify the key facilities parameters that must be evaluated for field development
- Recognize the best applications and characteristics of each type of offshore fixed and floating structure
- Account for the effects of the ocean environment on facilities design, construction, and operations
- Identify the impact space, loads and forces have on the structural design and global performance of offshore structures and how they influence their cost
- Describe the impact of topside facilities (well construction, well servicing, processing, and utilities) on the design of the supporting structure and outline the topsides design process
- Recognize and manage key design and operational interfaces between the major components of offshore facilities systems
- Understand the key design, construction, and installation issues associated with fixed and floating platforms and how to apply the lessons learned to your work

**COURSE CONTENT**

- Offshore systems overview and field architecture selection
- Well construction and servicing equipment and operation
- Flow assurance
- Topsides facilities
- Oil and gas transportation facilities
- Risers systems
- Subsea systems
- Production operation
- The thermohydraulic impact on design and operations
- Effects of the ocean environment
- Introduction to naval architecture
- Structural design processes and tools
- Construction plans and execution and more...

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### Flow Assurance for Offshore Production – FAOP

**INTERMEDIATE 5-DAY**

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 thermohydraulic design, waxes, asphaltene, 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 flow assurance system
- Understand the thermohydraulic modeling of stable and transient multiphase flow in offshore production systems
- Evaluate and compare mitigation and remediation techniques for: gas hydrates, paraffin (waxes), asphaltene, 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**


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### Schedule and Tuition (USD)

#### 2019 Schedule and Tuition (USD)

<table>
<thead>
<tr>
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<th>Dates</th>
<th>Fee</th>
<th>VAT/VAT</th>
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</tbody>
</table>

* plus computer charge

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Any course is available inhouse at your location. Contact us today. +1.918.828.2300 | petroskills.com | +1.800.821.5933 (toll free North America)
Production Operations 1 – PO1

FOUNDATION

10-DAY

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, lead cost, integrated analytical skills to successfully define and manage oil and gas operations. Applied skills 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 multi stage fractured horizontal wells
- Apply successful primary casing cementing and remedial repair techniques
- Select equipment and apply procedures 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 asphaltene • Sand control • Hydraulic fracturing • Unconventional resources: shale gas and oil, heavy oil and bitumen

Petroskills.com/PO1-BLENDED

PO1 is also available as a virtual course which is an enhanced version of the face-to-face public session.

2019 Schedule and Tuition (USD)

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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. Daily sessions include formal presentation interspersed with a good number of questions, discussion and problem solving.

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. This course is excellent for cross-training and delivers an understanding of all the fundamental field treating facilities.

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 arresters • Stabilizers • Foams, emulsions, paraffins, asphaltenes, hydrates, salts • Dehydrators • Water treaters: SP packs, plate interceptors, gas flotation, coasclers, hydroscleres, monobenzene • Acid gas treatment: coatings, closed systems, chemicals, solvents, conversion, stress cracking • Valves: all types; regulators • Pumps/ Compressors: centrifugal, positive displacement, rotary, reciprocating, ejectors • Metering: orifice, head, turbine, and others • Corrosion/Scalings: inhibition and treatment

Production Technology for Other Disciplines – PTO

FOUNDATION

5-DAY

PTO is an asset team course, as it introduces a broad array of important daily Production Technology practices. Terminologies, expressions, axioms, and basic calculations regularly utilized by production techs are covered. Emphasis is upon proven technology required to effectively develop and operate an asset in a multidiscipline development environment. Practical application of technology is emphasized. Nodal analysis examples to assess well performance are applied. Well completion equipment and tools are viewed and discussed. Exercises include, 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 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 dynamics between production technology and other disciplines

COURSE CONTENT

Role and tasks of production technology • Completion design • Inflow and outflow performance • and more...

PTO is also available as a self-paced, virtual course which is an enhanced version of the face-to-face public session.

2019 Schedule and Tuition (USD)

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2019 Schedule and Tuition (USD)

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<tr>
<td>THE HAGUE, NLD</td>
<td>22-26 JULY</td>
<td>$5060</td>
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</table>

* plus computer charge

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Any course is available inhouse at your location. Contact us today.
Gas Production Engineering – GPO

INTERMEDIATE 5-DAY

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. Problem-solving sessions allow participants to evaluate field problems. 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 which 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 flow after flow, isochronal, stabilized inflow performance, 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 tubing, flowlines, choke, safety valves; effects of liquids-liquid loading, liquid removal methods, multiphase flow correlations; erosional velocity. Compression: types of compressors; compressor selection reciprocating and centrifugal; 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 design, accuracy, troubleshooting; other metering methods. Condensate reservoirs: reservoir types - wet gas, retrograde; reserve estimates, laboratory simulation; gas cycling. Field operations problems: interpreting P/Z plots; hydrate formation

2019 Schedule and Tuition (USD)

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<th>Tuition</th>
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<td>London, UK</td>
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Surface Water Management in Unconventional Resource Plays – SWM

INTERMEDIATE 3-DAY

Water management in unconventional resource plays has become a critical topic to the oil and gas industry in the last decade. 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. This course is designed for the practitioner, for the people who will design and implement all or part of a water management plan in unconventional resource plays.

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 and more...

2019 Schedule and Tuition (USD)

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<tr>
<td>Pittsburgh, US</td>
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* plus computer charge
PetroSkills | John M. Campbell provides world class face to face operator training. In addition to our public course offerings, we have in-house training also. The in-house training offerings are fully customized to match your operations. Our operations and maintenance training group will work with your facilities supervisors to build a program specific to meet your needs with no customization fees. The current listing of available modules is in the table below. If you have a unit operations not listed, we would be happy to build the module to fit your needs. We can also arrange on-site facility tours to provide a “boots on the ground” experience in the training session with our instructors.

### GAS PROCESSING MODULES
- Overview of Gas Processing
- Overview of Oil and Gas Processing (optional)
- Industry terminology
- Process drawings
- Units of measurement
- Hydrocarbons physical properties
- Phase behavior fundamentals
- Water / hydrocarbon behavior
- Basic principles of fluid flow
- Amine gas sweetening
- TEG gas dehydration
- Mole sieve dehydration
- NGL Refrigeration Plants
- Gas expansion NGL recovery (valve and turboexchanger)
- GSP (T/E) Process Operations
- Mechanical Refrigeration
- Mixed Refrigeration
- Cascade Refrigeration
- NGL stabilization and fractionation
- Gas sweetening and sulfur recovery
- Introduction to LNG facilities
- LNG Pre-treatment systems
- LNG COP Cascade® Overview
- LNG MR / DMR Overview
- LNG Storage, Pumping, Offloading and Boil-off management
- LNG Fire control systems

### OIL PRODUCTION AND PROCESSING MODULES
- Overview of Oil and Gas Processing
- Industry terminology
- Process drawings
- Units of measurement
- Hydrocarbons physical properties
- Phase behavior fundamentals
- Water / hydrocarbon behavior
- Basic principles of fluid flow
- Basic crude oil well pad operations
- Gas lift systems
- Production separators
- Crude oil dehydration
- Crude oil desalting
- Crude oil, condensate, and NGL stabilization
- Crude oil storage and vapor recovery systems
- Crude oil pipeline systems
- Produced water treating
- Process troubleshooting

### GENERAL / EQUIPMENT SPECIFIC / AND UTILITIES MODULES
- Practical thermodynamics: mass and energy balances
- Heat exchangers and fired heaters
- Mechanical refrigeration
- Introduction to process control
- Centrifugal pumps
- Positive displacement pumps
- Centrifugal compressors
- Positive displacement compressors
- Introduction to gas turbines
- Introduction to steam turbines
- Power generation systems
- Corrosion and corrosion monitoring
- Fire and Gas systems
- Relief and Flare systems
- Instrument air, utility air, and nitrogen systems
- Drain systems
- Cooling water systems
- Steam and condensate systems

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**CONTACT PETROSKILLS TODAY**

[www.petroskills.com](http://www.petroskills.com)
CASE STUDY: A MAJOR MIDSTREAM OPERATOR CONDUCTS TAILORED OPERATOR TRAINING

CHALLENGE: A major midstream operator active in shale development in the Northeastern US needed to confirm that its operators possessed the equipment and process knowledge required to operate its gas processing facilities in a safe and efficient manner. Operator workload and availability issues dictated that the training be focused on specific topics and deliverable in a three-day format.

SOLUTION: A PetroSkills instructor consulted with the client’s supervisory and subject matter expert staff to design a 3-day course addressing the topics most relevant to the client’s specific facilities. In a series of telephone conversations, the instructor and client representatives selected key elements from the PetroSkills standard 5-day operator course, OT-1, to design a course specifically addressing the client’s technical and timing requirements. In addition, client-specific supporting documents such as facility drawings and operating procedures were identified and incorporated into the course to enhance the relevance and value of the learning experience.

IMPACT: Through multiple deliveries of the shorter and more focused custom course, the client provided the needed training to its operator workforce with minimal impact to its day-to-day operations. Emphasis on how the underlying technical principles and knowledge could be applied in all aspects of facility operation generated ‘buy-in’ from the operators and met or exceeded all the client’s expectations in terms of knowledge transfer.

CONTACT PETROSKILLS TODAY ABOUT HOW WE CAN DESIGN A COURSE FOR YOUR OPERATOR WORKFORCE
Amine Sweetening and Gas Dehydration for Operations and Maintenance – OT1

BASIC 5-DAY

The public course content is governed by the common production / processing facilities in the regions where the course is being held. There are gas / LNG content focus, gas / expander plant, or oil / water / gas focused courses. All locations include an overview of gas processing, industry terminology, process drawings, units of measurement, hydrocarbons physical properties, phase behavior fundamentals, plus the localized topics below. Course content is customizable to client needs at no additional cost.

Marcellus / Bakken Gas Processing Modules
Water / hydrocarbon behavior
Basic principles of fluid flow
Amine gas sweetening
Mole sieve dehydration
Mechanical Refrigeration
GSP (T/E) Process Operations
NGL stabilization and fractionation
Process troubleshooting

Permain / Eagle Ford / North Sea Oil and Gas Production and Processing Modules
Basic principles of fluid flow
Gas lift systems
Production separators
Crude oil dehydration
Crude oil desalting
Crude oil, condensate, and NGL stabilization
Crude oil storage and vapor recovery systems
Crude oil pipeline systems
Produced water treating
Process troubleshooting

Australia Gas Processing Modules
Water / hydrocarbon behavior
Basic principles of fluid flow
Amine gas sweetening (not in Brisbane)
Mole sieve dehydration
Mechanical refrigeration
Cascade refrigeration
Mixed refrigerants
NGL stabilization and fractionation
LNG facilities
Process troubleshooting

DESIGNED FOR
Facility operators who require a working knowledge of the various processes used in production fluid conditioning and processing, including the common operational difficulties that may arise and operational tactics used to resolve them. Also suitable for maintenance technicians, supervisors, and managers, as well as other non-engineering personnel who would benefit in an understanding of gas processing techniques that can be applied in their daily work activities.

YOU WILL LEARN
• The effects of produced fluid compositions (oil/gas/water) on facility operation
• About separation, conditioning, and processing operations to meet product specifications on oil, gas, and produced water streams for disposal/re-use
• How to operate facilities to minimize operating costs
• How to apply course material to troubleshooting equipment and unit operations

NGL Extraction, Stabilization and Fractionation for Operations and Maintenance – OT42

FOUNDATION 4-DAY

This course is designed to deliver the basic knowledge required for understanding operating issues in natural gas amine sweetening and dehydration units. Course content is customizable to client needs at no additional cost.

DESIGNED FOR
Plant and facility operations and maintenance technicians, supervisors, and managers.

YOU WILL LEARN
• About the various unit operations required in gas processing and how they impact one another
• Conditions that favor hydrate formation, and methods to mitigate hydrates (hydrate inhibition)
• Principles and operations of gas compressors (centrifugal/screw/reciprocating)
• Principles, operations, and troubleshooting mechanical refrigeration systems (propane economized systems)
• Molecular sieve dehydration operations and issues
• Operating principles, typical performance, and issues in NGL extraction processes (reliquefaction/UT valve/turbodispersers)
• NGL stabilization and fractionation principles, operations, controls, and common operating problems

COURSE CONTENT
Overview of gas processing
Water / hydrocarbon behavior (hydrates and hydrate inhibition)
Compression
Mechanical refrigeration
Molecular sieve dehydration
NGL extraction (reliquefaction with NG and inhibition, valve operation, turbodispersers)
Fractionation fundamentals
Physical properties of hydrocarbons
Phase behavior of hydrocarbons
Troubleshooting

LNG Facilities for Operations and Maintenance – OT43

FOUNDATION 5-DAY

This 5-day, LNG facilities course provides an overview of field operations, and an in-depth review of the in-plant equipment and processes. The course includes the two most common types of LNG liquidation processes, the AP-C3MR™ and ConocoPhillips Optimized Cascaderec™ Process. Class exercises / problems focus on the application of theory to operational trends, so operators can understand their processes and become more proficient at identifying issues and troubleshooting problems before production suffers. Course content is customizable to client needs at no additional cost.

DESIGNED FOR
LNG facility operators who require a working knowledge of the various processes used in LNG facilities, including the common operational difficulties that may arise and operational tactics used to resolve them. Also suitable for maintenance technicians, supervisors, and managers, as well as other non-engineering personnel who would benefit from an understanding of gas processing techniques that can be applied in their daily work activities.

YOU WILL LEARN
• Overview of oil and gas processing, including typical field operations
• The required feed quality specifications for LNG facilities, including issues with common contaminants
• Separation equipment with a focus on critical separation equipment in LNG facilities
• Operational aspects of acid gas removal units (AGRU) for LNG facilities
• Gas dehydration processes for LNG (including pre-cooling and molecular sieve)
• Mercury removal processes for LNG, and location/performance in the facility
• Centrifugal compressor operations and issues
• Refrigeration system operational principles (propane, cascade and mixed refrigerant)
• NGL stabilization and fractionation processes (regional)
• LNG CDP Cascade™ Process Overview
• LNG AP-C3MR™ Process Overview
• LNG storage operations and considerations
• LNG ship loading and boil-off gas management issues and considerations
• Application of hydrocarbon physical properties and phase behavior to understand the process operational issues within the overall facility
• Gas turbine operations and issues
• Hydrocarbon physical properties and phase behavior as the natural gas flows through the plant

COURSE CONTENT
Overview of oil and gas processing
Separation equipment
LNG feed quality requirements
LNG pre-treatment systems (AGRU/molecular sieve/Hg removal)
Fundamentals of centrifugal compression
Refrigeration principles (propane, cascade and mixed refrigerant)
NGL stabilization and fractionation (regional)
LNG CDP Cascade™ Process Overview
LNG AP-C3MR™ Process Overview
LNG storage operations and considerations
LNG shiploading operations and considerations
Boil-off gas management methods

See website for dates and locations.
### Crude Oil Pipeline Operations – OT50

#### FOUNDATION 5-DAY
This course utilizes case studies and industry best practices for operating and maintaining onshore crude oil and liquid pipeline systems that maximize life cycle reliability, employee, public, and environmental safety, and operational cost effectiveness. It focuses on open discussions and troubleshooting techniques that may be applied to crude, HVL (High Volatility Liquids) and refined product pipelines and their associated infrastructure. The course aims to improve the operation profitability and communication with management and engineering staff. Course content is customizable to client needs at no additional cost.

#### DESIGNED FOR
Pipeline operations personnel who require a working knowledge of onshore liquid pipeline and terminal systems, including the common operational difficulties that may arise and operational tactics used to resolve them. Also suitable for maintenance personnel, metering technicians, lead supervisors, area managers, and engineering staff that need a working knowledge of field pipeline operations.

**YOU WILL LEARN HOW TO**
- Apply regulatory codes, standards, and industry guidelines (PSNHA 195, ASME B31.4, API-1173 and others) that control and guide the operation and maintenance of pipeline facilities
- Explain fluid properties and behavior of crude oils, wax behavior, temperature relationships and use of DRA in crude oil pipelines
- Explain pipeline hydraulics, pipeline pressure gradients and predict capacity on the system
- Identify pipeline MOP, surge and causes of overpressure and mitigation measures
- Explain pipeline facilities; pump stations, filtration, and LACT units, sampling and testing, pigging equipment, tank terminals and truck/rail loading facilities
- Explain liquid pipeline operations; commissioning and purging/filling, startup, stopping, pigging and pig receiver operations, measurement and sampling activities
- Identify principle causes of loss of containment and mitigating measures; corrosion, environment cracking, overpressure, 3rd party damage and error
- Review regulatory compliance requirements for CFR 49, Part 195, to be better prepared in the case of compliance audits
- Explore emergency response measures to spills and loss of containment

**COURSE CONTENT**
- Crude oil transportation systems • Industry codes and regulations, scope and applicability • Crude oils, waxes and DRA, fluid properties and behavior • Hydraulic analysis of pipelines and gradients • Pipeline pumps – components, operation, seal systems and seal leak detection • Pipeline surge and overpressure protection systems • Pipeline facilities – filtration, pressure controls, pigging equipment • Terminal facilities – tanks, truck/rail loading, metering, sampling and proving • Pigging goals, processes and activities • Pipeline repairs and maintenance • Corrosion overview and prevention • Leak detection methods • CFR 49, Part 195 review of documentation requirements and terminology

### Turnaround, Shutdown and Outage Management – TSOM

#### INTERMEDIATE 3-DAY
Scheduled turnarounds are difficult to manage. Managing a surprise shutdown or outage is like firefighting. Firefighters succeed because they know what strategies work and are highly trained to handle complex, risky situations. Uncertainty and complexity abound when a plant is down. Extra work can appear when equipment is opened and inspected. Integrating project work increases the challenge.

Experienced instructors show you how to control scope uncertainty, tackle the complexity of integrating project work, and get the facility restarted. Upon completion you will know how to deploy scarce resources (time, people and materials) to complete work on time and within budget; utilize best practices in TSO planning, execution and closeout; and manage engineering, maintenance, operations and project interfaces. A blend of instruction, guided discussion, and hands-on exercises using real world examples makes the sessions thought provoking. The exercises will include both single and group activities. Course content is customizable to client needs at no additional cost.

#### DESIGNED FOR
Managers, supervisors, engineers, schedulers in maintenance, operations, reliability, HSE, procurement and projects should attend. This course also helps business, commercial, finance and other non-technical personnel who want to know more about turnaround, shutdown and outage best practices.

**YOU WILL LEARN HOW TO**
- Establish targets to ensure support from all facility stakeholders
- Develop a robust resource plan and get the resources you need
- Integrate scopes for both maintenance and projects
- Establish turnaround scope selection criteria and a plan
- Select a computerized work system
- Address key outage constraints and operations interfaces
- Develop a robust contracting plan
- Prepare an execution plan
- Measure and control shutdown progress

#### COURSE CONTENT
- Six-phases of turnaround, outage and shutdown management • Issues and challenges • Quality control • Health, safety and environmental planning • Computerized systems benefits and choices • Integrating the plan • Managing stakeholders and resources • Procurement and contracting • Tracking progress and controlling change

### Applied Maintenance Management – OM21

#### BASIC 5-DAY
No matter the price of oil, safe, efficient operations require well managed, integrated asset management. Effective, well organized maintenance management is the key. In this course, participants will receive a sound, integrated, basic knowledge of the maintenance function and how to progress towards world-class performance. Individual action plans will carry course learning into the work environment.

