NEW in 2017-18

- New Alliance Member: Plains All American Pipeline L.P.
- Fall Protection Supervisor Training (pg 21)
- Turnaround, Shutdown and Outage Management (pg 21)
- More Virtual/Blended Learning Options Through PetroAcademy, including:
  - Basic Petroleum Technology Principles (pg 32)
  - Gas Conditioning and Processing (pg 6)
  - Process Safety Engineering Principles (pg 8)
  - Production Operations 1 (pg 18)
The following courses are available now, and we will be adding more throughout 2018.

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 50 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:

- Fall Protection Supervisor Training – see page 21
- Turnaround, Shutdown and Outage Management - see page 21

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 courses are available now, and we will be adding more throughout 2018.

- Basic Petroleum Technology Principles – page 32
- Gas Conditioning and Processing – page 6
- Process Safety Engineering - see page 8
- Production Operations 1 – page 18

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

Lastly, I am pleased to announce that effective August 1, 2017, Plains All American Pipeline L.P. became the 30th Member of the PetroSkills Alliance. Plains brings significant insight and experience to our midstream efforts that will benefit all member companies.

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 any of our regional offices (inside back cover).

Message from the CEO

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.

Ford Brett
CEO, PetroSkills

4 Course Progression Map

GAS PROCESSING

6 Gas Conditioning and Processing (Campbell Gas Course®) – G4
6 Gas Conditioning and Processing - G4 (Virtual/Blended course)
8 Gas Treating and Sulfur Recovery – G6
7 LNG Short Course: Technology and the LNG Chain – G29
7 Overview of Gas Processing – G2
8 Practical Computer Simulation Applications in Gas Processing – G5
8 Process Safety Engineering – PS4
8 Process Safety Engineering Principles - PSE (Virtual/Blended course)

PROCESS FACILITIES

10 Applied Water Technology in Oil and Gas Production – PF21
11 CO₂ Surface Facilities – PF81
9 Concept Selection and Specification of Production Facilities in Field Development Projects – FP3
10 Fundamental and Practical Aspects of Produced Water Treating – PF23
9 Introduction to Oil and Gas Production Facilities – PF2
9 Oil Production and Processing Facilities – PF4
11 Onshore Gas Gathering Systems: Design and Operations – PF45
10 Relief and Flare Systems – PF44
10 Separation Equipment - Selection and Sizing – PF42
11 Troubleshooting Oil and Gas Processing Facilities – PF49

INSTRUMENTATION, CONTROLS & ELECTRICAL

12 Electrical Engineering Fundamentals for Facilities Engineers – E3
13 Flow and Level Custody Measurement – IC73
12 Instrumentation and Controls Fundamentals for Facilities Engineers – IC3
12 Instrumentation, Controls and Electrical Systems for Facilities Engineers – ICE21
12 PLC and SCADA Technologies – IC71
13 Practical PID Control and Loop Tuning – IC74
13 Valve and Actuator Technologies – IC72

MECHANICAL ENGINEERING

15 Compressor Systems - Mechanical Design and Specification – ME46
14 Corrosion Management in Production/Processing Operations – PF22
14 Fundamentals of Pump and Compressor Systems – ME44
14 Mechanical Specification of Pressure Vessels and Heat Exchangers – ME43
14 Piping Systems - Mechanical Design and Specification – ME41
15 Process Plant Reliability and Maintenance Strategies – REL5
15 Risk Based Inspection – REL61

PIPELINE ENGINEERING

16 Flow Assurance for Pipeline Systems - PL61
16 Offshore Pipeline Design and Construction – PL43
16 Onshore Pipeline Facilities - Design, Construction and Operations – PL42
15 Pipeline Systems Overview – PL22
16 Terminals and Storage Facilities – PL44

For more information, see the back cover, or petroskills.com/blended.
### PETROLEUM PROFESSIONAL DEVELOPMENT