A pre and post seminar self-assessment will be given to indicate delegates’ competency improvements. The assessment is taken from the PetroSkills industry standard competency map for Maintenance Management. Course content is customizable to client needs at no additional cost.

#### DESIGNED FOR
Maintenance supervisors, team leaders, or managers needing to improve their maintenance programs. This course is a broad survey of essential aspects of maintaining a safe, efficient, and reliable facility asset.

**YOU WILL LEARN**
- World class maintenance standards and how to apply them
- Key performance indicators for your dashboard
- Essential elements of work planning and scheduling
- Optimization of preventive and predictive maintenance
- To focus your resources on critical equipment
- How to work with contractors more effectively
- Development of organizational competence

#### COURSE CONTENT
- World class standards • Maintenance strategies and techniques • Planning and scheduling • Optimizing preventive and predictive maintenance • Identifying critical equipment • Developing organizational competence • Identifying effective strategies and planning
- Developing the resources and systems to achieve the objectives
- Measuring and controlling maintenance performance

### Maintenance Planning and Work Control – OM41

#### FOUNDATION 5-DAY
No matter what the price of oil is, safe facilities operations require effective maintenance work control. ISO 55000 (PAS 55) is the asset management standard everyone is moving towards. This course is designed to build competency in Work Control as a primary skill set required to achieve these new standards. It will focus on the six phases of work management: work identification, planning, prioritization, scheduling, execution, and history capture. These essential skills are the key components of integrity management, safety, efficient resource utilization, and reliable operation: A pre and post self-assessment will be used to measure competency improvement. In order to improve facility asset management, each participant will develop an action plan to help their organizations in the long-term effort to become more efficient and safe. Course content is customizable to client needs at no additional cost.

#### DESIGNED FOR
Maintenance managers, superintendents, supervisors, team leaders, and planners engaged in work management, planning, and scheduling.

**YOU WILL LEARN**
- To develop world class planning and work control
- To employ business process analysis techniques in work control
- How to use a gap analysis on your work management system
- Step-by-step work control from identification through using work history
- Optimization of preventive and condition-monitoring activities
- Techniques: critical equipment analysis, critical spares control, and emergency response work

#### COURSE CONTENT
- Work identification • Planning prioritization • Scheduling execution • History records • Optimizing preventive maintenance • Predictive maintenance planning • Critical equipment focus • Emergency response

<table>
<thead>
<tr>
<th>2019 Schedule and Tuition (USD)</th>
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<td><strong>13-17 OCT</strong></td>
<td><strong>1-5 APR</strong></td>
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See website for dates and locations.
HEALTH, SAFETY, ENVIRONMENT

**Competent Person Fall Protection — FPST**

**BASIC**  
5-Day

This comprehensive training program is for anyone who develops or impacts fall protection policy, as well as those involved with design practices, facility or production modifications and equipment procurement. The goal of training is to provide participants with the knowledge to solve fall protection issues before they arise. Attendees will acquire the tools required to become certified OSHA competent persons and the skills to develop and implement a comprehensive, cost effective and attainable fall hazard control system. The course provides interactive instruction, multimedia resources, and knowledge check that have been developed to train attendees to the competent person level.

**DESIGNED FOR**

This course is intended for safety directors, safety professionals, fall protection program administrators, managers, facility engineers, production supervisors, and maintenance supervisors.

**YOU WILL LEARN**

- To recognize myths and facts surrounding fall protection
- To describe how fall protection fits into the core elements of your safety program
- To determine the key resources for identifying fall hazards
- To rank abatement options using objective criteria
- Regulatory requirements for access, surfaces, and edge protection
- About lift equipment including requirements for vacating or entering an aerial lift
- The regulations and standards for scaffolding
- How to minimize the dangers of falling objects
- About the initial ANSI fall protection standards and the new ones within the Z359 family
- The difference between certified and non-certified anchorages
- How to recognize how ANSI applies to various equipment components
- How to inspect fall hazard equipment
- About typical roof fall hazards
- About fall clearances including sample fall clearance calculations
- To identify the elements of a horizontal lifeline system and recognize the pitfalls
- The importance of preplanning a fall protection rescue as a part of a pre-task plan
- To develop a rescue procedure for a specific personal fall arrest system

**COURSE CONTENT**

- Fall protection program overview • Fall hazard risk assessment • Fall hazard abatement • Engineering controls • Lift equipment • Scaffolding • OSHA requirements and ANSI standards • Equipment inspection • Roof fall protection • Fall clearances • Anchorages • Horizontal lifelines • Rescue

**2019 Schedule and Tuition (USD)**

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<td>DUBAI, UAE</td>
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<td>$4220</td>
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For more information, please visit www.petroskills.com/elearning or email solutions@petroskills.com

Close the gaps with e-learning!

**ePilot™ ONLINE EHS COURSE LIBRARY**

Many employers are struggling with limitations on their training resources. Yet the need to stay up-to-date with safety and regulatory mandates is critical. The gaps between what your workers’ current knowledge and what they need to know to perform their jobs are gaps. And gaps increase the risks to safety and compliance. A single gap can seriously jeopardize every safety and quality improvement effort and a company’s good standing with regulatory compliance agencies. But what can you do to reduce the risk and eliminate gaps?

PetroSkills ePilot™ EHS Library can help you:

- quickly identify knowledge gaps and generate pathways to proficiency
- achieve compliance goals with compliance-focused management and reporting
- reduce time-to-proficiency, enable refresher training, and improve on-boarding
- reduce expenses of classroom scheduling, travel, and instructor fees

How can you minimize environmental, health and safety risks—anytime, anywhere?

Pilot PetroSkills ePilot™ EHS Library can help you:

- quickly identify knowledge gaps and generate pathways to proficiency
- achieve compliance goals with compliance-focused management and reporting
- reduce time-to-proficiency, enable refresher training, and improve on-boarding
- reduce expenses of classroom scheduling, travel, and instructor fees

Any course is available inhouse at your location. Contact us today.
Applied Environmental Management Systems – AEM

FOUNDATION 5-Day
NEW Since the Rio de Janeiro Earth Summit (UNCED) held in 1992, environmental issues have been drawn to the forefront of organizations’ operations and possibly their reputations. A review of the world’s press often reveals spillages, toxic releases, fires, and other pollution events. There are efficiency opportunities from better use of energy, water and from reducing waste in a systematic way. Participants will receive a template Environmental Management System (EMS) manual for their own use as part of the study materials. This class provides a complete review of the international standard for environmental management, ISO 14001:2015, as well as other environmental management techniques. Over five days, the class works through the PDCA improvement cycle provided by ISO 14001, teaching the tools and techniques of excellent practice. The course includes a week-long practical implementation case study set in the fictional highly-realistic setting of oil products distribution company Melvis Group where the new learning is validated through application. Please see www.melvisgroup.com for more information.

DESIGNED FOR
Environmental professionals seeking a deeper knowledge of environmental management systems (EMS) and/or external certification to ISO 14001. H&S managers wanting to broaden their knowledge in a related discipline, project managers, other staff with delegated environmental responsibilities such as those related to energy, waste, or water.

YOU WILL LEARN HOW TO
• Successfully design and use the principle elements of an environmental management system in a typical petrochemical organisation
• Identify and integrate key tools associated with environmental management including environmental impact assessment, setting and progressing environmental objectives, emergency preparedness, and incident investigation
• Reflect on, shape, and initiate improvements in the environmental culture of an organisation
• Communicate a powerful improvement message to a team of senior leaders

COURSE CONTENT
Context of the organization • Leadership and commitment • Environmental policy • Roles, responsibilities, and authorities • Actions to address risks and opportunities (aspects, compliance, objectives) • Resources, competence, awareness, communication, documentation • Operational planning and control • Emergency preparedness and response • Monitoring, measurement, analysis, and evaluation • Internal audit • Management review • Improvement

Applied Occupational Health and Safety Management Systems – HSM

FOUNDATION 5-Day
NEW Every 15 seconds, somewhere in the world, a worker is killed and over 150 others are injured. Our members’ and clients’ experience is that committed application of an Occupational Health and Safety Management System (OHSMS) can reduce such incidents, while providing a platform for sustained cultural change. We call this ‘predict and prevent’ instead of the unstructured approach of ‘react and remedy.’ Participants will receive a template OH&S-MS manual for their own use as part of the study materials. This class provides a complete review of the new international standard for occupational health and safety management, ISO 45001:2018, as well as an overview of other common OHS-MS (HS(GS), ILO OSH-2001, IOP S HSE-MS) that can be aligned to organizations’ own systems. Over five days, the class works through a Plan, Do, Check, Act improvement cycle teaching the tools and techniques of excellent practice. The course includes a week-long practical implementation implementation case study set in the fictional highly-realistic setting of oil products distribution company Melvis Group where the new learning is validated through application. Please see www.melvisgroup.com for more information.

DESIGNED FOR
Health and Safety (H&S) professionals who want to take advantage of the new improvement opportunities presented by ISO 45001 (or seek external certification), project managers, contract managers, members of H&S committees, and owners, directors and managers of smaller organizations with limited access to specialist H&S advice.

YOU WILL LEARN HOW TO
• Successfully design and use the principle elements of an OH&S-MS in a typical petrochemical organisation
• Identify and integrate key tools associated with OH&S management, including Hazard, risk assessment, JSA, FTA, LOTO, active and reactive monitoring
• Reflect on, shape, and initiate improvements in the safety culture of an organization
• Communicate a powerful improvement message to a team of senior leaders

COURSE CONTENT
Context of the organization • Leadership and commitment • OHS policy • Roles, responsibilities, and authorities • Actions to address risks and opportunities (objectives and planning to achieve them) • Support (competence, awareness, communication, documentation) • Operational control • Emergency preparedness • Performance evaluation (monitoring, internal audit, management review) • Improvement

Management Systems Lead Auditor – AUD

INTERMEDIATE 5-Day
NEW Our Lead Auditor course provides a rigorous approach to conducting a risk-based internal audit of any structured means of control aligned to the international standard guidance ISO 19011. We use ISO 14001 (environment) and ISO 45001 (health and safety) as reference frameworks, but our approach could be applied to ISO 9001 (quality) or your own organization’s management systems. A copy of the best-selling book Health and Safety, Environment and Quality Audits – A Risk-based Approach is included for each participant. For the duration of the class, the participants are assigned to a 5-6 person audit team, led by an experienced Lead Auditor. This course allows participants to relate audit to the essential principles of corporate governance and risk management. It also adds value for senior management from the auditing process through provision of a high-level, future-focused opinion. The course includes a week-long practical implementation case study set in the fictional highly-realistic setting of oil products distribution company Melvis Group where the new learning is validated through application. Please see www.melvisgroup.com for more information. This course is approved by the International Institute of Risk and Safety Management (IIRSM) in conjunction with SMC – see www.iirsm.org.

DESIGNED FOR
New or aspiring management system auditors, experienced auditors aspiring to progress to Lead Auditor status, department managers wanting to understand the audit process or prior to secondment to an internal audit team.

YOU WILL LEARN HOW TO
• Lead/participate in an audit or review in line with the standards of the auditing profession, including ISO 19011:2018
• Initiate an internal audit plan
• Prepare a risk-based audit plan to steer the conduct of any audit
• Conduct audit fieldwork including the necessary reviews and tests to substantiate findings
• Report the audit results and present to senior management

COURSE CONTENT
Risk management and business control • Principles of auditing (ISO 19011) • Initiating and planning a management systems audit • Review and test • Effective interview skills • Legal and ethical aspects of auditing • Developing audit findings and writing recommendations • Reporting audit results and following up

Introduction to Petroleum Business – IPB

BASIC 3-DAY
NEW Creation of shareholder value should be at the heart of every business decision. This course is designed for technical professionals in the petroleum industry who want to understand the nature of the petroleum business and how you will contribute to the financial success of your company. The course will introduce delegates to the structure of the petroleum business including supply and demand, how oil companies are organized and financed and what it takes to be financially successful. Success will be explored through an understanding of how we calculate long-term shareholder value both at the corporate and project level as well as the valuation of competitive advantage and incorporation of risk assessment in our models. Delegates will be introduced to the primary accounting financial statements and what they tell us about a company. Common accounting and economic terms and metrics will be reviewed. Participants should bring a PC with excel software to complete exercises.

DESIGNED FOR
Engineers, geologists, geophysicists, landmen, HR and other non-finance and accounting professionals who need an introduction to the business aspects of the petroleum industry including the interplay of finance and economic evaluation in the creation of long-term shareholder value.

YOU WILL LEARN
• How the petroleum business is structured and capital is raised
• What is shareholder value and how it is created
• The critical importance of seeking competitive advantage
• Economic and accounting terminology
• How to make an economic valuation of an investment and assess its competitive advantage
• How value creation impacts share price
• How shareholder value is measured
• What is risk and how is it assessed in economic evaluations

COURSE CONTENT
The importance of creating value for shareholders • History and characteristics of the oil and gas business • Introduction to Economic Evaluation including Net Present Value, Internal Rate of Return, and risk • Introduction to the key accounting financial statements and terms • The need for competitive advantage and how it is measured • How to develop spreadsheets to conduct economic evaluations

2019 Schedule and Tuition (USD)

HOUSTON, US
16-18 SEPT
$1105
* plus computer charge

2019 Schedule and Tuition (USD)

HOUSTON, US
28 OCT-1 NOV
$4225
16-20 DEC
$5135

2019 Schedule and Tuition (USD)

HOUSTON, US
21-25 OCT
$4325
25-29 NOV
$5035

2019 Schedule and Tuition (USD)

HOUSTON, US
15-19 JULY
$4325
17-21 JUNE
$5035

2019 Schedule and Tuition (USD)

LONDON, UK
17-21 JUNE
$5035

Any course is available inhouse at your location. Contact us today.

+1.918.828.2500 | petroskills.com | +1.800.821.5933 (toll free North America)
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.

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 affecting 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 analyses • Tips on economic factors in computer spreadsheet analysis • Ethics in economic analyses

Expanded Basic Petroleum Economics – BEC
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. This course will provide the fundamentals necessary to enable you to do so. Budgeting and financing, accounting, and 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.

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
• Models to weigh risk and uncertainty
• Techniques to determine expected value
• The effect finance, budgeting, and contractual agreements have on a project
• The basic principles of accounting

COURSE CONTENT
Forecasting oil production • Defining: reserves, operating expenses, capital expenditures, inflation, factors affecting 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 analyses • Tips on economic factors in computer spreadsheet analysis • Ethics in economic analyses

Managing Non-Technical Risks – MNTR
BASIC
Non-technical or societal risks have become the main source of business delays and budget overruns in the oil and gas industry. Non-technical risks typically are related to political, regulatory, health, safety, security, environmental, and social issues. Mitigation requires good external awareness and stakeholder engagement skills, but also the willingness of technical and commercial teams to work closely together with the non-technical disciplines to accommodate non-technical perspectives in project designs and plans. This course looks at both the internal and the external challenges that a company may face related to stakeholder engagement. On the external side, we look at current trends in western and non-western societies, we study key stakeholder groups, in particular those seen as “difficult to deal with,” and then cover the practicalities of creating and maintaining effective relationships. However, a company will not be effective in its response to the external world if it is not well organized internally. Therefore, this course will also look at processes and tools to ensure internal alignment and cooperation with the aim to link external perspectives to business decision making. A key methodology is the quantification of non-technical risks because it helps prioritize and focusing of resources and mitigating activities.

DESIGNED FOR
All oil and gas business professionals who are directly or indirectly involved in the management of non-technical risks. Specifically, managers with accountability for business delivery that is, projects or operations; managers of technical and commercial teams that support projects or operations; and professionals in Health, Safety, Security & Social Responsibility; Government Relations; and Communications.

YOU WILL LEARN
• About important trends in the relationship between business and society
• To make the business case for active management of non-technical risks
• Essential concepts of stakeholder engagement, including dealing with activist stakeholders
• How to set up the internal structure and collaboration model to respond effectively to the external world
• How to apply the tools to identify, assess, quantify, and mitigate non-technical risks
• How to integrate non-technical risks into business decision-making processes

COURSE CONTENT
Trends in western and non-western societies affecting oil and gas companies • The business impact of non-technical risks: the case for action • An overview of modern stakeholder engagement models • Methods to deal with NGO’s, activist investors, and communities • Insight in the power and limitations of multi-stakeholder initiatives • Leave with a blueprint for implementation in your own company and more...

Cost Management – CM
FOUNDATION
Few problems threaten the petroleum businesses more than uncontrolled costs. Economic realities have made it necessary for most companies to operate with a “lean and mean” philosophy. As the price of our products fluctuates widely, the most vulnerable companies are those that are ineffective in understanding and managing their costs. The ability to properly manage costs is now paramount in a company’s success and even their ultimate survival. As the energy industry goes through its most monumental changes since the 1970s, the companies that can identify efficiencies and inefficiencies will be able to react to the challenges of the global market place, thus generating higher profits. This seminar is an introduction to Practical Cost Management techniques designed to help the participant better understand the underlying dynamics of cost using recent events and trends, using relevant exercises, timely case studies and role-playing techniques.

DESIGNED FOR
Operating managers, technical personnel, project managers, technology managers, budget managers, or anyone wanting to manage costs more efficiently and effectively. A familiarity with finance is helpful but not required.

YOU WILL LEARN HOW TO
• Understand the different cost classifications and cost drivers
• Determine and monitor the behavior of costs
• Build your own activity dictionary
• Design management control system that works
• Understand the principles of Activity Based Cost Management (ABC) and its development and implementation
• Analyze capital projects using the proper tools and techniques
• Manage and not mismanage costs
• Develop tools to use for managing costs
• Evaluate costs for effectiveness

COURSE CONTENT
Defining costs, classifications and terminology for an ESP company • Defining cost objects, cost drivers and their behaviors • Analyzing different types of cost management systems • Using Activities Based Management (ABM) to monitor costs and processes Building and using an activity dictionary • Using value added costs versus non-value-added costs for improvement Distinguishing between cost effectiveness and cost efficiencies • Developing productivity measurements that work • Operating Cost Management using the budgets efficiently and effectively Using GAP analysis in measuring productivity of costs • Support departments cost allocations Transfer pricing • Determining the break-even cost and volumes • Using variance analysis budget for monitoring performance • Optimizing the supply chain • Developing and analyzing capital investment projects Replace versus maintain • Life Cycle Costing • Using different scenarios to more efficiently manage costs Performance Measurement using capacity management techniques

2019 Schedule and Tuition (USD)
Abu Dhabi, UAE
16-18 June $4025+VAT
26-28 Aug $3715
29 Apr-3 May $4225
22-24 July $3985
Kuala Lumpur, MYS
29 Apr-3 May $4225
22-24 July $3985
London, UK
16-18 Sept $4375+VAT
16-15 Nov $4170
San Francisco, US
11-13 Nov $3145

2019 Schedule and Tuition (USD)
Abu Dhabi, UAE
16-20 June $5345+VAT
26-30 Aug $4220
29 Apr-3 May $4225
15-19 July $4225
Kuala Lumpur, MYS
14-16 Oct $3165
22-24 July $3985
London, UK
16-20 Sept $4955+VAT
San Francisco, US
11-15 Nov $4170

2019 Schedule and Tuition (USD)
Houston, US
18-21 Feb $3815
23-27 Sept $4450+VAT
London, UK
22-25 July $4450+VAT
San Francisco, US
11-15 Nov $5035+VAT

2019 Schedule and Tuition (USD)
Houston, US
23-27 Sept $4325
London, UK
11-15 Nov $5035+VAT

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Any course is available inhouse at your location. Contact us today.
**Economics of Worldwide Petroleum Production** – EWP

**Petroleum Finance and Accounting Principles** – PFA

**Petroleum Risk and Decision Analysis** – PRD

**Advanced Decision Analysis with Portfolio and Project Modeling** – ADA

### Foundation 5-DAY

- **Economics of Worldwide Petroleum Production**
  - In the area of corporate and international petroleum production, do you know how to choose the best investments? Can you properly evaluate investment opportunities? Do you know what investment projects are synergistic? Do you have a set of criteria to use for best results? Answers to these questions will greatly improve your ability to make profitable decisions. Techniques for predicting profit, production, operating costs, and cash flow enable the analyst to evaluate decision alternatives for optimum results. Understanding cost of capital, financial structure, risk and uncertainty, present worth, rate of return, and other economic yardsticks enhances the quality and the value of economic analysis.
  - Discussion of real-life examples with participants from many different countries enhances the value of the course.

- **Petroleum Finance and Accounting Principles**
  - Making the most efficient use of your resources is critical to the success of any company. Finance and accounting comprise the universal business language and help you manage those resources effectively. Planning and decision making that occur in an informal financial context permit better application of resources and promote competitive advantage. The aim of this course is to improve delegates’ job performance by enhancing their understanding of current international practices in finance and accounting within the E&P industry. The latest issues are discussed.

- **Petroleum Risk and Decision Analysis**
  - Good technical and business decisions are based on competent analysis of project costs, benefits and risks. Participants learn the decision analysis process and foundation concepts so they can actively participate in multi-discipline evaluation teams. The focus is on designing and solving decision models. About half the problems relate to exploration. The methods apply to R&D, risk management, and all capital investment decisions. Probability distributions express professional judgments about risks and uncertainties and are carried through the calculations. Decision tree and influence diagrams provide clear communications and the basis for valuing each alternative. The complementary Monte Carlo simulation technique is experienced in detail in a hand-calculation exercise. Project modeling fundamentals and basic probability concepts provide the foundation for the calculations. The mathematics is straightforward and mostly involves only common algebra. This is a fast-paced course and recommended for those with strong English listening skills. This course is intended as the prerequisite for the Advanced Decision Analysis with Portfolio and Project Modeling course.

### Course Content

- **Petroleum Finance and Accounting Principles**
  - **Course Content**
    - Pricing: natural gas, marker crudes, DPEC, spot and futures markets, transportation
    - Production rate: mathematical models
    - Cash flow: revenue, capital and operating costs, spreadsheet exercises
    - Economic evaluation: present value concepts, sensitivity and risk analysis, decision trees, royalty, sources of capital, incremental economics, sunk costs, inflation
    - Budgeting: examples and exercises, long-range planning
    - Cash versus write-off decision: depreciation, depletion, and amortization
    - How to read an annual report: statements, financial ratios, what it is and is not included, reading between the lines
    - Worldwide business operations: concessions, licenses, production sharing contracts, joint ventures, cost of capital, sources of funding, debt and equity
    - Performance appraisal: buy/sell assessments
    - Computer economics software
    - Tips on format and inclusion of economic factors in computer spreadsheet analysis
    - Ethics in economic analyses

- **Petroleum Risk and Decision Analysis**
  - **Course Content**
    - Getting started: financial terms and definitions, the language of business; accounting rules, standards, and policies
    - Constructing basic financial statements
    - Classifying revenues, assets, liabilities, and equity
    - Comparing different accounting elements
    - Accounting for joint operations
    - Accounting and reporting

- **Advanced Decision Analysis with Portfolio and Project Modeling**
  - **Course Content**
    - Decision Modeling: application of DA process for modeling, influence diagrams, judgments and biases; sampling error bias; sensitivity analysis; documentation and good modeling practices; real options overview
    - Monte Carlo Simulation: multi-year prospecting risk (similar to play analysis); calculating probabilities and distributions with simulation; modeling and optimizing investment portfolios; valuing added control and flexibility; stopping rules; ways to model correlation
    - Decision Tree Analysis: value of information review; sensitivity analysis; solving with utility for risk aversion
    - Decision Policy: portfolio optimization to maximize economic value; efficient frontiers; multi-criteria decision making; risk policy – a utility function; calculating expected utility and certain equivalent; insurance and hedging; optimizing working interests
    - Implementation: eliciting a decision maker’s or organization’s preferences for trade-offs among objectives, time value, and risk attitude; decision analysis presentation agendas and formats; special topics from the instructor’s own research and experience

### 2019 Schedule and Tuition (USD)

<table>
<thead>
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<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
<th>Notes</th>
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*plus computer charge*

### 2019 Schedule and Tuition (USD)

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<tr>
<td>LONDON, UK</td>
<td>20-24 MAY</td>
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*any course is available inhouse at your location. contact us today.*
Fundamentals of International Oil and Gas Law — IOG

FOUNDATION 5-DAY

International petroleum transactions occur within a complex legal environment that limits what petroleum companies, host governments and service companies can do, and interprets and enforces many of their promises. Petroleum professionals often lack the broad understanding of what makes up this legal environment and how it can have an impact on their work. This course is designed to give participants a basic understanding of the legal fundamentals that make their international transactions work, including the principles that apply to interpreting and enforcing their agreements, the procedures for resolving their disputes, addressing interplay issues posed by common contract provisions, and avoiding liability under environmental and bribery laws. The course will teach participants to confidently identify potential legal problems, address them before they become serious, and facilitate the smooth interaction between oil and gas professionals, host government representatives, and their lawyers.

YOU WILL LEARN HOW TO
- Recognize differences between international legal systems and transactions
- Understand legal fundamentals behind international transactions

COURSE CONTENT
- Law governing international petroleum transactions (including significant differences between various national legal systems, and the sources, principles, and limits of international law as applied to petroleum transactions)
- Interpretation and enforcement of treaties and private contracts
- Effects of international trade (and producing country) agreements such as the E.U., NAFTA, Mercosur, and OPEC
- Dispute resolution approaches, including litigation and arbitration
- Procedures under and enforcement of common arbitration provisions
- Legal defenses available to foreign companies, states, and state-owned or connected entities, and recognition and enforcement of judgments and arbitration awards
- Basic legal concepts of ownership of mineral rights (onshore, offshore, and deep sea bed)
- Expropriation and compensation issues
- State-owned entities and privatization
- Laws bearing on development rights
- Legal interpretation issues of common contract provisions
- Interpretative issues for service contracts
- Transfer and protection of technology and confidential business information
- Operating agreements and unitized operations
- Environmental protection laws
- Criminal and civil liability for oil spills
- Indemnification and guaranty issues
- Bribery laws
- Marketing and transportation
- Petroleum futures

See website for dates and locations.

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Strategic Thinking: A Tool-Based Approach — STT

SPECIALIZED 3-DAY

This course is a hands-on case-based course focused on enhancing strategic thinking capabilities of decision makers in the oil and gas industry including those responsible for building and sustaining successful strategic plans. Participants are presented with several strategic tools for analyzing different aspects of the petroleum business from both a macro and micro perspective. There is a major emphasis on understanding how the petroleum industry has developed over the last 150 years including both successful and unsuccessful strategies that were used. This provides a basis for evaluating game changers that are now transforming the industry and positioning our businesses to maximize shareholder value. Case studies during this course provide opportunities for individualized and team-based learning. Teaching approach follows an iterative process of interactive discussions, application of materials, discussion of results, and re-application of materials to new contexts.

DESIGNED FOR
- Geologists, geophysicists, engineers, managers, and executives responsible for defining, assessing, and developing business alternatives and strategy in the petroleum industry.

YOU WILL LEARN HOW TO
- Summarize, present, and discuss strategic management topics and issues
- Determine the factors that influence organizations to change their level of strategic thinking
- Identify, understand, analyze, and evaluate the strategies of their own units/divisions and other businesses in light of current and potential game changers
- Describe, apply, draw, and defend conclusions from strategic analysis tools

COURSE CONTENT
- Review of the history of strategic thinking
- Assessment of the petroleum industry from a strategic perspective as a supplier of energy
- Understanding of how the industry responded strategically to historical events and what are the game changers that are now framing its future
- STEEPE framework
- Michael Porter’s value chain analysis
- Competitive Advantage: defined theoretically and quantitatively
- SWOT (strengths, weaknesses, opportunities, threats) analysis
- Strategic thinking as a craft
- Scenario analysis and planning
- Sigma
- Boston Consulting Group (BCG) growth share matrix
- Personal application of strategic thinking

See website for dates and locations.

Contracts and Tenders Fundamentals — SC41

FOUNDATION 3-DAY

This three-day course is designed to help companies award the right contracts to the best providers. Contracting involves many roles that must work together to negotiate, document, and ensure a reliable supply of goods and services for capital projects and ongoing operations. Everyone involved in contracting with suppliers and service providers must understand the entire process, the keys to success, and what is required of their role if contracts are to be effective in managing supply risks. Materials and exercises in this course are specifically built around oil and gas industry issues.

DESIGNED FOR
- Individuals involved in any aspect of sourcing, tendering, selecting, forming, and executing contracts with suppliers of goods and services to the oil and gas industry. Included are project technical roles such as facilities engineers, drilling engineers, project engineers, commissioning engineers, contractors engineers, and planning engineers.

YOU WILL LEARN
- How to better manage project and legal risks with the contracting process
- How to successfully manage disputes and contract assurance issues
- What is required in a successful tender package
- How to identify the appropriate contract price strategy to minimize financial risks and contract costs
- The difference between cost and price analysis and how to use each technique to evaluate a proposal
- Appropriate commercial and legal contract terms and conditions

COURSE CONTENT
- Overview of the contracting process
- Key issues in forming a contract in the oil and gas industry
- Establishing risk management priorities throughout the contracting process
- The legal environment and best use of legal counsel in contracting
- Avoiding and managing contract disputes in a challenging industry
- The tendering process and key documents in the tender package
- Buyer and seller pricing objectives to consider when tendering
- Tools used in tendering to address financial key risks
- Types of contracts and examples of industry applications
- Using economic price adjustment clauses in lump sum agreements
- Bid evaluation and award considerations including price/cost analysis
- Using a formal contract change control process

See website for dates and locations.

Effective Materials Management — SC42

FOUNDATION 3-DAY

This three-day course covers practical considerations essential to achieve major improvements in planning, buying, storing, and disposing of the vast array of materials and spare parts necessary in the oil and gas industry. Evolving best practices by major oil and gas companies are explored under three inter-related modules - inventory management, warehousing, and investment recovery.

DESIGNED FOR
- Professional and management personnel who have responsibility for materials, spare parts, and supplies needed to support any refinery, gas plant, onshore/offshore production, or other industry operations.

YOU WILL LEARN
- How to provide better customer service for long lead or critical materials and spare parts essential to the success of any well field operation, offshore platform, refinery, gas plant, or chemical processing facility
- How to establish the best methods of inventory analysis and create performance measures for min/max and order point systems
- How to use supplier stocking programs, consolidated inventory, and integrated supply agreements
- How inventory systems use forecasting techniques and what can be done to improve them
- How to improve warehouse efficiency, layout, and space utilization for better inventory management
- How to improve inventory record accuracy and physical control of materials to lower inventory levels and increase space utilization
- Best practices used to manage surplus or inactive assets and increase investment recovery dollars

COURSE CONTENT
- Setting comprehensive inventory goals and objectives
- Understanding carrying costs and economic order quantity theory
- Improving material identification and coding
- Segmented inventory for analysis
- Using formal procedures for making the decision to stock
- Determining safety stock levels and order points
- Improving min/max systems and settings
- Understanding and using material forecasts
- Establishing a warehouse scorecard
- Creating best practices in the physical control of materials
- Measuring record accuracy and improving cycle counting systems
- Increasing the use of warehouse technologies
- Improving warehouse safety and security
- Preventing and reducing surplus materials
- Understanding investment recovery techniques
- Using the disposition value chain for investment recovery

See website for dates and locations.

2019 Schedule and Tuition (USD)

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<th>Location</th>
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<tr>
<td>IOG</td>
<td>11-13 Nov</td>
<td>Houston, US</td>
<td>$3365</td>
</tr>
<tr>
<td>STT</td>
<td>16-18 Sep</td>
<td>Houston, US</td>
<td>$3845</td>
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See website for dates and locations.
Inside Procurement in Oil and Gas – SC61

INTERMEDIATE 3-DAY

This course will expand the industry understanding of supply chain professionals and increase their value-added in a global, fast changing environment. Participants will learn what each industry segment requires from procurement and be given insights to maximize value delivery and increase their contribution. The course includes an online, interactive forum with the instructor, and pre-read materials designed to familiarize course attendees with relevant issues. Attendees will leave better prepared to create and support procurement strategies that meet stakeholder needs, whether for projects or operations support.

DESIGNED FOR
Supply chain professionals with 2-7 years’ experience either inside or outside the oil and gas industry. The course is also available in-house at your location.

YOU WILL LEARN
• How the industry is structured, including host country and strategic relationships
• Business drivers and interface issues to be supported by procurement
• The role of industry economics in dictating procurement practices and cost management
• Industry global compliance needs and how procurement can add value
• How the industry is modeled in the E&P (upstream), midstream, and downstream value chains
• The E&P Asset Management Cycle and Total Cost of Ownership concepts
• Characteristics of supply markets to oil and gas and the emphasis on market intelligence practices and managing supply risks
• What constitutes effective procurement/supply chain metrics for performance improvement
• Procurement challenges unique to the industry

COURSE CONTENT
Industry overview for procurement including host country and strategic relationships • Key business drivers and interface issues between projects (CAPEX) and operations (OPEX) • Procurement's role in oil and gas value chain management - upstream, midstream, and downstream • E&P asset management cycle and total cost of ownership • Economics of oil and gas that drive procurement value creation • Industry regulatory and contractor safety compliance issues • Industry market intelligence practices in procurement • Industry spend analysis characteristics and strategies • Creating industry category management (sector) strategies • Key procurement and supplier performance metrics • Trends in global sourcing and local content requirements and strategies • Oil and gas law and global contracting risks • Influence of eCommerce and eProcurement initiatives in oil and gas

2019 Schedule and Tuition (USD)

HOUSTON, US 8-10 JULY $3365

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Strategic Procurement and Supply Management in the Oil and Gas Industry – SC62

INTERMEDIATE 3-DAY

The development and implementation of carefully crafted strategies for the procurement of all goods, equipment, materials, and services has become a critical issue for all those in the oil and gas industry wishing to reduce operating cost while improving quality and productivity. This program explores key concepts forming the basis of strategic supply management, and moves today’s supply management organization from its typical tactical focus to the strategic focus needed to successfully implement the processes and methods needed to reach world-class performance.

DESIGNED FOR
Managers and professionals in supply management, procurement, purchasing, contracts, materials, inventory control, projects, maintenance, operations, finance, as well as other professionals interested in lowering total cost and increasing productivity and profit contributions from better supply management operations.

YOU WILL LEARN
• Stages to world class supply management • Skill sets in supply management • Organizing the spend profile • Greater abilities in leading continuous improvement programs • Ways in dealing with economic uncertainties • Questions for internal surveys to enhance purchasing performance • How to develop a “Purchasing Coding System” • Steps in the development of a Composite Purchase Price Index • How to get more time to work on strategic issues • Negotiation planning and strategies • To understand the elements of cost that make up a supplier's price • Categories in a purchased materials/services strategic plan outline

COURSE CONTENT
Stages to world class supply management • Change and becoming more strategic • Supply management skill sets • Defining supply management • Examples of job descriptions for supply management • Developing the spend profile • Creating time to be strategic • The ABC (Pareto) analysis and what to do with it • Material/services purchasing code development • Elements of cost that make up the price • Developing “should cost” • Producer price indexes • Requesting supplier's cost and pricing data • Dealing with economic uncertainties • When, where, and how to use “Economic Price Adjustment” clauses • Internal surveys to improve purchasing performance • Total cost of ownership concepts • Cost containment methods • Cost reductions and cost avoidance • Savings reporting procedure • Developing purchased materials/services strategic plans • Developing the purchase price index for your organization • Negotiation skill sets • Steps in negotiation preparation • Positional negotiations • Final points before the negotiation

2019 Schedule and Tuition (USD)

HOUSTON, US 9-10 SEP $2635

Supplier Relationship Management – SC63

INTERMEDIATE 2-DAY

Continuous improvement in all aspects of the supply chain is necessary to remain competitive in today’s global economy. The traditional adversarial relationship and transactional focus of buyers and suppliers cannot suit this demand for continuous improvement in lead-time, quality, and overall supplier performance. As a result, significant changes are occurring in the philosophies and approaches that define the relationship between purchasers and sellers in world-class organizations. Simply put, Supplier Relationship Management (SRM) and collaboration provide an organizational focus on communicating with suppliers on the many steps of the Supply Management process. This focus reduces the lead-time and total cost of acquisition, transportation, administration, and, possession of goods and services for the benefit of both the buyer and seller, and as a result provides a competitive advantage and improved profits.

DESIGNED FOR
Managers and professionals involved in purchasing, projects, contracts, supply management, operations, maintenance, engineering, quality, and other activities that expose them to dealings with suppliers for goods, equipment, and services in the oil and gas industry.

YOU WILL LEARN
• The Supplier Relationship Management Maturity Model • Importance of SRM in continuous improvement • Critical steps in developing trust with suppliers • Supplier segmentation models • 8 Step Strategic Alliance Development • The difference between SRM and collaboration • Best practices in managing supplier relations • Key elements in improving the supplier relationship • Best practices in supplier qualification, measurement, and recognition • The importance of reengineering in SRM • Supplier risk management process

COURSE CONTENT
The organizational challenge • Defining the supply management mission and vision • Critical supply strategies • Defining Supplier Relationship Management (SRM) • The SRM Maturity Model • Major components of SRM • Defining levels of the organization’s SRM Maturity • Critical ABC analysis • Commodity and service coding • Segmentation of the supplier base • Defining the alliance • The alliance process • Success factors and barriers to alliances • Focusing on high value activities • Reengineering • Detailed mapping of processes • Developing the skills and defining the organization’s mission in building supplier relationships • Best practices for managing supplier relations • A survey for letting the supplier rate you • Maintaining good supplier performance • Who and what to measure • Monitoring supplier performance • Developing and maintaining a supplier performance index • Supplier recognition and expectations • Supply Risk and trends leading to greater risk • Typical risk management process

2019 Schedule and Tuition (USD)

HOUSTON, US 14-16 OCT $3305

Cost/Price Analysis and Total Cost Concepts in Supply Management – SC64

INTERMEDIATE 3-DAY

Managing and reducing cost continues to be one of the primary focal points of PSCM in oil and gas today. In many organizations, more than half of the total revenue is spent on goods and services, everything from raw material to overnight mail. Maintaining a competitive position and even survival will depend on the organization’s ability to use all of the continuous improvement strategies that have been developed to reduce cost across the entire supply chain for the life of the product or service. Fundamental to developing and implementing these strategies is knowledge of cost/pricing analysis, value analysis, and total cost of ownership concepts. This course provides the concepts that are essential skill sets in developing and implementing the strategies required to achieve the high levels of cost reductions possible from the supply chain. SC64 is also available as a 5-day in-house course with expanded content.