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<tr>
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<td>Basic Petroleum Economics – BEC3</td>
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<td>25</td>
<td>Cost Management – CM</td>
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<td>25</td>
<td>Economics of Worldwide Petroleum Production – EWP</td>
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<td>26</td>
<td>Expanded Basic Petroleum Economics – BEC</td>
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<td>24</td>
<td>Fundamentals of International Oil and Gas Law – IOG</td>
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<td>24</td>
<td>Introduction to Petroleum Business – IPB</td>
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<td>25</td>
<td>Petroleum Finance and Accounting Principles – PFA</td>
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<td>Petroleum Risk and Decision Analysis – PRD</td>
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<td>Strategic Thinking: A Tool-Based Approach – STT</td>
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### PRODUCTION AND COMPLETIONS ENGINEERING

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<td>19</td>
<td>Gas Production Engineering – GP0</td>
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<tr>
<td>18</td>
<td>Production Operations 1 – PO1 (Also available as a Virtual/Blended course)</td>
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<tr>
<td>18</td>
<td>Production Technology for Other Disciplines – PTO (Virtual/Blended option coming soon)</td>
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<td>Surface Production Operations – PO3</td>
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<td>Surface Water Management in Unconventional Resource Plays – SWM</td>
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### OPERATIONS & MAINTENANCE

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<td>Crude Oil Pipeline Operations – OT50</td>
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<td>LNG Facilities for Operations and Maintenance – OT43</td>
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<td>Oil and Gas Processing Facilities for Operations and Maintenance – OT1</td>
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<td>Turnaround, Shutdown and Outage Management – TSOM</td>
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### HEALTH, SAFETY, ENVIRONMENT

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<td>Applied HSE Management – HS28</td>
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<td>Contractor Safety Management – HS46</td>
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<td>Distance Learning Vocational Diploma in Occupational Safety and Health – HS70</td>
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### OFFSHORE & SUBSEA

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<td>Flow Assurance for Offshore Production – FAOP</td>
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<td>17</td>
<td>Fundamentals of Offshore Systems Design and Construction – OS4</td>
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<td>17</td>
<td>Overview of Offshore Systems – OS21</td>
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### PROCUREMENT/SUPPLY CHAIN MANAGEMENT

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<td>Cost/Price Analysis and Total Cost Concepts in Supply Management – SC64</td>
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<td>Effective Materials Management – SC42</td>
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<td>Inside Procurement in Oil and Gas – SC61</td>
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<td>27</td>
<td>Strategic Procurement and Supply Management in the Oil and Gas Industry – SC62</td>
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### PROJECT MANAGEMENT

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<td>Advanced Project Management – FPM62</td>
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<td>Advanced Project Management II – FPM63</td>
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<td>29</td>
<td>Managing Brownfield Projects – FPM42</td>
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<td>Petroleum Project Management: Principles and Practices – PPM</td>
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<td>28</td>
<td>Project Cost Scheduling – PCS</td>
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<td>Project Management for Engineering and Construction – FPM22</td>
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### INTRODUCTORY AND MULTI-DISCIPLINE

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<td>Overview of the Petroleum Industry – OVP</td>
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### INSTRUCTOR BIOGRAPHIES

33 INSTRUCTOR BIOGRAPHIES

### PETROSKILLS SPECIAL FEATURES

2 PetroSkills Alliance
3 Comprehensive Solutions
4 Course Progression Map
7 ePilot Gas Processing Operations
11 ePilot Operations & Maintenance
13 PetroSkills Conference Center
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32 Sign Up for Emails
Inside Back Cover Regional Contacts and Registration
Inside Back Cover CEU/PDH Certificates
Back Cover PetroAcademy - Blended Learning Solutions
**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.