DESIGNED FOR
Managers and professionals in purchasing, procurement, and contracts as well as those involved in operations, engineering, maintenance, quality, projects, and other company activities that expose them to suppliers and buying activities for raw material to maintenance, equipment, MRO, services, and other outside purchased requirements.

YOU WILL LEARN
• Importance of price/cost analysis in continuous improvement programs • The difference between price and cost analysis • Methods of price analysis • How to manage volatile markets • Use of Price/Cost Indices • Methods of cost analysis • Development of “Should Cost” • Types of TCO models

COURSE CONTENT
Use of price indexes • Cost/price analysis • Total cost of ownership • RI & Q/tendering as a price analysis tool • Cost estimating relationships • Purchasing savings impact on the bottom line • Developing the spend profile • Sources of spend data • How to perform the ABC analysis • Examples of using pivot tables in Excel for data mining • Continuous improvement skill sets • Difference between cost and price analysis • Selection tool • Methods of price analysis • Historical analysis • Developing company purchase price index • Index methods of cost analysis • Major elements of cost • Requesting supplier cost info • Sources of cost information • What and how important are supplier overheads • How much profit should the supplier make economic • Price adjustment clauses • Total costs of ownership models • How to combine price and performance to obtain TCO

2019 Schedule and Tuition (USD)

HOUSTON, US 10-12 MAR $2255

See website for dates and locations.
Petroleum Project and Program Management Essentials – P3ME

FOUNDATION 3-DAY

- Petrolum companies often use projects to develop the skills of early career project professionals. This course covers the essential skills of petroleum project and program management and provides an opportunity to apply those skills to your project. You will be able to utilize fit-for-purpose prioritization techniques and control tools to facilitate successful outcomes. The specific training received in planning, scheduling and risk management will help the early career professional make the best decisions possible. Participants will learn how the project management, HSE, engineering, operations, maintenance, procurement/ supply chain, and transportation disciplines relate to one another and what tools are available to ensure interfaces among key stakeholders are managed. The course is taught using a combination of instruction, facilitated discussion, and team exercises using real-world examples related to facilities, drilling, and maintenance. The exercises will include both individual and group activities that will provide each participant with a hands-on application of the principles and practices discussed throughout the course.

DESIGNED FOR
- Project managers and engineers, facility engineers, operations and maintenance representatives, schedulers, cost controllers, and purchasing personnel who plan, manage, or participate on multi-discipline teams. This course also addresses the essential requirements associated with managing programs whose timely completion is essential to the success of regional operations.

YOU WILL LEARN HOW TO
- Apply essential work management techniques to a variety of tasks
- Identify key constraints and interfaces and develop action plans to address them
- Develop charts, scopes of work, schedules and cost estimates
- Prioritize the work to best meet evolving operations needs
- Prepare petroleum project execution plans and procedures
- Utilize progress measurement and control techniques
- Use dashboards to track progress of larger programs and identify areas that need attention

COURSE CONTENT
- The petroleum project delivery system
- Organization and resources
- Engineering, maintenance and operations
- The execution plan
- HSE and risk management
- Procurement and contracting
- Cost management
- Planning and scheduling
- Progress measurement
- Program management essentials

2019 Schedule and Tuition (USD)
- HOUSTON, US 4-8 NOV
- CALGARY, CANADA 15-19 JUL
- KUALA LUMPUR, MYS 17-21 JUNE
- LONDON, UK 2-6 SEP

- $4425
- $4370+GST
- $320
- $5135+VAT

Petroleum Project Management: Principles and Practices – PPM

INTERMEDIATE 5-DAY

- Many petroleum projects fail to meet their authorized cost, schedule or operability targets. To be successful, today’s project leader needs a comprehensive set of technical, business and interpersonal skills. This course addresses those critical skills. Seasoned instructors tackle the issues and challenges found in concept selection, development planning, facility design, procurement, and construction activities. The specific training received in schedule and cost management, risk mitigation, and the proper use of scarce resources will help you make better decisions. Upon completion you will know how to improve engineering and service discipline work relations, use execution plans to integrate the work, and effectively employ cost and schedule control tools.

COURSE CONTENT
- The staged development process
- Scope definition
- Scheduling tools
- Manpower resources
- Finding and mitigating risks
- Learning, continuous improvement, and quality control
- Project team management

YOU WILL LEARN HOW TO
- Navigate the staged development process
- Manage the interfaces among exploration, drilling and facility groups
- Properly define a scope of work
- Create a realistic, integrated schedule
- Find and reduce petroleum development risks
- Develop a high-performance team
- Capture lessons learned

2019 Schedule and Tuition (USD)
- CALGARY, CANADA 15-19 JUL
- HOUSTON, US 8-12 JUL
- LONDON, UK 4-8 NOV

- $4425
- $4425
- $4425
- $4425

Managing Brownfield Projects – FPM42

INTERMEDIATE 5-DAY

- Why is it so difficult to manage projects inside operating facilities? Keeping the scope from growing is a constant battle. Operations priorities and maintenance needs hamper work productivity, and maintenance needs are often considered secondary to profitability. Brownfield projects need strong control, effective liaison, and good interface management. They must be managed differently than greenfield projects. Experienced instructors will share tools and techniques that will help you work in this dynamic, operations-centric project environment. Upon completion you will know how to examine existing documentation and confirm field conditions to improve scope control; frame a project and select the best concept for development; and coordinate the work effectively with operations, maintenance and shipping. Instruction, guided discussion, and in-depth work tasks based on the instructor’s brownfield project management experience are used. Offshore and onshore examples are used. The sharing of experience in this course make the sessions challenging and insightful.

COURSE CONTENT
- Brownfield gate system
- Staffing the team
- Communications needs in an operating facility
- Challenges in concept choice
- Key value improving practices
- Due diligence in the existing facility
- Quality in engineering, procurement, and construction
- Increased brownfield risks
- Change management
- Contract strategy
- Procurement, logistics, and material management
- Construction management
- HSE
- Managing cost/schedule
- Performance reporting
- Commissioning and startup
- Roles and qualities of successful project managers

2019 Schedule and Tuition (USD)
- CALGARY, CANADA 15-19 JUL
- LONDON, UK 4-8 NOV

- $4425
- $4370+GST
- $5135+VAT

Project Management for Engineering and Construction – FPM22

INTERMEDIATE 5-DAY

- Many petroleum projects fail to meet their authorized cost, schedule or operability targets. To be successful, today’s project leader needs a comprehensive set of technical, business and interpersonal skills. This course addresses those critical skills. Seasoned instructors tackle the issues and challenges found in concept selection, development planning, facility design, procurement, and construction activities. The specific training received in schedule and cost management, risk mitigation, and the proper use of scarce resources will help you make better decisions. Upon completion you will know how to improve engineering and service discipline work relations, use execution plans to integrate the work, and effectively employ cost and schedule control tools.

COURSE CONTENT
- The staged development process
- Scope definition
- Scheduling tools
- Manpower resources
- Finding and mitigating risks
- Learning, continuous improvement, and quality control
- Project team management

YOU WILL LEARN HOW TO
- Define development stages and skillfully execute them
- Develop scopes of work and execution plans
- Utilize project control techniques and earned value analysis
- Develop engineering design checklists to ensure key deliverables for each phase are addressed
- Guide teams through technical reviews and secure needed approvals
- Measure progress during construction

2019 Schedule and Tuition (USD)
- CALGARY, CANADA 15-19 JUL
- HOUSTON, US 8-12 JUL

- $4425
- $4370+GST
- $5135+VAT

Project Development Systems for the Oil and Gas Industry – PDP22

INTERMEDIATE 5-DAY

- Many petroleum projects fail to meet their authorized cost, schedule or operability targets. To be successful, today’s project leader needs a comprehensive set of technical, business and interpersonal skills. This course addresses those critical skills. Seasoned instructors tackle the issues and challenges found in concept selection, development planning, facility design, procurement, and construction activities. The specific training received in schedule and cost management, risk mitigation, and the proper use of scarce resources will help you make better decisions. Upon completion you will know how to improve engineering and service discipline work relations, use execution plans to integrate the work, and effectively employ cost and schedule control tools.

COURSE CONTENT
- The oil and gas industry
- The stage-gate system
- Key value areas for leaders
- Leadership
- Design engineering
- Contracting
- Execution planning for design, procurement, and construction
- HSE management
- Risk identification and mitigation
- Organization types and resource deployment
- Work breakdown structure
- Planning and scheduling
- Progress measurement
- Cost estimating
- Change control
- Reviews and approvals

YOU WILL LEARN HOW TO
- Deal with competing priorities
- Stage development to manage plant complexity
- Minimize surprise work due diligence surveys
- Resolve issues using an oversight board
- Tailor contracting strategy for brownfield projects
- Tackle unique brownfield constructability issues
- Ensure operations staff buy into objectives

2019 Schedule and Tuition (USD)
- CALGARY, CANADA 15-19 JUL
- HOUSTON, US 8-12 JUL

- $4425
- $4370+GST
- $5135+VAT

* plus computer charge

See website for dates and locations.
Managing Project Controls for Contractors and Owners - PC21  
**INTERMEDIATE**  
3-Day  
This course addresses project controls principles and practices as they relate to fabrication as well as engineering, procurement, and construction contractors. The focus of the course is using project controls effectively to work with the client, maintain project profitability, make schedule, and deliver a quality and safe project. Upon completion of this course, the participant will understand the critical success factors for cost estimating, scheduling, and progress measurement and be able to utilize these best practices to resolve issues and challenges experienced by EPC contractors on their projects. Participants will understand all the steps necessary to develop an effective EPC project controls plan and staff it to increase the likelihood of success. The course focuses on completing contract requirements during the detailed engineering, procurement and construction phases of project development. How to use project controls for effective decision making and client management is also addressed. The course is taught using a combination of 30% instruction and 70% facilitated workshop sessions that address real-world issues and challenges. The workshop sessions include both individual and group activities that will provide each participant with a hands-on application of the principles and practices discussed throughout the course.  
**YOU WILL LEARN HOW TO**  
- Understand the critical role that project controls play in developing a well-planned and executable EPC proposal for both cost and schedule  
- Set progress measurement metrics so that the client, contractor management and team members understand the potential to meet project cost and schedule  
- Support a successful outcome from Front End Engineering Design through execution with necessary project controls activities (cost, schedule, and earned value management)  
- Develop a robust EPC Project Controls Plan and associated staff with roles and responsibilities to support the plan  
- Manage project changes when requested by the client  
- Forecast the final project cost and the final project completion date using progress measurement or earned value  
- Use Monte Carlo simulation to reveal problems with a proposal’s cost and schedule  

Course Content  
In the context of Project Controls, a case study will address:  
- Supporting project execution  
- Cost estimating  
- How to realize when you have under-bid the project  
- How to schedule when owner is causing delays  

2019 Schedule and Tuition (USD)  
**HOUSTON, US**  
- **5-7 AUG**  
  - **$3305**  

Turnaround, Shutdown and Outage Management – TSOM  
**INTERMEDIATE**  
3-DAY  
Scheduled turnarounds are difficult to manage. Managing a surprise shutdown or outage is like firefighting. Firefighters succeed because they know what strategies work and are highly trained to handle complex, risky situations. Uncertainty and complexity abound when a plant is down. Extra work can appear when equipment is opened and inspected. Integrating project work increases the challenge. Experienced instructors show you how to control scope uncertainty, tackle the complexity of integrating project work, and get the facility restarted. Upon completion you will know how to deploy scarce resources (time, people and materials) to complete work on time and within budget; utilize best practices in TSO planning, execution and closeout; and manage engineering, maintenance, operations and project interfaces. A blend of instruction, guided discussion, and hands-on exercises using real world examples makes the sessions thought provoking. The exercises will include both single and group activities.  
**DESIGNED FOR**  
Managers, supervisors, engineers, schedulers in maintenance, operations, reliability, HSE, procurement and projects should attend. This course also helps business, commercial, finance and other non-technical personnel who want to know more about turnaround, shutdown and outage best practices.  
**YOU WILL LEARN HOW TO**  
- Establish targets to ensure support from all facility stakeholders  
- Develop a robust resource plan and get the resources you need  
- Integrate scopes for both maintenance and projects  
- Establish turnaround scope selection criteria early  
- Select a computerized work system  
- Address key outage constraints and operations interfaces  
- Develop a robust contracting plan  
- Prepare an execution plan  
- Measure and control shutdown progress  

**Course Content**  
Six-phases of turnaround, outage and shutdown management:  
- Issues and challenges  
- Quality control  
- Health, safety and environmental planning  
- Computerized systems benefits and choices  
- Integrating the plan  
- Managing stakeholders and resources  
- Procurement and contracting  
- Tracking progress and controlling change  

Advanced Project Management – FPM62  
**SPECIALIZED**  
5-DAY  
Mega projects are complex. A program composed of these super projects is highly complex. For a very large project, addressing linked issues is key to improving the chances of success. In a larger program, these key issues interact producing unexpected results. Instructors will explore critical issues in contracting, decision making, and facility design. Interface control and risk reduction are examined. Non-technical problems in stakeholder relations, partner ventures, and approvals, are also tackled. Upon completion you will know how to deal with the program complexity and surprise effects; improve program strategies and deliver the projects on time; address both project and program resource concerns. Instruction, guided discussion, and in-depth work tasks based on the instructor’s petroleum experience are used. The work will include both single and group activities.  
**DESIGNED FOR**  
Experienced project managers, project engineers, project controls managers, and construction managers who are working on large international projects or about to start new assignments on international projects. Practical case studies will cover the entire spectrum of a large international project and will include offshore and onshore capital investment.  
**YOU WILL LEARN**  
- Why international projects fail and the early warning signs to look for  
- The principles of project management that ensure project success  
- How to build a strong and effective Project Management Team (PMT)  
- How to identify and manage project stakeholders  
- How to conduct business and yourself in the international arena  
- How to select an effective contracting strategy and the appropriate negotiation style  
- The practical approach for global engineering, procurement, logistics, fabrication, construction, and commissioning  
- How to conduct project risk management throughout the entire project lifecycle  
- How to apply effective leadership and strategy on your international project  

**Course Content**  
- Why projects fail  
- Project Management principles (PMT, scope, cost, schedule, safety, and quality)  
- Stakeholders management on international projects  
- Host country - business and culture contracting  
- Strategies and negotiations  
- Global engineering - from concept through detailed design procurement and logistics  
- Fabrication, construction and commissioning  
- International project risk management  
- Leadership and strategy  

Advanced Project Management II – FPM63  
**SPECIALIZED**  
5-DAY  
This five-day, advanced level course for experienced project management professionals addresses the fundamental principles and techniques of project management and how to apply them on large international projects. This course will cover all the project phases, with hands-on content directly supported by practical case studies.  
**DESIGNED FOR**  
Experienced project managers, project engineers, project controls managers, and construction managers who are working on large international projects or about to start new assignments on international projects. Practical case studies will cover the entire spectrum of a large international project and will include offshore and onshore capital investment.  
**YOU WILL LEARN**  
- Why international projects fail and the early warning signs to look for  
- The principles of project management that ensure project success  
- How to build a strong and effective Project Management Team (PMT)  
- How to identify and manage project stakeholders  
- How to conduct business and yourself in the international arena  
- How to select an effective contracting strategy and the appropriate negotiation style  
- The practical approach for global engineering, procurement, logistics, fabrication, construction, and commissioning  
- How to conduct project risk management throughout the entire project lifecycle  
- How to apply effective leadership and strategy on your international project  

**Course Content**  
- Why projects fail  
- Project Management principles (PMT, scope, cost, schedule, safety, and quality)  
- Stakeholders management on international projects  
- Host country - business and culture contracting  
- Strategies and negotiations  
- Global engineering - from concept through detailed design procurement and logistics  
- Fabrication, construction and commissioning  
- International project risk management  
- Leadership and strategy  

2019 Schedule and Tuition (USD)  
**HOUSTON, US**  
- **26-28 AUG**  
  - **$3295**  

2019 Schedule and Tuition (USD)  
**HOUSTON, US**  
- **22-27 SEPT**  
  - **$4825**  

See website for dates and locations.  
*Any course is available inhouse at your location. Contact us today.*  
+1.918.828.2500  |  petroskills.com  |  +1.800.821.5933 (toll free North America)
Advanced Project Management Workshop – APMW
SPECIALIZED 3-Day
This course will not follow the traditional lecture-style format, instead it will be an interactive hands-on workshop where the participants will work on several case studies directly related to the selected topics. This workshop will take an EPC contractor perspective while also highlighting how Owner companies (NDCs & IOCs) interact with their EPC contractors to develop and execute their projects. The workshop material covers both onshore and offshore projects. The main objective of this workshop is to present several real-life scenarios of different types of project issues encountered by contractors and work through the issues to show how they should be addressed to arrive at an optimum resolution. This workshop will focus more on practice and less on theory. In addition to the case studies created and provided by PetroSkills, it is recommended that attendees provide their own scenarios from their current or past projects to be used in the workshop as case studies.

DEIGNED FOR
This course is designed for senior project management staff of EPC contractors working on large international projects in the energy industry with a focus on the Middle East Region. It is recommended for experienced project managers, project engineers, project control managers, construction managers and discipline leads.

YOU WILL LEARN HOW TO
• Allocate contract risk between owner and contractor
• Address terms and conditions at bidding stage
• Handle owner-provided FEED as basis of bid
• Finalize terms and conditions before contract signing, contract administration, and records keeping
• Understand and negotiate liquidated damages applied to project milestones
• Handle change orders, suspension of work by owner or contractor, and contract termination for cause or convenience
• Prepare for dispute resolution and claim by contractor
• Determine when negotiation, mediation, arbitration, and litigation are necessary
• Identify governing laws in the contract
• Determine cost of claims and who is responsible for payment
• Protect yourself from claims by owner against contractor
• Prevent claims where possible
• Identify project risks and determine their impact during engineering, procurement and construction phases
• Apply risk management on a project at the right time
• Identify, assess, and mitigate project risks
• and much more...

COURSE CONTENT
Why projects fail • EPC contracts • Dispute resolution and claims • EPC risk management • Scope change orders, suspension of work • Project planning and execution • Working with owner (client) and their PMC

Construction Management for the Project Professional – FPM64
SPECIALIZED NEW 3-Day
This course addresses the skills necessary to interface with and effectively manage field construction. While construction projects are addressed, the project engineer that must manage engineering, procurement, and especially field construction, will find the course particularly useful. The course addresses how to effectively manage field construction to deliver the project on time and on budget. While many projects do front load and allow effectively, projects ultimately fail due to poor execution or engineering/construction. With a focus on construction, this course provides the tools necessary to establish the proper field organization to manage engineering and procurement, which are two key inputs to construction success. The case study focuses on a construction project that is challenged in the field (due to prior poor decisions) that the project leader must address to be successful. Exercises, the case study, and class discussions provide learnings that the participant can immediately apply upon returning to work.

DEIGNED FOR
This course is designed for project managers, project engineers, facilities engineers, construction managers, discipline engineers, operations staff, and all disciplines that work on integrated project teams for onshore and offshore projects.

YOU WILL LEARN
• How the construction schedule should drive engineering and not vice versa
• How to manage the construction contractor and influence their field supervisors to deliver a successful project
• Methods to establish the appropriate owner’s construction team given the construction strategy and construction challenges to ensure a successful project
• How to interface with the home office and engineering contractor to ensure field requests for information, engineering drawings, timing of material delivery, etc. support project success
• Root causes of poor craft field productivity and what the owner can do to improve productivity to support aggressive project cost and schedule targets
• The ‘Fatal Four’ issues associated with construction personal safety
• How to use field project controls and progress monitoring to ascertain construction areas that are challenged and require immediate attention
• Methods to manage the contractor to minimize construction claims and how to handle a claim once it occur
• and much more...

COURSE CONTENT
The role that construction management plays during FEED and detailed engineering to support success in the field • Field project controls, earned value, build-up of field indirect charges, determination of ‘all in’ field labor costs, etc • Temporary construction facilities, construction infrastructure, field equipment, etc. and the role they play in construction success • and much more.

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We’ll handle the rest

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CONFERENCE CENTER AMENITIES:
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petroskills.com/pcc
Non-technical or societal risks have become the main source of business delays and budget overruns in the oil and gas industry. Non-technical risks typically are related to political, regulatory, health, safety, security, environmental, and social issues. Mitigation requires good external awareness and stakeholder engagement skills, but also the willingness of technical and commercial teams to work closely together with the non-technical disciplines to accommodate non-technical perspectives in project designs and plans. This course looks at both the internal and the external challenges that a company may face related to stakeholder engagement.

For more information, or to register, go to petroskills.com/mntr
Managing and Leading Others – MLO

FOUNDATION 3-DAY

Why would any company expend hundreds of thousands of dollars to seek, recruit, and hire the best employees then leave their development and performance to luck? Choose this course to learn how to lead through proactive management strategies.

Unfortunately, that change occurs every time an employee is promoted to a leadership position without training in the techniques and practices of effective leadership. Your role involves leadership and management practices. Managers and supervisors, regardless of technical expertise, can make an error setting off an uncontrolled and disastrous chain reaction unless he/she has command of principles and practices leading to employee effectiveness, productivity, and teamwork. The first-line and mid-level supervisor has more direct effect on employees and the productivity of a work group than any other single entity in an organization. This course increases the confidence and productivity of leaders, supervisors and managers who may be scientific or technical specialists, but have minimal training in the science and art of leading others. Skills in human relations, communication, motivation, and leadership are essential tools for the supervisor and manager. This interactive learning program will assist you in expanding your options for leading others.

YOU WILL LEARN HOW TO
• Develop effective communication skills

COURSE CONTENT
• The role and function of the leader, supervisor, and manager • Understanding and applying essential behavioral management concepts • Understanding and increasing employee motivation • Understanding and applying leadership concepts • Effectively supervising a diverse workforce • Basic skills in interpersonal communications • Performance management • Coaching • Working with difficult employees • Goal setting • Empowering subordinates • Developing positive and functional thinking about work • Leading by example

2019 Schedule and Tuition (USD)

HOUSTON, US 6-8 MAY $3245
+1.918.828.2500 | petroskills.com | +1.800.821.5933 (toll free North America)

Team Leadership – TLS

FOUNDATION 2-DAY

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 function 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 2-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 team 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

2019 Schedule and Tuition (USD)

HOUSTON, US 9-10 MAY $2595

Essential Leadership Skills for Technical Professionals – OOM3

FOUNDATION 5-DAY

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 team how to combine them with new skills to enhance and better 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 leaders, 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

2019 Schedule and Tuition (USD)

DENVER, US 16-20 SEP $4220
HOUSTON, US 22-26 APR $4225
ORLANDO, US 2-6 DEC $4270

See website for dates and locations.

Any course is available inhouse at your location. Contact us today.
Negotiation Skills for the Petroleum Industry – NSPI

FOUNDER 2-DAY

This workshop is most effective when attended by an entire team. Team members will develop and refine the skills essential for high performance teams. Emphasis is placed on learning more effective ways to enhance total team functionality and maximum team productivity. Individual communication styles will be assessed and examined to identify the most appropriate uses of team strengths. 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 a variety of learning techniques. This course has been constructed to maximize opportunities for intact teams to strengthen team performance and team productively.

DESIGNED FOR

Any intact team interested in becoming a stronger and more productive team, such as project teams, leadership teams, cross-functional teams, production teams, quality improvement teams, etc.

You will learn how to

• Characterize high performance teams
• Ensure that your team has clarity of goal and worthiness
• Jointly develop a team charter
• Gain commitment of all members
• Build team collaboration and trust
• Establish and follow group operational norms
• Work through the stages of team development
• Define team roles and responsibilities
• Understand system influences
• Promote conditions for effective team building
• Conduct individual and team assessments
• Improve team communications
• Improve group dynamics
• Problem solve in teams
• Develop a team plan to improve team effectiveness
• Lead when necessary
• Monitor team progress

COURSE CONTENT

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 group operational norms • Working through the stages of team development • Effective team roles and relationships • Dealing with system influences • Conditions for effective team building • Individual and team assessments • Team communications • Group dynamics • Problem solving in teams • Developing personal plans to improve team effectiveness • Taking the lead • Effective team meetings • Monitoring team progress

Presentation Skills for the Petroleum Industry – PSPI

FOUNDER 3-DAY

One of the prime requisites for oil and gas professionals is to be able to deliver presentations in as clear, concise, and well-designed a way as possible. Some industry technical professionals are naturally gifted designer/speaker/presenters, others are not. However, with the proper training and practice any oil and gas professional can learn to make a convincing and persuasive presentation, and do so in a confident, assured, comfortable, and relaxed manner. This course is for individuals who are required, as part of their jobs, to deliver presentations in-house or in public, and who wish to perfect the art and craft of dynamic presentation-making in order to do so. Participants will participate in a full array of hands-on class exercises to improve presentation-making skills, vocal techniques, social interaction skills, visual aid preparation, etc. Attendees will deliver two presentations in class, both of which will be videotaped to measure improvement, and will discuss their performances in one-on-one private conversations with the instructor at the end of the course. Participants’ progress will also be charted to quantifiably show areas in which actual improvement has taken place.

DESIGNATED FOR

Industry personnel who wish to acquire the skills and techniques needed to design and deliver technical material clearly, confidently, and convincingly either face-to-face or online.

You will learn how to

• Design and deliver a presentation both in person and on-line
• Keep an audience engaged through use of various delivery methods
• Appropriately use technology and visual aids
• Speak confidently in front of groups

COURSE CONTENT

Communication and the role it plays in presentation-making • Overcoming fears • The similarities and differences between face-to-face and on-line presentations • The four fundamental basics to effective presentation-making - Presence/demeanor/appearance: posture, movement, and physical comfort • Delivery: the voice, gestures/facial expressions, skill in using silence, rhythm, and language • Production: flow/rhythm, skill in using visual aids/technology, skill in using time, skill in listening/observing/questioning, skill in using the venue, connectivity, eye contact, knowledge of audience, and skill in handling audience’ situation • Construction of presentation: design (presentation), design (PowerPoint slides/other visuals), and integration (presentation with visuals)

Making Change Happen: People and Process – MCP

INTERMEDIATE 2-DAY

Attendees will work in teams to overcome the problems encountered when making changes in their organizations. You will also learn how to develop the ability to effectively handle organizational changes by examining the eight-step change process and understanding your own, and others, needs and responses to each step in the change process. A group workshop allows attendees to engage in, comment on, and improve their competencies in managing change.

You will learn how to

• Profile individual and group behavior exhibited during change
• Improve individual and team dynamics for high performance
• Apply the GROW model to coach and sustain individuals undergoing organizational change
• Design a practical framework for positive engagement with organizational change

COURSE CONTENT

Explore the characteristics of change • Build an integrated change strategy • Embrace change positively using the power of vision • Use people and process to make change happen • Craft an effective measurement process to evaluate change • Facilitate change and overcome resistance through effective communication

See website for dates and locations.

PETROLEUM PROFESSIONAL DEVELOPMENT
Overview of the Petroleum Industry – OVP

**BASIC** 2-DAY

OVP presents an overview of the Petroleum Industry from the point of view of the Asset Life Cycle. Participants will gain an understanding of Exploration, Appraisal, Development and Production phases with particular emphasis being placed on actions they can personally take within each phase to support value creation. Through use of lecture, multimedia and class interactive exercises, a breadth of upstream business acumen will be delivered covering economic, business, geoscience and engineering topics. Discussions will include topics related to all types of resource plays including deepwater, shale oil/gas and enhanced oil recovery technologies.

**DEIGNED FOR**
Both technical and business oriented professionals who are either new to the upstream oil and gas industry or experienced in one part, but could benefit from a wider point of view. OVP will likewise deliver for non-industry personnel a broad, basic knowledge set of multiple E&P topics. Legal, Financial, Accounting, Management, and Service Company team members will certainly benefit.

**YOU WILL LEARN**
- The critical importance the industry plays on the world’s economic stage, including discussions of pricing, global reserves and key short/long-term energy trends.
- Business and exploration elements critical to the success of organizations in search of new reserves
- Methods by which new field prospects are evaluated and risk factors assessed (Geology, Geophysics, Petrophysics)
- How exploration rights are acquired (Land themes, International Concessions)
- The basic process for drilling and evaluating an exploration well (Drilling, Petrophysics, Testing)
- Major steps required to appraise a new discovery and estimate its commerciality (Reservoir Engineering)
- Strategies to maximize the value of an oil or gas field asset
- How geology and reservoir management plans are used to guide new field development
- Major steps in the design, construction, and commissioning of facilities
- Basic technical and operational steps required to produce an oil or gas field example (Production Engineering)
- Types of opportunities to optimize older fields and increase production

**COURSE CONTENT**
The business of E&P • Hydrocarbon origin • Exploration – acquisition of exploration/development rights • Exploration – prospect generation and evaluation • Appraisal – asset characterization and reserve quantification • Development – drilling, completion, and facilities • Produce Asset – recovery optimization strategies

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Basic Petroleum Technology Principles – BPT

**BASIC** 20 HOURS

This course will be delivered virtually through PetroAcademy providing participants with the knowledge they need at their convenience.

This course provides the participant with an understanding of basic petroleum technology in the context of the Petroleum Value Chain, from exploration to abandonment. The participant will understand how and when geoscience and engineering professionals use technology to find, then determine and optimize the economic value of an oil and gas field. This enables the participant to maximize their professional and administrative contribution in their organization.

**DEIGNED FOR**
Those who need to achieve a context and understanding of E&P technologies, and the role of technical departments in oil and gas operations. An understanding and use of oilfield terminology is developed.

**YOU WILL LEARN**
- Historical petroleum occurrences and usage
- The objectives and processes of the exploration phase of the E&P asset life cycle
- The objectives, processes, and economic metrics of the appraisal phase of the E&P asset life cycle
- Basic reserves and production value concepts
- The Earth’s structure, continental drift, and plate tectonics role in oil and gas exploration
- Rock types and classification in an oil and gas context
- The relationship between depositional environments and geological settings
- Exploration concepts
- Elements of a successful petroleum system
- Key differences between unconventional and conventional petroleum systems
- Features of structural contour and isopach maps
- The basic reservoir rock properties and the significance of core samples
- The roles involved in exploration
- Rig type classification and selection for onshore and offshore drilling
- and more...

**COURSE CONTENT**
E&P industry and asset life cycle • Petroleum geology • Hydrocarbon reservoirs • Rock and fluid properties • Surface/subsurface exploration • Drilling operations and well completions • Production operations

**Self-paced, virtual course – start anytime.**

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Basic Petroleum Technology – BPT

**BASIC** 5-DAY

This course provides the participant with an understanding of basic petroleum technology in the context of the Petroleum Value Chain and Asset Management, from exploration to abandonment. Unconventional (light oil and gas) and conventional oil and gas are covered. The participant will understand how and when geoscience and engineering professionals use technology to determine and optimize the economic value of an oil and gas field. This enables the participant to maximize their professional and administrative contribution in their organization. Participants first learn and understand why various global oil and gas production types and plays (unconventional and conventional) have different value. The participant learns which technologies are used by the geoscience and engineering departments during each stage of the asset life cycle and WHY. This E&P lifecycle context accelerates an understanding of basic petroleum technologies and the oil industry. This learning is achieved through guided discussions, videos, animations, and progressive team exercises utilizing ‘Our Reservoir’ and ‘Our Well’ as working models.

**DEIGNED FOR**
This course is appropriate for those who need to achieve a context and understanding of E&P technologies in conventional and unconventional fields, and/or the role of technical departments in oil and gas operations, and/or be able to understand and use the language of the oilfield.

**YOU WILL LEARN**
- The E&P Process and how it differs in conventional vs unconventional plays, the role of each technical department and specialist, and the technologies used
- The economic value and properties of reservoir fluids
- Petroleum geology for exploration and production
- About oil and gas reservoirs, both conventional and unconventional, and understand the key differences
- Exploration and appraisal technologies
- Drilling operations for exploration, development and production
- Production – well completions and production technology
- Reservoir recovery mechanisms through primary, secondary, and tertiary recovery
- Surface processing of produced fluids

**COURSE CONTENT**
World hydrocarbon production and consumption review including reserves, benchmarks, and the impact of shale resources • Reservoir fluid properties • Petroleum geology • The petroleum reservoir, conventional and unconventional — Exploration technologies for conventional and unconventional reservoirs including initial reservoir estimates and consequent field development — Drilling and operations • Well completions and workovers • Production operations • Reservoir recovery mechanisms • Surface processing

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**2019 Schedule and Tuition (USD)**

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<tr>
<th>Location</th>
<th>Date</th>
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<tr>
<td>HOUSTON, US</td>
<td>8-12 JULY</td>
<td>$4225</td>
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<td>KUALA LUMPUR, MYI</td>
<td>7-11 OCT</td>
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<tr>
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<td>6-10 MAY</td>
<td>$4170</td>
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<tr>
<td>OKLAHOMA CITY, US</td>
<td>5-9 AUG</td>
<td>$4170</td>
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</tbody>
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- Refinery Process Units
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- E & P Asset Life Cycle
- Reservoir Fluids
- Exploration & Appraisal
- Development & Production
- Mature Assets & Abandonment
- Midstream
- Gas Manufacturing
- Refining
- Petrochemicals

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MR. STEPHEN ASBURY is the author of six internationally published books on safety and risk management, and a highly experienced HSE practitioner and instructor. He is a Chartered Safety and Health Practitioner (CIFOSH), a Chartered Environmentalist (CEnv, FIEMA), and a Professional Member Emeritus of the American Society of Safety Engineers. Awarded the IOSH President's Distinguished Service award in 2010, Stephen is an experienced instructor (2007-present) on our safety journal articles. He was awarded an MBA with Distinction (London, 1995), and is presently completing a PhD on six continents. Stephen is a former member of the IOSH Council of Management (1998-2013), and three-times chair of its Professional Committee. Outside of PetroSkills, he is a director of AllSafe Group Limited, a leading international HSE consulting company. In addition to his books, Stephen is the author of 40 technical papers and journal articles. He was awarded an MBA with Distinction (Leicester, 1995), and is presently completing a PhD (London). His first qualification was in law.

DR. FRANK ASH福德 has over 50 years' experience in oil and gas reservoir engineering, downhole and surface design and operations, as well as oil and gas conditioning and producing facilities. He has been with PetroSkills since 1988 and has worked extensively in most energy producing countries. He provides instruction fluently in English, Spanish, or Portuguese. He worked with Gulf Research (GR&D) in Houston, Texas where he developed many reservoir engineering laboratory techniques for the determination of applicable oil/gas/ water relative permeability correlations, and choke performance prediction techniques still in application today. Dr. Ashford was a Professor of Petroleum and Natural Gas Engineering at the Central University of Venezuela in Caracas, where he taught various courses in natural gas engineering technology. He was a founder of the Petroleum Engineering Department in INTEVEP, the research Institute for PDVSA (Venezuela). He was a participant in the initial gas lift optimization operations held in Venezuela, and developed many field, and numerical techniques and correlations for downhole, and surface choke performance with Oil's Engineering (US, and Venezuela), and Compania Shell de Venezuela (CSV). He has authored technical articles published in World Oil, JPT, SPE, Intevelop Pub., PDVSA, Pacific Oil World, AAPP, SPELAC, and GPA. He holds a BS (1961) and MS (1963) in Petroleum Engineering and a PhD in Engineering Sciences (1970) from the University of Oklahoma. He was one of Dr. John M. Campbell's graduate students from 1962-1968, and participated in the initial data collection and organization for the original John M. Campbell technical textbooks Gas Conditioning and Processing, Volumes I and II.

MR. PAUL M. BARRY is a petroleum engineering consultant specializing in production technology, production operations, and project evaluations. Mr. Barry has over 40 years of international and domestic USA upstream oil and gas production and reservoir engineering and management experience in conventional and unconventional reservoir development. Assignments include working and residing in South America, SE Asia, the Middle East, the North Sea region, and the USA. Earlier industry experience was as field production engineer and field production engineering manager of an onshore oilfield redevelopment project for PDVSAs and partners in Venezuela which required a combination of new development well and well re-completion designs for gas lift, subsurface pump, and rod pump artificial lift technology, and frac pack and gravel pack sand control well completions. Previous Indonesia experience was in the design and completion of dual string, multiphase, underbalanced, tubing conveyed perforated high pressure gas wells, exploration well testing and evaluation for Pertamina and Atlantic Richfield, Huffco, Virginia Indonesia, and joint venture contract partners for both oil operations and reserves determination and certification for a 1.3 TCF offshore gas field. He has also worked as field engineer in Saudi Arabia, responsible for a 1.2 MMBD reservoir support injection well system, injection water quality assurance, producing well gravel pack completions, internal and external well and flooding corrosion control systems, and, as Mobil Oil facilities engineer in the Arabian American Oil Company (Arabian) Gas Projects department. He has represented company technical and commercial interests in both UK and Norwegian North Sea sectors oil and gas producing fields. Mr. Barry has served as an officer in the Jakarta and Dubai SPE sections. He holds a BSCE from the University of Notre Dame and an MSCE from Marquette University, and is a registered Professional Engineer in Colorado, USA.