**Active Learner**
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.

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

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

petroskills.com/solutions
## Course Progression Map

### Mechanical Engineering
- **Non-Rotating**
  - Compressor Systems - Mechanical Design and Specification – ME46 p.15
  - Mechanical Specification of Pressure Vessels and Heat Exchangers – ME43 p.14
- **Rotating**
  - Piping Systems - Mechanical Design and Specification – ME41 p.14
  - Fundamentals of Pump and Compressor Systems – ME44 p.14
- **Reliability**
  - Risk Based Inspection – REL61 p.15
  - Process Plant Reliability and Maintenance Strategies – REL5 p.15

### Operations & Maintenance
- **O&M Management**
  - Management of Brownfield Projects – FPM42 p.29
  - Project Management for Engineering and Construction – FPM22 p.29
  - Project Cost Scheduling – PCS p.28
- **Operator Training**
  - Turnaround, Shutdown, and Outage Management – TSOM p.21
  - Petroleum Project Management: Principles and Practices – PPM p.28

### Project Mgmt.
- Advanced Project Management II – FPM63 p.29
- Advanced Project Management – FPM62 p.29
- Managing Brownfield Projects – FPM42 p.29
- Project Management for Engineering and Construction – FPM22 p.29
- Project Cost Scheduling – PCS p.28
- Petroleum Project Management: Principles and Practices – PPM p.28

### Procurement/Supply Chain Management
- Cost/Price Analysis and Total Cost Concepts in Supply Management – SC64 p.28
- Supplier Relationship Management – SC63 p.28
- Strategic Procurement and Supply Management in the Oil and Gas Industry – SC62 p.27
- Inside Procurement in Oil & Gas – SC61 p.27

### Additional courses available in:
- **Production & Completions**
  - Production & Completions – p. 18-19
- **Health, Safety, Environment**
  - Health, Safety, Environment – p. 21-24
- **Petroleum Business**
  - Petroleum Business – p. 24-26
- **Professional Petroleum Development**
  - Professional Petroleum Development – p. 30-31
- **Introductory and Multi-Discipline**
  - Introductory and Multi-Discipline – p. 32
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 47 years. Over 36,600 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, Volume 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.

DESIgnED FOR

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

YOU WILL LEARN 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
• Pumps
• Compressors and drivers
• Refrigeration in gas conditioning and NGL extraction facilities
• Fractionation
• Glycol dehydrations; TEG
• Adsorption dehydration and hydrocarbon removal
• Gas treating and sulfur recovery

2017-18 Schedule and Tuition (USD)

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<th>Cost</th>
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<td>HOUStON, US</td>
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<td>25-26 NOV 2017</td>
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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 LNG gas conditioning and processing. In addition, instructors will explain the LNG supply chain that consists of four main links - natural gas exploration and production, liquefaction, shipping, receiving, and distribution. The course covers standard details of the mixed refrigerant (APC) and cascade (ConocoPhillips) processes in LNG liquefaction. New liquefaction processes are addressed, such as mixed fluid cascade and dual nitrogen refrigeration cycles. Versions of this course have been taught in many of the world’s base-load and peak-shaving LNG plants, such as Australia, Indonesia, Malaysia, Norway, Qatar, UK, and West Indies.

DESIgnED 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-precooled, 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
• Applications to solving 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 • Other facilities topics relevant to LNG • Course summary and overview

2017-18 Schedule and Tuition (USD)

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2017-18 Schedule and Tuition (USD)

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<tr>
<td>PERTH, AUSTRALIA</td>
<td>9-20 APR 2018</td>
<td>$8900+GST</td>
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Overview of Gas Processing – G2

BASIC 3-DAY

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.

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

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

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

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.

DESIGNED 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 pricing
- 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

www.petroskills.com/elearning

GAS PROCESSING

PetroSkills e-Learning

Eliminate travel expenses and accelerate learning!

Online Learning for Gas Processing Operations

This e-learning library provides the fundamentals and in-depth coverage of all topics related to gas processing to help develop a highly qualified workforce to maintain operating efficiency and a safe working facility.

Topics include:
- Introduction to Gas Processing for Operations
- Hydrocarbon Phase Behavior and Vapor-Liquid Equilibrium
- Gas Processing Thermodynamics
- Turboexpander
- Fractionation in Gas Processing
- Solid Bed Adsorption and TEG Dehydration
- Amine Sweetening Process
- Gas Processing Hazards

- Designed for the Global Oil and Gas Industry
- Pre-tests and Post-tests
- Customization for Site Specifics
- Gap Identification and Remediation
- AICC/SCORM Compliant

2017-18 Schedule and Tuition (USD)

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Process Safety Engineering – PSE

BASIC 40 HOURS

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.