MR. DON BEESLEY has over 38 years of management, engineering, and operations experience in the oil and gas industry – virtually all on Gulf of Mexico projects, including subsea systems, floating systems and fixed platforms. He has worked for operators Eni, Shell and Texaco, and has held management positions including Project Development Manager and Production Manager. Mr. Beesley has been a member of industry groups Deep Water Repair Underwater Pipeline Emergencies (DW RUPE) and Subsea Tieback Forum (SSTB). He earned his B.S. in Civil Engineering from Auburn University, and he is a registered professional engineer in the states of Texas and Louisiana.

MR. ROBI BENDORF, CPSM, MCIPS, CPM, M.Ed., has over 35 years of purchasing and sales experience, involving domestic and international activities, for a broad range of manufacturing and service businesses. He has extensive experience in consulting and training in purchasing, contracts, reengineering the supply management process, the management of procurement functions, global sourcing of materials and components, reducing cost of purchased materials and services, and negotiation of complex transactions and contracts. He has held purchasing and contracts management positions in high volume manufacturing, subcontract, job shop, and service operations, involving gas turbine manufacturing, power generation, nuclear and fossil power plants, electrical distribution and control, air conditioning equipment and global sourcing services. He served as Manager of Customer and Supplier Development for the Westinghouse Trading Company. He has given presentations on numerous purchasing and contract management topics to the Institute for Supply Management (ISM/NAPM), major universities, and numerous in-house seminars for industrial and services clients in the US and over 170 public seminars internationally. He was selected to present seminars at the last 17 Institute for Supply Management International Conferences and is the contributor of numerous articles published in Purchasing Today and Inside Supply Management. Robi was selected as ISM’s National Person of the Year in both Global Resources and in Education/Learning. Robi is a lifetime CPM, and has received ISM’s National Certification, the CPSM, and also holds the MCIPS Certification as awarded by CIPS. He has an undergraduate degree from the University of Texas, and a Master's Degree from Penn State University. His energetic and enthusiastic style, combined with extensive functional experience, makes him an excellent consultant, trainer, and facilitator of change.

MR. JAN BLUM is a seasoned Asset Management professional with 33 years' experience in the oil, gas, and downstream business sectors. At the moment he is based in Suriname working as Technical Service Manager for a national oil refinery. He worked 30 years with Shell in the roles of Inspection, Shutdown, and Asset Manager and for 10 years was Training Director for the group Asset Management. He has developed and delivered training all
over the world and has broad consultancy experience. Mr. Blum is a Chartered Mechanical Engineer and post graduate in inspection and welding. He has worked and lived in several countries including Saudi Arabia, New Zealand and Suriname.

**MR. ROBERT BOMBARDIERI** has almost 30 years in the oil and gas industry. His expertise is the use of process engineering to optimize operating facilities economics via addressing availability, product recovery and bottleneck issues. As such, Robert has tested, designed, project managed and led implementation of numerous molecular sieve, NGL recovery, sulfur recovery and dehydration projects in several countries. He also has had roles in operations, business development and management. Mr. Bombardier подготовил a paper on molecular sieve dehydration that was selected ‘Best Paper Award’ at the 2008 Gas Processor's Association annual convention and was published in the Oil and Gas Journal. He has a B.S.C. in Chemical Engineering from the University of Alberta and an M.B.A. from Tulane University.

**MR. MARK BOTHAMLEY** has experience that covers the areas of design, operation, troubleshooting and optimization of onshore and offshore production and treating facilities. Prior to joining PetroSkills he was with BP/Amoco for 24 years, in several locations around the world. Mr. Bothamley is a past chairman of the SPE Facilities Subcommittee and a former member of the GPSA Data Book Editorial Review Board. Mr. Bothamley holds a BS in Chemical Engineering from Lakeland University in Thunder Bay, Ontario, Canada, and a Diploma in Natural Gas and Petroleum Technology from the British Columbia Institute of Technology in Vancouver, BC Canada.

**MR. JOHN C. BOURDON** has more than 29 years experience in hydrocarbon processing and specializes in sulfur recovery processes for the petroleum refining industry. Mr. Bourdon has been involved in the development of several sulfur-related technologies and mechanical innovations, has authored several papers and made presentations worldwide. He has experience with several E&C firms including extensive start-up and troubleshooting activities. He consulted for both North American and international clients. He is a registered professional engineer and member of Chi Epsilon Sigma Honor Society. Mr. Bourdon is fluent in English and Spanish. Mr. Bourdon has a BS in Chemical Engineering from the Georgia Institute of Technology and advanced degrees in other fields.

**MR. FORD BRETT** is recognized worldwide as a leader in the area of Petroleum Project and Process Management. A registered Professional Engineer, Mr. Brett has consulted in over 45 countries on five continents. Formerly, Mr. Brett worked with Amoco Production Company where he specialized in drilling projects in the Bering Sea, North Slope of Alaska, Gulf of Mexico, offshore Trinidad, and Wyoming. He has received many honors, including the 2000 Crosby Medalallion for Global Competitiveness by the British Columbia Institute of Technology in Vancouver, BC Canada. Mr. Brett has authored or co-authored over 30 technical publications, and has been granted over 30 US and international patents – including several patents relating to elimination of “Drill Bit Whirl” (which the Oil and Gas Journal Listed as one of the 100 most significant developments in the history of the petroleum industry). In 1999 the Society of Petroleum Engineers honored him as a Distinguished Lecturer. He served on the SPE International Board of Directors 2007’ to 2010 where he served as Drilling and Completions Technical Director. Mr. Brett holds a BS in mechanical engineering and physics from Duke University, as well as an MS in Engineering from Stanford University and an MBA from Oklahoma State University.

**MR. PAUL CARMODY** has more than 34 years of experience in the petroleum industry. During his 32 years with Hess Corporation and its predecessor, Amerada Hess Corporation, Mr. Carmody has been involved in nearly all aspects of oil and gas engineering from the reservoir sand face through the outlet of gas plants. He is a registered Professional Engineer in North Dakota where his experience includes Bakken oil development, production engineering, pipelines, and compressor station installations. West Texas experience includes CO2, EOR flood gas gathering, CO2, pipelines, and gas plant engineering. His gas plant experience includes three expansions of a CO2 Gas plant, cryogenic gas plants, and lean oil plant processes where he has supplies process and design engineering services. He has served as a board member for the CO2 user’s league. Mr. Carmody graduated from the University of Connecticut with a degree in Mechanical Engineering.

**MR. AJEY CHANDRA** is a principal in the Houston office of Purvin & Gertz. He joined the firm in 1998 after working for Amoco for 12 years in gas processing and gas transportation. Prior to joining Purvin & Gertz, Ajey was responsible for all facets of a 2.4 Bcf gas processing facility in the United Kingdom. Since joining Purvin & Gertz, Ajey has worked on a variety of assignments in the areas of market analysis, forecasting, gas processing and transportation technologies. He holds a BS degree in Chemical Engineering from Texas A&M University and an MBA from the University of Houston.

**MR. JIMMY CLARY** has managed performance based training projects, provided instructor services, coordinated and trained operator training (OT) instructor groups, and performed field service work for major refineries and production platforms throughout North and South America, Europe, Asia, the Middle East, and Africa. A combination of education and twenty-seven years’ experience has enabled him to add value to efforts at ADGAS (UAE), Anadarko, BP, BHP, CBG (Chemviron), ConocoPhillips, COPCOOT (Gulf Oil & Gas), ExxonMobil, Exxon Chemical, Equinon, Genentech, Hovensa, Kraft Foods, IMO CO (Oman), Maersk Oil (Denmark and Qatar), PEMEX, TenzigChevron (Kazakhstan), Shell, Sunoco, and Valero Energy. Mr. Clary has a BS in Physics and a BA in Math, both from the University of Oklahoma.

**MR. MICK CRABTREE** has spent the last eight years running industrial workshops throughout the world in the fields of: Process Control and Instrumentation, Data Communications, Fieldbus, Emergency Shutdown Systems, Project Management, On-Line Analysis, and Technical Writing and Communications. He has trained over 5,000 engineers, technicians and scientists. Mr. Crabtree formerly trained in aircraft instrumentation and guided missiles in the Royal Air Force, having completed his service career seconded to the Ministry of Defense and he was responsible for ensuring the reliability, maintainability and functional testing of all software and systems in the UK. He was the former editor and managing editor of Pulse magazine, South Africa’s leading monthly journal dedicated to the general electronic and process control instrumentation industries. He has written and published six technical handbooks on industrial process control. Mr. Crabtree holds a MSc (Research) in Industrial Flow Measurement and an HNC in Electrical Engineering (with distinctions).

**MR. JOHN CURRY** is a recognized authority on the ASME Boiler and Pressure Vessel Code, pressure vessel design, fabrication and metallurgy. He founded and was President of Gulfex, Inc. for more than 37 years. This firm is a major producer of pressure vessels for the refining, natural gas, oil production and petrochemical industries. Since 2003, he has been a lecturer on Section VIII, Div.1 of the Code teaching engineers worldwide on pressure vessels. He consults in the fields of designing, selecting, specifying, and supervising existing pressure vessels for new service. He continues to be a volunteer for the Boy Scouts of America promoting high adventure programs for older scouts. He has been teaching Biblical History for over 25 years. After completing his mechanical engineering training, he completed an MBA from the University of Texas at Austin. He spent two years in night school studying metallurgy at Rice University.

**DR. ISKANDER DIYASHEV** is a director and a co-founder of Petroleum and Energy Technology Advisors, Inc., an engineering and consulting firm based in Houston, Texas, that is involved in the development and production of oil and gas. With Sibneft, Dr. Diyashev was responsible for the planning of field development, reserves evaluation and addition, planning of exploration activities, as well as engineering and technology management. Prior to his work with Sibneft, Dr. Diyashev was responsible for all aspects of a 2.4 Bcf gas processing facility in the United Kingdom. Since joining Purvin & Gertz, Ajey has worked on a variety of assignments in the areas of market analysis, forecasting, gas processing and transportation technologies. He holds a BS degree in Chemical Engineering from Texas A&M University and an MBA from the University of Houston.

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MR. ROBERT FANNING has held various Process Engineering and Management positions in his 26 years with Mobil. Mr. Fanning’s background includes general oilfield facilities, water flood facilities, CO₂, flood facilities, NGL recovery, and LNG. Mr. Fanning was on the Board of the Permian Basin Chapter of the GPA for several years and is a past President of the chapter. He received his B.S. in Chemical Engineering from the University of Wyoming and is a Registered Professional Engineer in the state of Texas.

MR. BILL FINCH is a passionate operations leader for onshore oilfield, gas plant, and pipeline operations. He is driven to deliver results through an action bias, is committed to safety, and is an experienced leader with operational presence in the field or plant. Bill’s strengths include engaging people in the workplace and building competencies. He uses a pragmatic, practical approach to engineering support and work processes. Regarding operational discipline, Bill uses continuous improvement principles that often exceed business goals. His core competencies include a strong process engineering background, leveraging human capital, operational knowledge, building competency, decision making, translating strategy to delivery, system integration, teacher/coach, and risk management. Bill is a registered Professional Engineer in Louisiana, Montana, and Texas. He has a BS in Chemical Engineering from Montana State University and post graduate work toward a MChE at University of Houston.

MR. WOLFGANG FOERG has over 20 years’ experience in plant system design, control system design and selection, procurement, engineering management, and installation and commissioning of vendor proprietary equipment. His experience includes assignments as project engineer, rotating equipment specialist, lead engineer for major EPC contractors, as well as experience in construction, module design, commissioning and startup of plants. The types of plants include air separation plants, gas plants, gas storage facilities, power generation, MTBE plants, refinery wastewater treatment facilities, phenol plants, polypropylene plants, crude oil treating facilities and crude oil pipelines, LNG/NGL liquefaction plants, and LNG receiving terminals. Specific equipment experience includes gas turbines, steam generators, LNG/NGL liquefaction plants, and LNG receiving terminals. He was an SPE Distinguished Lecturer on Produced Water Treatment in 2009-10, and serves on the SPE Steering Committee for their Global Workshop Series on Water Treatment. His field orientation experience in oilfield chemistry, design of process equipment, and the development of process systems provided him with unique insights into the challenges operators as they water production and water treatment complexity and cost escalates over time.

MR. RICHARD (RICK) GENTGES has over 36 years’ experience in the design, construction, and operation of underground natural gas storage facilities. His experience includes design, support, engineering management, and project management. Most recently (2010-2012) he served as Senior Project Manager for Cook Inlet Natural Gas Storage Alaska, LLC, and was responsible for overall construction of the first commercial underground gas storage facility in Alaska. From 1982-2010 he worked for ANR Pipeline Company where he held various technical and managerial positions involving gas storage assets. His technical experience includes performing and analyzing well tests, reservoir performance analysis, reservoir simulation, and overall storage facility optimization. Throughout his career he managed construction projects that involved enhancements to existing gas storage facilities and construction of new gas storage projects. Beyond his engineering background, Mr. Gentges has the drilling and completion of vertical and horizontal wells, upgrades to gathering systems, new compression, and gas processing equipment. Mr. Gentges is a past Chairman of the Underground Gas Storage Committee of the American Gas Association (1994). He also served as Chairman of the Underground Gas Storage Research Committee for the Pipeline Research Council International (1998-2003), and served on the National Petroleum Council Gas Storage Team (2003-2004). Mr. Gentges holds a BSc in Chemical Engineering from the University of Michigan (1981).

MR. ANDY GIBBINS is an experienced and highly motivated oil, gas and petrochemical consultant, with experience in upstream and downstream. Andy worked for many years in Operations Management and Technical positions with Shell and NOVA and has significant experience in the areas of Safety and Process Safety. He has excellent planning, organizational, project and people skills, resulting in effective project coordination and successful achievement of business improvement goals. Andy has excellent interpersonal, communication and presentation skills; he is diplomatic, with the ability to influence at all levels within an organization. He has thorough knowledge of and experience with change management. Andy has over 20 years of industrial experience and 12 years of consultancy and training experience in safety and leadership, project and change management. He holds a BEng (Hons) in Chemical Engineering from University of Bradford, UK.

MR. DAN GIBSON is a consulting engineer with over 35 years of experience in production, completions, and well integrity issues from oil and gas fields all over the world. After working as a roughneck and roustabout through college, he started his professional oilfield career as a facility engineer in Alaska. He has worked his way through the value stream from facilities to completions with jobs in Anchorage, Denver, Houston, Gabon, Congo, Egypt, Scotland, Russia, and Australia. He is currently a consulting engineer, working on completions and well integrity problems for a wide range of independents and majors. He has worked as a Wells Technical Authority for a large international independent with a varied portfolio of offshore oil and gas wells. He was the first Senior Completion Advisor for a super major. As part of this role, he worked with teams on both major technical incidents and on planning and assurance of high profile projects around the world. These experiences have given him a unique viewpoint of how fields are developed; how wells are designed, constructed, and produced; how things can go wrong, and how to investigate, produce, and manage the results and how to best mitigate and manage well problems. He has authored and co-authored a number of papers, ranging from polymer flood management. He has developed unique systems for ice mechanics and most recently a design of an innovative ICD system for a high rate water injection well. Dan graduated from Oklahoma State University, Stillwater and studied Arctic Engineering at the University of Alaska, Anchorage. His teaching style focuses on first principles and developing an understanding of why things happen which then dictates an appropriate response.

MR. JOSH GILAD is a 40-year veteran of domestic and international experience in the engineering, analysis, inspection, troubleshooting, forensic investigation and expert witness for marine liquid bulk terminals for crude (products) and gas (LNG, LPG), cargo handling and storage facilities, prime movers, piping and pipelines. His experience includes pipeline flow and hydraulic transient analysis, pipe stress analysis, pipeline on-bottom stability, pipeline integrity & fitness for service assessment. Throughout his years with Brown & Root (now KBR), Han-Padron Associates (now CH2M-Hill), and as an independent consultant, Mr. Gilad has been involved in the design and installation of numerous single point mooring (SPM) systems and other offshore petroleum operational facilities. He has focused on offshore transfer systems, oil and gas pipelines, Pipeline End Manifolds (PLEMs), pig launching/receiving and oil storage facilities. Mr. Gilad holds a BS and MS in
MR. GERALD GUIDROZ started out as a vibration test engineer for the space shuttle main engines. He then moved into the oil and gas industry on the North Slope on the production side of the business. He worked as a rotating equipment engineer for several years as well as getting involved with writing pressure vessel codes, valve specification and design, welding, pressure vessels, heat exchangers, fired heaters, pumps, compressors, drivers, valves, pipelines, and stress analysis. Mr. Guidroz has a broad knowledge base from over twenty 28 of experience in the oil and gas business.

MR. ROGER HADDAD, PE, PMP, is a practicing project manager with Occidental Petroleum and has over 25 years of design and project experience in the Oil and Gas and Chemical Industries. He started his career as a structural engineer and progressed from design to construction to project management. He gained his project management skills while working on fast-track projects in North America where he held various positions in project and portfolio management. For the last 10 years, Roger has been managing large offshore and onshore oil and gas projects in the Middle East. With his extensive experience in design, construction, risk management and project controls, he has been managing large project teams and contractors and working with JV partners as well as national oil companies. Roger earned a MS in Structural Engineering and a BS in Civil Engineering from the University of Buffalo, New York. He is currently based in Abu Dhabi, United Arab Emirates.

MR. GERARD HAGEMAN is based in The Hague (The Netherlands), where he settled after 33 years in the downstream oil and gas business (including LNG). He is equipped with thorough knowledge and experience in LNG, gas and refinery operations, start-up, design, construction, risk management and project controls, he has been managing large project teams and contractors and working with JV partners as well as national oil companies. Roger earned a MS in Structural Engineering and a BS in Civil Engineering from the University of Buffalo, New York. He is currently based in Abu Dhabi, United Arab Emirates.

DR. JAMES L. HANER is the father of modern management.” James is a contributing editor of PM Network, and was the first editor for Management of Projects: A Guide to Effective Practice, published by the PMI. He is recognized as a “master practitioner” by the Project Management Institute. Haner’s career includes over 40 years of service to the management profession. He is the founder of Eos Business Resources (UBR) Consulting, specializing in building better businesses.” UBR is an independent firm and is the originator of the Project Management Competency Assurance Program (PMC A), a global, standards-based, and voluntary program for all those interested in project management. UBR also offers a full line of consulting services, training, and course development. Haner received a BS in Chemical Engineering from the University of Notre Dame, an MS in Business Administration from the University of Chicago, and a PhD in Business Administration from the University of Michigan. He is a member of the Project Management Institute (PMI) and is a fellow of the International Institute for Project Management (IPMA).

DR. FRANK HOPF has 35 years of experience in engineering and management of energy transportation and distribution facilities for crude oil, refined products, petrochemicals and LNG. He also has seven years pursuing his PhD in geography where he conducted research in engineering geomorphology, GIS and remote sensing, hazard analysis, and the relationship of science and public policy development. During his 31 years with Shell Oil Company and affiliated companies, he managed engineering, construction and operations for pipelines and terminals in the Gulf of Mexico, Texas, Wyoming, Montana, California, Mexico, and Maryland. He is a native of Washington, D.C. and has also served on the board of directors of several major joint interest pipeline systems. Dr. Hopf has concluded his career with Shell in the implementation of an SAP based supply chain management system for the pipeline organization. He accepted a graduate assistantship to pursue a PhD in geography, completing his dissertation on the risk of levee failures in the Sacramento-San Joaquin River Delta and the impacts of the assessment of risk on public policy formation. He also studied engineering geomorphology, fluvial and coastal geomorphology, and GIS/remote sensing applications to the energy transportation and distribution industries. He has taught large courses (excess of 300 students) at Texas A&M University. Dr. Hopf was awarded his PhD in December of 2011. He is a registered Civil Engineer in Texas.
MR. ROBIN JENTZ has 38 years of oil and gas processing experience. His work has included most process areas of oil and gas production, including design and testing of low dewpoint glycol dehydration units, analysis of flare and relief systems using dynamic simulation programs, retrofitting gas/liquid separators to increase capacity and eliminate entrainment, and upgrading oil dehydration. Mr. Jentz has worked for both major oil companies and independent companies, and has held various supervisory and management positions within the upstream sector. He was previously the Managing Director and co-founder of Xodus Subsurface Ltd, the Wells and Subsurface company within the Xodus Group of technical consultants. He was also Chief Operating Officer and a founding shareholder of Composite Energy Limited, a European Unconventional Gas company, growing the company from seed capital of $500k to an ultimate sale value of over $60 million in 5 years. He has over 16 years’ experience with Amerada Hess starting as petroleum engineer and progressing to Acting General Manager of its North Sea Operations Base. He received a BEng (Honors) degree in Electronic Engineering from the University of Sheffield and speaks Norwegian and French.

MR. STEPHEN JEWELL is an independent oil and gas consultant and advisor with 30 years’ experience in the upstream sector. He was previously the Managing Director and co-founder of Xodus Subsurface Ltd, the Wells and Subsurface company within the Xodus Group of technical consultants. He was also Chief Operating Officer and a founding shareholder of Composite Energy Limited, a European Unconventional Gas company, growing the company from seed capital of $500k to an ultimate sale value of over $60 million in 5 years. He has over 16 years’ experience with Amerada Hess starting as petroleum engineer and progressing to Acting General Manager of its North Sea Operations Base. He received a BEng (Honors) degree in Electronic Engineering from the University of Sheffield and speaks Norwegian and French.

DR. SATISH K. KALRA is a petroleum engineer with over 25 years of management, operations, teaching, research, and consulting experience with national and private oil companies. As an Associate Professor of Petroleum Engineering, he taught graduate and undergraduate students at the University of Southern Louisiana, Lafayette. He also worked for the University of Texas at Austin. His career includes assignments with ONGC (National Oil Company of India), ARCO Offshore (now BP), BJ Services, Agio Oil and Gas, Schlumberger/ Holditch, Miller and Lents and SKAL-TEX Corporation. He is widely published in technical literature and was the Chairman of the National SPE Committee on Monographs. His technical expertise includes the design and supervision of production and well completion operations, formation damage and sand control, reservoir management, technology transfer and technology licensing. He actively participated in several technology transfer agreements with various Indian, Chinese, and Russian companies. He is fluent in English, Russian and several Indian languages. Recently he was nominated as a member of the Russian Academy of Natural Sciences US Section. He received an M.S. and Ph.D. in petroleum engineering from the Gubkin Oil Institute, Moscow; Russia and a degree in law from Gujarat University, India.

MR. CHRISTIAAN LUCA is an associate partner in Community Wisdom Partners, a consultancy specialized in the creation of mutually beneficial relationships between business and societal actors. He has 32 years prior experience in the oil and gas industry with Shell starting as a petroleum engineer in various countries around the world before moving into senior corporate positions in technical and business roles. He has been particularly successful with those clients who are faced with large capital projects and require a step-change in organizational capabilities. Pete is a facilitator and advisor to top management teams. He has over 30 years of experience in the energy sector and has held various senior positions within the Xodus Group of technical consultants. He was previously the Managing Director and co-founder of Xodus Subsurface Ltd, the Wells and Subsurface company within the Xodus Group of technical consultants. He was also Chief Operating Officer and a founding shareholder of Composite Energy Limited, a European Unconventional Gas company, growing the company from seed capital of $500k to an ultimate sale value of over $60 million in 5 years. He has over 16 years’ experience with Amerada Hess starting as petroleum engineer and progressing to Acting General Manager of its North Sea Operations Base. He received a BEng (Honors) degree in Electronic Engineering from the University of Sheffield and speaks Norwegian and French.

MR. PETE LUAN has over 25 years of international upstream project management experience. He has also consulted for the past 10 years helping energy companies improve their management of capital projects. He has an extensive track record of helping E&P companies improve their capital project performance. He has been particularly successful with those clients who are faced with large capital projects and require a step-change in organizational capabilities. Pete is a facilitator and advisor to top management teams. He has over 30 years of experience in the energy sector and has held various senior positions within the Xodus Group of technical consultants. He was previously the Managing Director and co-founder of Xodus Subsurface Ltd, the Wells and Subsurface company within the Xodus Group of technical consultants. He was also Chief Operating Officer and a founding shareholder of Composite Energy Limited, a European Unconventional Gas company, growing the company from seed capital of $500k to an ultimate sale value of over $60 million in 5 years. He has over 16 years’ experience with Amerada Hess starting as petroleum engineer and progressing to Acting General Manager of its North Sea Operations Base. He received a BEng (Honors) degree in Electronic Engineering from the University of Sheffield and speaks Norwegian and French.

MR. JAMES LANGER is a registered professional chemical engineer in Texas and California. Jim worked for Hess as a Senior Process Engineering Advisor for 8 years. He is retired from Shell having worked 26 years as a Senior Process Engineering Advisor for Shell / Shell Global Solutions. He has had a global job for the past 20 years and had experience in offshore / onshore, shallow water / deepwater, heavy oil / light oil, water treating, and natural gas processing. He has been a project manager working field development projects through all the phase gates and stages. He frequently travels the globe assimilating operations with process issues, and showing them how to unlock additional barrels through the application of production optimization. This has delivered over $2 billion in value to sponsors. Jim installed Shell’s smallest, most expensive gas plant. The project took 8 years and is located on Pacific Coast Highway in Huntington Beach California. Jim graduated with a BS in Chemical Engineering from UCLA and has an MBA from Pepperdine.

MR. BILL KEMP has 40 years of oil and gas industry experience in engineering, operations, product development and commercialization, business development, sales, and marketing. He is currently Strategic Account Manager with PetroSkills, having joined in 2013. Bill is responsible for strategic member/client interaction in workforce development, consulting and software solutions in the upstream, midstream and downstream segments. Previously, Bill was manager, sales and marketing, for the Oilfield Technology Group of Hexion in Houston, beginning in 2004. At Hexion Bill was responsible for new stimulation technology commercialization as well as managing strategic relationships with customers and industry organizations. He began his career in the chemical process and exploration industries. Bill has had over 30 years of experience in the downstream operations. He has held several supervisory and management positions within the upstream sector. He was previously the Managing Director and co-founder of Xodus Subsurface Ltd, the Wells and Subsurface company within the Xodus Group of technical consultants. He was also Chief Operating Officer and a founding shareholder of Composite Energy Limited, a European Unconventional Gas company, growing the company from seed capital of $500k to an ultimate sale value of over $60 million in 5 years. He has over 16 years’ experience with Amerada Hess starting as petroleum engineer and progressing to Acting General Manager of its North Sea Operations Base. He received a BEng (Honors) degree in Electronic Engineering from the University of Sheffield and speaks Norwegian and French.
project controls, contracting strategy, risk management, reviews and assists and joint venture non-operated project assurance. He received his BS and MS degrees in Mechanical Engineering from the University of Missouri-Columbia. He is a registered professional engineer in the State of Texas.

**MR. JUAN G. MALAVE** is an accomplished multilingual executive with a proven track record in program/project management in the oil and gas industry in North Sea, South America, development for major EPC capital projects and operations providing leadership and direction for more than (thirty) 30 years in the oil, gas, LNG, and petrochemical industry. He has expertise developing and implementing strategic direction and management for large projects (typically more than $500MM). Mr. Malave has proven success optimizing project front end development, engineering, planning, project controls and project execution and hands on experience in general management, human resources, products line responsibility, service operations and finance. He has had major roles opening and growing successful operations in several countries. His experience includes deployment, implementation and enforcement of company corporate policies in all aspects, including HSSEQ guidelines and working with local subsidiaries to oversee and control operations of business development budgets and sales forecasts, which resulted in an increase in the number of clients, contract awards and revenues. He has extensive knowledge of IOCs and NOCs and multinational oil and gas service providers worldwide. Mr. Malave has experience working with projects and operations teams and leading international representative teams in diverse cultural backgrounds working in different contracting environments. Mr. Malave has a BS in physical metallurgy from the Material Science and Engineering Dept. of Washington State University.

**MR. HARVEY MALINO** is an Instructor/Consultant for PetroSkills | John M. Campbell. He has more than 40 years’ experience in the chemical and hydrocarbon processing industries. During his 28 years with Union Carbide Corporation/UOP, he held both technical and commercial positions. These included: Molecular Sieve Technical Manager- Design and Field Service; Licensing Manager for the Ethylene Oxide business; Area Sales and Marketing Manager for Southeast Asia; Business Manager for the Gas Processing Business Group; and, World Wide Sales Manager for the Gas Processing Business Group. Mr. Malino has lived and worked in New Hampshire, Maine, New York, South Carolina, and is currently based in Sullivans Island, South Carolina where he is President of his own consulting business. Mr. Malino is a registered Professional Engineer in the State of New Hampshire. He is a Senior Member of the Advisory Board of the Lorraine  Gas Conditioning Conference in Norman, OK. Mr. Malino earned a BS in Chemical Engineering from the City College of New York; and, an MBA from Pace University.

**MR. YUV MEHRA** is an inventor (31 US Patents) and a licensed professional engineer (California and Texas), has over 40 years of practical, hands-on process engineering experience related to the processing of hydrocarbons from the standpoint of major owner/operator, as well as E&P companies. He retired from Saudi Aramco in December 2011 as Gas and Light-ends Process Engineering Consultant. During 2003-2004, Mr. Mehra was Saudi Aramco’s General Supervisor for the Upstream Process Engineering Division. He is an Alumnus of the Saudi Aramco Leadership Forum. Mr. Mehra has served as an SPE Distinguished Lecturer on LNG production facilities, and gas plants around the world. Mr. Mehra holds a BE from IIT Roorkee and an MS from UCLA, both in Chemical Engineering.

**MR. D. JOHN MORGAN** is based in Denver, Colorado, and is the Chairman Emeritus of PetroSkills | John M. Campbell. He has over 50 years’ experience in the design, startup, and troubleshooting of oil and gas facilities. He has published extensively on sour gas treating, sulfur recovery, CO2 treating, materials of construction, LNG training, and cryogenic fundamentals. He is on the Board of Directors of the American Petroleum Institute (API) Petroleum Engineers Section (PES) and is a member of various API committees and task groups. Mr. Morgan serves as an SPE Distinguished Lecturer on LNG in 2005/06, 2008/09, and 2014/15. He is very active in the industry, including the Senior Advisory Committee of the American Petroleum Institute (API) Petroleum Engineers Section (PES) and the Sulfur Symposium Technical Committee; International Committee of GPA/GPSA, and has served as Adjunct Professor of Petroleum Engineering at Colorado School of Mines. For 30 years, he was a member of the Editorial Review Board of the Gas Processors Suppliers Association. Mr. Morgan has many years of experience training non-native English speakers. He holds a BSc (Hons) in Chemical Engineering from London University; and an ME in Chemical and Refinery Engineering from Colorado School of Mines, USA.

**DR. MAHMOOD MOSHEFGHIAN** is a Senior Technical Advisor and Senior Instructor for PetroSkills. He is the author of most of the Tips of the Month and develops technical software for PetroSkills. He has 40 years’ teaching experience in universities as well as for oil and gas industries. Dr. Moshefgian joined John M. Campbell & Co. in 1977 as a part-time consultant and then as full-time consultant/instructor in 2005. Dr. Moshefgian was Professor of Chemical Engineering at Shiraz University. Dr. Moshefgian is a senior member of AOCH and has published more than 125 technical papers on thermodynamic properties and process engineering. Dr. Moshefgian has presented invited papers at international conferences. He is a member of the Editorial Board for the International Journal of Oil, Gas, and Coal Technology. He holds a BS (74), an MS (75) and a PhD (78) in Chemical Engineering, all from Oklahoma State University.

**MR. MANICKAVASAKAN (MANICKAM) S. NADAR** is a consultant Principal Petroleum engineer with 27 years of experience in the upstream oil and gas industry and 6 years in petrochemical process operations. With a strong background in Production Technology, Well Operations, Well Completions & Workovers, Artificial Lift, Asset Modeling and Optimization, he has specialized in artificial lift technologies, reservoir management, analytics and trouble-shooting, reliability improvement and production enhancement. He has made significant contribution in the artificial lift selection, design, operation, surveillance and optimization of large volume gas lifted and ESP wells for many operators. Mr. Nadar has worked for major international operating companies and handled various responsibilities in production engineering operations and artificial lift systems, onshore and offshore. In the service sector, he has delivered many challenging well and network modeling and optimization projects that helped clients achieve substantial increase in production, operation efficiency and cost savings. Recently he has helped companies to implement real-time surveillance and optimization systems that allows operators use collaborative work environments for achieving their KPIs. A university topper and gold medalist, Mr. Nadar holds a BSc degree in Chemistry from Madurai University, India and a degree in Chemical Engineering from Institution of Engineers (India). With several SPE papers and book publications to his credit, he has conducted many workshops, training seminars and short courses for SPE and other organizations.

**MR. JOHN ROBERT (BOB) NICHOL** is President of Petrobob Consulting Limited, located in Sherwood Park, Alberta, Canada. He has over 35 years’ experience in a broad range of petroleum engineering roles including field operations, reservoir engineering, and engineering research. Bob received a BSc in Electrical Engineering, an MEng in Mineral Engineering, and a PhD in Petroleum Engineering, all from the University of Alberta. He is currently employed at the Alberta Government, Department of Energy in Edmonton.

**MR. TIM NIEMAN** has 30 years of experience as a risk and decision analyst, economist and petroleum scientist. His professional experience includes 20 years in leading and conducting projects of various sizes and scopes involving the application of decision and risk analysis methodologies to energy and environmental sectors, and 10 years as a practicing petroleum geophysicist. His background includes work in decision analysis, risk analysis, business modeling, financial forecasting, strategic planning, R&D portfolio management, software development, geology, and geophysics. Mr. Nieman has also taught numerous training seminars in decision analysis, economics and quantitative models. He holds a BS in geology and a MS in geophysics from Michigan State University, and an MBA from Rice University.
Mr. Ronnie Norvell was Director of Instructional Design and Quality at PetroSkills 2009-2012. Prior to joining PetroSkills, Norvell served as a Sr. Consultant and frequent appointments as Director of Continuing Education with the Saudi Aramco E&P Company’s management and the president of the board of directors of the American Society for Training and Development. Prior to joining Saudi Aramco in 1998, Ronnie Norvell was the President and Managing Partner of Management Paradigms, a U.S. based consulting firm specializing in management and leadership development. Over the past forty years he has provided senior management consulting to a large spectrum of U.S. and foreign industries, managed the training functions of two multinational corporations, and is currently a consultant and instructor. Ronnie has served on the Board of Directors of three international organizations including the American Society for Training and Development and PetroSkills. He has also served on the continuing education faculty of the University of Texas at Dallas and on the adjunct faculty of Amoco University’s MBA program. Ronnie has authored numerous publications, designed and conducted a variety of programs targeted at enhancing management and employee productivity. He co-authored The Internal Outplacement Handbook and A Trainer’s Guide to Performance Appraisal. His peers have recognized him on numerous occasions. The American Society for Training and Development recognized Ronnie in 1997 for his contribution to the profession by awarding him the highest honor of “Distinguished Alumni” award. The Dallas Chapter of ASTD recognized him as the “Professional of the Year” in 1989 and his alma mater, Texas A&M University at Commerce, selected him as a “Distinguished Alumnus” in 1990.

Dr. Phil Notz is an offshore industry consultant for flow assurance issues. He worked as a chemical engineer for DuPont from 1968 to 1971, a research scientist and Communications consultant, lecturer, trainer, and coach. He co-authored The Internal Outplacement Handbook and A Trainer’s Guide to Performance Appraisal. His peers have recognized him on numerous occasions. The American Society for Training and Development recognized Ronnie in 1997 for his contribution to the profession by awarding him the highest honor of “Distinguished Alumni” award. The Dallas Chapter of ASTD recognized him as the “Professional of the Year” in 1989 and his alma mater, Texas A&M University at Commerce, selected him as a “Distinguished Alumnus” in 1990.

Mr. William K. Ott is an independent petroleum consultant and is the founder of Well Completion Technology, an international engineering consulting and petroleum industry training firm established in 1986. Before consulting and teaching, he was division engineer for Halliburton’s Far East region established in 1986. Before consulting and teaching, he was division engineer for Halliburton’s Far East region. Mr. Ott was division engineer for Halliburton’s Far East region established in 1986. Mr. Ott has a B.S. in Chemical Engineering from the University of Wisconsin-Madison and a BS in Petroleum Engineering from Texas A&M University. Mr. Ott has been involved with the following projects: the deepwater Gulf of Mexico development projects, the deepwater Gulf of Mexico development projects, and the deepwater Gulf of Mexico development projects.

Mr. Dennis Perry has been working in the automation, electrical and instrumentation design business for many years. His work experience includes working in the aerospace industry as an analog circuit designer, working in the electronic instrument manufacturing business as production engineering manager, and working for a major oil and gas company as a division automation supervisor and later as a staff engineer in the central, Upstream Technology group. He has also worked for an instrument manufacturer as service manager and for an engineering construction company as an instrument/electrical engineer. Mr. Perry published a paper on Multiphase measurement fall 1996 SPE, co-authored a paper for ASME/ETCE 2000 on value of well test accuracy, presented at the Acadiana Flow Measurement Workshop, and co-authored a paper on heavy oil multiphase measurement with Intevep of Venezuela. Mr. Perry graduated from Louisiana Tech with a BS degree in Electrical Engineering.

Mr. Jason Pingenot has over 21 years of experience in planning, design, engineering, management, and commissioning for a wide range of natural gas installations including wellhead controls, gathering systems, compressor stations, processing plants, metering facilities, and truck loading stations for gathering systems, compressor stations, processing plants, metering facilities, and truck loading stations for the project involvement was in the construction of Qatargas 3&4 LNG Project (first with EPC contractor in 1998). Mr. Pingenot has also worked for an instrument manufacturer as service manager and for an engineering construction company as an instrument/electrical engineer. Mr. Perry published a paper on Multiphase measurement fall 1996 SPE, co-authored a paper for ASME/ETCE 2000 on value of well test accuracy, presented at the Acadiana Flow Measurement Workshop, and co-authored a paper on heavy oil multiphase measurement with Intevep of Venezuela. Mr. Perry graduated from Louisiana Tech with a BS degree in Electrical Engineering.