This Process Safety Engineering Principles Blended Program provides an overview of process safety engineering fundamentals for hydrocarbon processing facilities. The focus of this course is on the engineering/design aspects of Process Safety Management. Frequent reference is made to historical incidents and recurring problem areas. Techniques for analyzing and mitigating process safety hazards applicable to oil and gas processing will also be reviewed. This program integrates the concepts covered to achieve a measured approach to Process Safety Engineering.

DESIGNED FOR
Anyone who has to deal with concepts of process safety engineering, including facility engineers, process engineers, design engineers, new safety/loss prevention engineers, project engineers, operations supervisors, maintenance supervisors, and representatives from insurance companies or regulatory agencies.

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...

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 • Sour gas 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

FOUNDATION 5-DAY

This course provides an overview of process safety engineering fundamentals for hydrocarbon processing facilities, with emphasis on the upstream oil and gas sector. The focus of this course is on the engineering/design aspects of Process Safety Management. Frequent reference will be made to historical incidents and recurring problem areas. Techniques for analyzing and mitigating process safety hazards applicable to oil and gas processing will also be reviewed. Integration of the concepts covered to achieve a measured approach to Process Safety Engineering is a key aim of this course as well. Exercises and group projects will be utilized to emphasize the key learning points.

DESIGNED FOR
Facilities, process, and design engineers, as well as new safety/loss prevention engineers who require an overview of Process Safety Engineering.

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 of Layers of Protection • Inherently safer design • Hazards associated with process fluids • Leakage and dispersion of hydrocarbons • Combustion behavior of hydrocarbons • Sources of ignition • Hazards associated with specific plant systems • Plant layout and equipment spacing • Pressure relief and disposal systems • Corrosion and materials selection • Process monitoring and control • Safety instrumented systems • Fire protection principles • Explosion protection

Basic thermodynamic concepts • Separation equilibrium • Water-hydrocarbon equilibrium • Qualitative phase behavior • Vapor-liquid equilibrium • 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

Basic engineering concepts • Separation equipment • Heat transfer • Pumps • Compressors • Refrigeration • Fractionation/distillation • Glycol dehydration • Adsorption dehydration

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 2-day 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 flow point control process, a mechanical refrigeration process with economists, hydrate 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 Books Vols. 1 & 2.

DESIGNED 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 determine the water content and hydrate formation conditions for gas streams using both a commercial process simulator and hand calculation methods
• Techniques to inhibit hydrate formation, including injection of equilibrium inhibitors such as methanol and MEG
• Preliminary design and evaluation of TEG dehydration processes using quick hand calculations
• Process design used to control 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 simulations 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 • Refrigeration • Fractionation/distillation • Glycol dehydration • Adsorption dehydration

Process 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 trico sulfur compound handling and the importance of H2S:SO2 ratio, are covered as well. Related topics reviewed during the course include liquid product treating, corrosion, materials selection, and NACE requirements.

DESIGNED FOR
Production and processing personnel involved with natural gas treating and sulfur recovery, requiring an understanding of the principles of these process operations. 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, energy 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 Sulfitol and Flexsorb • Carbonate processes • Physical absorption processes, e.g. Selexol • 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 • Tail gas clean-up (SCOT-type, CBA, and others) • Acid gas injection • Membranes • Emerging and new technologies • Course workbook and summary

2017-18 Schedule and Tuition (USD)

Brisbane, Australia 6-10 Aug 2018 $6050+GST
Dubai, UAE 17-21 Dec 2017 $5480
16-20 Dec 2018 $5480
10-14 Sep 2018 $4350
20-24 Mar 2018 $5780

Houston, US 7-11 May 2018 $4700
10-14 Sep 2018 $4350

Kuala Lumpur, MYS 26-30 Mar 2018 $5600+VAT
16-20 Apr 2018 $5600+VAT
10-14 Dec 2018 $5600+VAT