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actively engaged in teaching, research in multiphase flow, and as executive director of Tulsa University Fluid Flow Projects. He received a B.S. in Mechanical engineering from Texas A&M University in Kingsville, Texas, an MS, and Ph.D., from the University of Houston, both in Mechanical Engineering.

DR. GEORGE RODENBUSCH has more than 32 years of experience in the engineering and management of deepwater offshore oil and gas developments. He started his career working in R&D where he developed tools for the estimation of loads on offshore platforms induced by wind, wave and current during severe storms. He then joined a Marine Systems Engineering group, which was involved in the development of deepwater fields in the Gulf of Mexico. He has led the global analysis group supporting the design of the Auger Tension Leg Platform that would move the record water depth for offshore production from 410m to 870m. In addition to design activities, he spent several years working on various technical problems involving hydrodynamic and hydroacoustic design of offshore platforms. He has provided development planning support to operating companies around the globe in selecting systems for the development of deepwater offshore fields. He spent several years as an Engineering Manager supervising a group responsible for the design of floating systems, risers, mooring systems and foundations for deepwater developments. He was active in the API Offshore Structures subcommittee, which established and maintained key standards for offshore engineering, chairing that group for several years. He was appointed as a Global Technical Expert in Offshore Structure Engineering in recognition of technical expertise and global contribution and was later named the Global Discipline Head for Offshore Engineering. He holds a BS and MS in Mechanical Engineering from Rice University and a PhD in Oceanographic Engineering from Massachusetts Institute of Technology & Woods Hole Oceanographic Institution. He is a Licensed Professional Engineer in the State of Texas and a member of ASME.

MR. GERRY H. ROSS has more than 39 years’ formation evaluation and rock based Petrophysics experience. He has participated in global oil and gas operations from exploration through production. From 2002 to 2016, while at PetroSkills, he was an executive leader in the company and was involved in training and engagement. He is course director for Basic Petroleum Technology and the online ePetro industry overview program. While with Core Lab, he provided training to both majors and independents on a worldwide basis. During this time, he was the instructor and course coordinator of an extensive internal Petrophysics applications program. This multi-year program focused on the applications of rock and fluid data in log analysis, formation evaluation, reservoir engineering and production. He also worked with major research centers and universities globally to provide reservoir conditions instrumentation for reservoir engineering, reservoir description, and formation damage research. His international oil and gas knowledge was developed through extended assignments in South America, Asia, the North Sea and the US. He is a member of the SPE, SPWLA, PESGB, SEAPEX and a past president of the Aberdeen Chapter of the SPWLA. He received a BSc in Geology from Bedford College, London University.

DR. KENT SCAUGER is a hands-on scientific, technology and business professional with 25 years’ experience in upstream oil and gas, offshore technology, economics, economic modeling, international petroleum contracts, project management, software applications and technology including design, licensing and commercialization. He has domestic and international experience, excellent presentation skills and strong customer awareness. He received both a B.A. and a Ph.D. in Chemistry from the University of California.

MR. RICHARD H. SCHROEDER is founder and President of RHS Management, specializing in technical and management consulting for the petroleum industry. He has more than 45 years of experience in engineering, international operations, management and teaching experience in all phases of exploration, production, research and corporate development. He specializes in reservoir management, production optimization, drilling, operations, completion and workover capibilities, personnel selection and development, performing the role of project team building. His professional experience includes: 9 years in engineering, research and supervision with Exxon; 8 years as Senior Vice President with May Petroleum, an independent drilling fund company; 8 years as President of Rosewood Resources, a privately-owned integrated oil company; and 7 years as President/Chairman/Consultant of Harken Energy Corp., an international exploration company. He has authored articles and manuals on various phases of petroleum engineering and personnel management. He is a member of API, SPE, IPAA, and TIPRO, is a Tau Beta Pi Fellow, and has various outstanding lecturer awards. He received a BS in Engineering Science and an MS in Petroleum Engineering from the University of Texas at Austin.

MR. JOHN SCHULTZ, CAM, CCE, CMA, CMCI, CPIM, PMP and PE, is a decision analyst, evaluation engineer, and investor. He founded his consulting practice, Decision Precision, in 1988. He has over 37 years of experience in analysis, consulting, training and management, primarily in the energy industry. His focus has been in feasibility analysis, appraisals, corporate planning, and evaluation software. He has presented over 290 courses in 34 countries since 1989. He was vice president and petroleum engine with SecurePacific National Bank, planning and evaluation analyst at Cities Service Oil Co., manager of business systems for Cities Service’s Petrochemicals Division, and senior management consultant with a national accounting firm. He is a member of eight professional organizations and is an active member of API with responsibilities including serving on the revision author of Decision Analysis for Petroleum Exploration, 2nd Ed., author of Risk and Decision Analysis in Projects, 2nd Ed., and has written over 40 articles, papers and handbook chapters. He received BS and MS degrees in mineral-engineering physics from the Colorado School of Mines and an MBA from the University of Colorado. His website is www.maxvalue.com.

MR. STEPHEN SCOTT is a Chemical Engineer by qualification and an Atmospheric Storage Tank and Sludge Processing Specialist by experience. He is a Member of the American Chemical Engineers and the Energy Institute, and is qualified as an API Certified Tank Inspector (API 653). On leaving full time education, Steve joined ICI, and was involved as a key player in the development of improved operational performance across a broad range of chemical manufacturing plants. In 1985, Steve became Technical Manager of a team charged with the production of its ‘Tank Cleaning Safety Code,’ which has become the definitive document worldwide. In 1992, Steve became Managing Director of Progressive Technical Services specializing in the preparation for inspection of large diameter black oil storage tanks and the subsequent processing of the resultant hydrocarbon waste for oil recovery, recycling and waste minimization. As a recognized industry expert, Steve decided to offer his services to a wider audience and in 1997, formed Bro Nant International. As an independent, Steve can work for both contractor and industrial major alike and has built up an enviable reputation both in the UK and overseas. Strategic alliances formed with leading oil industry service companies allows Bro Nant International to offer a full lumkey capability from a single managed source. A comprehensive knowledge of relevant industry standards including BS, EEMUA, and API ensures that all projects are undertaken with a high degree of professional integrity, all participants having been independently audited by Bro Nant International. During the past 20 years, Steve has provided training in Atmospheric Storage Tank Management to literally hundreds of industry professionals worldwide.

MR. JOHN C. SCRUTON-WILSON is a founding faculty member of the BP Financial University responsible for developing and delivering finance and economic evaluation training throughout the BP organization. His leadership in negotiation was displayed by developing a consensus position with ExxonMobil and ConocoPhillips in agreements for the Alaska Gas Pipeline as well as shaping $20 billion of Federal Loan guarantees and tax benefits for the pipeline. He is experienced in project finance having worked in the US, Brazil, Australia and South Africa. He rejoined Financial Corp. to finance a chemical plant expansion in Brazil and with Citibank to provide loans for gasoline retailers. He has established himself as a leader in the oil and gas industry by holding various management/ leadership positions during his career. He has an MA in Theology from Fuller Theological Seminary, an MS in Agricultural Economics (major in Marketing) from Cornell University and an MBA in Finance and International Studies from the University of Chicago.

MRS. KINDRA SNOW-MCGREGOR is the Technical Director of Oil and Gas Processing with PetroSkills | John M Campbell. She has a master’s and bachelor’s degree in Chemical Engineering and Petroleum Refining from the Colorado School of Mines, and over 20 years of experience in the oil and gas industry. She has been with the company for over 15 years, overseeing several positions including manager of consulting, senior staff engineer and instructor, and discipline manager for the Oil and Gas Processing Discipline. Prior to joining John M Campbell & Company in 2008, she served in technical manager, process engineering manager, and lead process engineering roles in the oil and gas processing, procurement and construction business. She has served as the technical lead on several significant projects in the industry for clients such as BP, ExxonMobil, ConocoPhillips, Occidental, QatarGas, and XTO. Mrs. Snow-McGregor has been active in the gas processing / midstream industry for many years, and is on the Board of Directors for the GPFA. In addition, she serves on the GPFA Engineering Data Book Editorial Review Board, and prior to this role, served on the GPA Technical Research Committee, Sub-Group 2, for over 11 years. She has published seven technical papers at international conferences, served as project coordinator for GPA research report 221, and is a co-inventor on two technology patents in the gas processing industry.

MR. KENNETH (KEN) SOURISSEAU has 34 years experience with Shell. Assignments have been in front end development, process design, project engineering, operations technical support, and operations management primarily in the areas of sour
Our Instructors

Mr. Chris Spraggon is a Chartered Mechanical Engineer with APM Level D qualifications and 15 years of mechanical and project engineering experience. The last 11 years have been spent specifically in the engineering and management of offshore work packages with flexible pipes and associated ancillary components to major clients in the UKCS, Middle East and West Australia. His experience includes assignments in technical support, operations management, gas processing project development and turnaround management. From 2006 he has worked as an Instructor in addition to providing project development and asset management services through his own consultancy company. Mr. Spraggon is a Chartered Member of the Institute of Mechanical Engineers.

Mr. Paul Verrill has over 25 years’ experience working in the chemical, petrochemical, hydrocarbon processing and power sectors. He has held a number of technical and senior management positions including Mechanical and Piping Designer, Machinery Engineer, Project Manager, Engineering and Maintenance Manager and other Senior Plant and Business Management roles. He has worked for a number of international operating and engineering companies including ICI, Rolls Royce and Enron E & C. His experience includes piping and mechanical equipment design, project management, gas processing project development including FEED study management and operations and turnaround management. For the previous 3 years Mr. Verrill has been working in the senior management team of an 800mmscfd gas processing facility which has been developing the onshore assets for a new UK gas field. In 2011 Mr. Verrill started working with JM Campbell as an Instructor in addition to providing project development and asset management services through his own consultancy company. Mr. Verrill is based in Yorkshire, England and graduated with a BEng degree in Mechanical Engineering from the University of Sheffield and he is a Chartered Member of the Institute of Mechanical Engineers.

Mr. Colin Watson has over 36 years’ broad experience in petrochemicals, primarily in engineering support and process safety management. He joined PetroSkills as an instructor in 2014. His experience includes engineering support for operations, turnarounds, project execution and HSE and engineering management. From 2006 he has worked as an independent Engineering and Process Safety Consultant working with oil and gas clients. He has worked primarily with BP to design, develop and facilitate their global Process Safety training and awareness programs both for engineering and operations teams. In a varied 28-year career in BP he latterly worked to develop strategic structures and governance systems to manage Process Safety and Integrity Management for the BP Grangemouth Complex and the European BP Chemicals Sites. His experience in process safety training and engineering management extends across a variety of over 30 years in the oil and gas industry. Mr. Watson has over 35 years of experience in plant process engineering, operations supervision, project development and business case definition, process technical support, plant engineering management, and internal consulting, primarily with Saudi Aramco. Canadian experience includes plant engineering in phosphorus production, heavy water, and bitumen upgrading, and project engineering. He also has experience in benchmarking, implementation of a safety management system, and the application of lean Six Sigma methods to engineering management. He has Masters’ degrees in Chemical Engineering and in Economics, is a Professional Engineer in Alberta and is a certified Six Sigma Black Belt.

Mr. Wes Wright has over 35 years of industrial experience, most of which were in oil and gas processing. His experience includes plant process engineering, operations supervision, project development and business case definition, project technical support, plant engineering management, and internal consulting, primarily with Saudi Aramco. Canadian experience includes plant engineering in phosphorus production, heavy water, and bitumen upgrading, and project engineering. He also has experience in benchmarking, implementation of a safety management system, and the application of lean Six Sigma methods to engineering management. He has Masters’ degrees in Chemical Engineering and in Economics, is a Professional Engineer in Alberta and is a certified Six Sigma Black Belt.
Delivering Bad News to Stakeholders and Decision Makers

We all hate delivering bad project news, but this Tip of the Month will give you some tips to better communicate negative information to stakeholders and decision makers. Learn about five different types of project issues, managing project relationships, and best practices for delivering bad news.

9 Practical Tips for Motivating Oil and Gas Teams

This Tip of the Month discusses practical tips that have yielded strong positive results on oil and gas projects. The most important factor to a successful project is PEOPLE. There are many resources for monitoring projects, but most of these miss the key to a successful project. Processes and skills, with the right tools, at the right time, coupled with MOTIVATION is the major key to success.

The Importance of Specification Breaks

Spec Breaks are noted on P&ID’s and indicate where a specification change has occurred on piping with regards to flange rating, material, or insulation. They are extremely important in HAZOP’s when reviewing relief valve settings and the hazards introduced by creating overpressure situations by opening and closing valves downstream from a high pressure source.

Methyl Diethanolamine (MDEA) Vaporization Loss in Gas Sweetening Process

In this Tip of The Month, you will investigate the effect of pressure and temperature on the MDEA vaporization loss from the contactor top, regenerator top and flash gas. Specifically, this study focuses on the variation of MDEA vaporization losses with the feed sour gas pressure in the range of 5.52 MPa to 8.28 MPa (800 psia to 1200 psia).

The #1 Problem Facing Turnarounds, Shutdowns and Outages

Turnarounds, shutdowns and outages are often subject to late minute work scope changes resulting in extended downtime and cost overruns. In an effort to control downtime, management applies additional manpower, often resulting in inefficiencies and poor labor productivity. The result is cost overruns and a TSO that fails to fully meet the business needs.

Impact of CO2 on Natural Gas Density

Due to the importance of CO2 injection for enhanced oil recovery and the increasing interest in CO2 capture and sequestration, this Tip of the Month was undertaken to prepare simple charts for accurately estimating the density for hydrocarbon systems containing nil to 100% CO2.

Check out full articles at petroskills.com/totm
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**Foundation**
- Evaluating and Developing Heavy Oil Resources - HOED
- Basic Petroleum Technology Principles - BPT
- Basic Petroleum Technology - BPT (Virtual Delivery)
- Basic Petroleum Engineering Practices - BE
- Field Study - Heavy Oil Resources - HOPS
- Basic Drilling, Completion and Workover Operations - BDC
- Basic Petroleum Technology Principles - BPT
- Basic Petroleum Technology - BPT (Virtual Delivery)
- Overview of the Petroleum Industry - OVP

**Intermediate**
- Deep-water Turbidite Depositional Systems and Reservoirs - DWT
- Integrated Carbonate Reservoir Characterization - ICR
- Basin Analysis Workshop - BA
- Development Geology - DG
- Operations Geology - OG

**Specialized**
- Compressional and Transpressional Structural Styles - CPST
- Analysis of Structural Traps in Extensional Settings - ESS
- Compression and Transpression Structural Styles - CPST
- Geochemical Techniques for Solving Reservoir Management and Field Development Problems - GTS
- Basin Analysis: Prospects and Plays Assessment - PPA

**Geological and Geophysical Characterization of Heavy Oil Resources - HORC**

**Overview of Heavy Oil Resources - HOOV**

**Geomechanics for Heavy Oil - HOGM**

**Computer-Based Subsurface Mapping - CSM**

**Mapping Subsurface Structures - MSS**

**Overview of the Petroleum Industry**

**Basic Petroleum Geology - BG**
### Geophysics

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### Petrophysics

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### Additional Upstream Courses

- **Basic Geophysics** - BGP
- **Basic Geophysics - BGP (Virtual Delivery)**
- **Basic Petroleum Technology** - BPT
- **Basic Petroleum Technology Principles** - BPT (Virtual Delivery)
- **Geological and Geophysical Characterization of Heavy Oil Reservoirs** - HORC
### Reservoir Engineering

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<td>Coalbed Methane Reservoirs: Advanced Analysis Techniques - CMR</td>
<td>Decline Curve Analysis and Diagnostic Methods for Performance Forecasting - DCA</td>
<td>Horizontal and Multilateral Wells: Completions and Stimulation - HML2</td>
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### Well Construction / Drilling

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### Evaluating and Developing Shale Resources - SRE

### Evaluating and Developing Heavy Oil Resources - HOED

### Reservoir Engineering for Other Disciplines - REO

### Applied Reservoir Engineering - RE

### Applied Reservoir Engineering - RE (Virtual Delivery)
To register for a course, or for questions on inhouse training or any of our other solutions, contact our Customer Service Department at +1.918.828.2500 or training@petroskills.com.

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CERTIFICATES, PROFESSIONAL DEVELOPMENT HOURS (PDH), AND CONTINUING EDUCATION UNITS (CEU)

A Certificate of Completion is awarded to each participant who satisfactorily completes the course and will be awarded by the instructor(s) on the final day.

PetroSkills® course hours can be used to satisfy PDHs for licensed engineers in most US states. In many instances, course hours can be used for international CEU credit also. Every course certificate tells the number of CEUs earned and also can be used to submit to your licensing board or accrediting body for approval.

TERMS AND CONDITIONS

REGISTRATION AND PAYMENT

It is recommended participants register early due to limited seating. However, registrations can be submitted up to the last business day before class provided there are seats available. Registrations are confirmed when payment is received. Payment is due upon receipt of invoice and no later than 30 days before class. For registrations submitted less than 30 days before class, payment is due immediately otherwise a seat in the course cannot be guaranteed. Tuition fees are due and payable in US dollars. Please contact the Customer Service Department customerservice@petroskills.com if you cannot meet the payment requirements as registrations are not automatically cancelled when payment is not received.

TUITION FEES

Tuition fees include tuition, course material, daily refreshments and a non-refundable registration fee of $100.00 (USD) per five days of training or less. As a reminder a seat in the course is not confirmed until payment is received. Please note tuition fees do not include living costs.

Participants are responsible for booking and paying for their own hotel accommodations. When possible, PetroSkills will reserve a block of sleeping rooms at suggested hotel(s). Participants should contact the suggested hotel directly at least three weeks before the course begins.

Remember to mention PetroSkills and/or the course title to receive a discounted rate, if applicable.

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A minimum of 30-day notice is required to cancel or transfer otherwise the tuition fee is forfeited or remains due if not already paid. Cancellation requests received 30-days or greater before class will be honored and tuition refunded, less the non-refundable registration fee mentioned above, provided there were no previous late requests to transfer. Transfer requests received 30-days or greater before class will be honored and tuition is transferrable provided there were no previous late request to transfer. Note: should there be a difference in tuition, the difference will be due. Only one transfer per initial registration is permitted.

Late requests to transfer into a future session of the same course will be considered provided the tuition is paid and the requested session is open for enrollment.

Substitutions of participants are permitted at any time without penalty.

Please contact the Customer Service Department customerservice@petroskills.com if you need to cancel, transfer, or make a substitution.

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PetroSkills reserves the right to cancel any course session at any time. The decision to cancel is generally made approximately two weeks before class. When a course cancels registered participants will be given the opportunity to transfer to another course or receive a full refund, provided the enrollment was not transferred into the cancelled course late. Keep this in mind when making travel arrangements (airline tickets, hotel reservations, etc.), as PetroSkills cannot be responsible for any fees incurred for cancelling or changing your travel arrangements.

We reserve the right to substitute course instructors as necessary.

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- Casing Design Workshop
- Completions and Workovers
- Foundations of Petrophysics
- Gas Conditioning and Processing Principles
- NODAL Analysis Workshop
- Process Safety Engineering
- Production Operations 1
- Production Technology for Other Disciplines
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