London, UK 27 Nov-1 Dec 2017 $5600+VAT
20Oct-1 Nov 2018 $5480

Perth, Australia 19-23 Mar 2018 $6050+GST

*plus computer charge

FOR MORE INFORMATION, VISIT
PETROSKEILLS.COM/PROCESS-SAFETY-BLENDED
Introduction to Oil and Gas Production Facilities – PF2

BASIC 3-DAY

The scope of the discussion ranges from an overview of the oil and gas industry, hydrocarbon phase behavior characteristics, and different reservoir types, to product specifications and the processes used to meet these. Other facilities considerations are addressed, such as process safety and downstream processing that may impact the production facility selection and operation.

DEIGNED FOR
Those interested in an overview of production facilities, including subsurface professionals, line managers, sales or business development staff, environmental personnel, operational staff, and those new to the industry.

YOU WILL LEARN
• Reservoir types - drive mechanism, fluid properties, location, and product specifications influence the selection and design of the production facilities
• How to do quick ‘back of the envelope’ calculations to better understand equipment sizing and capacity
• Parameters that affect the design and specification of oil stabilization and dehydration equipment
• Awareness of the parameters that determine flowline/gathering system capacity
• The purpose of separators in a production facility and familiarity with the typical configurations
• Typical design parameters, operating envelopes, common operating problems of oil and gas production equipment, and the effect of changing feed conditions over the life of a field
• To describe oil dehydration/desalting processes and equipment
• Produced water treating and water injection systems
• Solution gas handling processes and equipment will be discussed at a relatively high level. In addition to the engineering aspects of oil production facilities, practical operating problems will also be covered, including emulsion treatment, sand handling, dealing with wax and asphaltenes, etc.

COURSE CONTENT
Overview of the oil and gas industry • Qualitative phase behavior and reservoirs • Hydrocarbon properties and terminology • Typical sales/disposal specifications • Flowlines, piping and gathering systems • Production separation • Oil processing • Water injection systems (including pumps) • Gas handling – compression, dehydration • Measurement and storage • Other facility considerations – utilities, process safety • Midstream facilities – gas processing, pipelines, LNG

Oil Production and Processing Facilities – PF4

FOUNDATION 10-DAY

The emphasis of this course is on oil production facilities – from the wellhead, to the delivery of a specification crude oil product, to the refinery. Both onshore and offshore facilities are discussed. Produced water treatment and water injection systems are also covered. Solution gas handling processes and equipment will be discussed at a relatively high level. In addition to the engineering aspects of oil production facilities, practical operating problems will also be covered, including emulsion treatment, sand handling, dealing with wax and asphaltenes, etc.

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

You will learn
• How to evaluate processing configurations for different applications
• How to perform equipment sizing calculations for major production facility separation equipment
• To evaluate processing configurations for different applications
• How to recognize and develop solutions to operating problems in oil/water processing facilities

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

2017-18 Schedule and Tuition (USD)

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

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 watershed. 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 emissions form and contribute to water treatment challenges
• How Total Suspended Solids (TSS) affects water quality and what to do about it
• What water quality is required for surface or overboard disposal, 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 treating 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 emissions 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

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 treating 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 freewater knockouts, wash tanks • Oil treating 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

Relief and Flare Systems – PF44

INTERMEDIATE 5-DAY

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, controls, and the key engineering and design aspects including code considerations, and concludes with selecting and defining the components of a relief and flare system. The material of the course is applicable to onshore field production facilities, pipelines, gas plants, terminals, and offshore production facilities.

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

YOU WILL LEARN
• Purposes of relief and flare systems and their importance in safe operations
• Causes of overpressure and the ways to control/mitigate
• Defining the possible relief scenarios
• Commonly used pressure relieving devices, selection and sizing
• Determining set/safetying pressures to meet operational, safety, and code requirements
• Operational considerations of maintenance, testing, certification, and disposal of fluids
• Designing and operating relief and flare header systems containing fluid characteristics, service conditions, volumes, gas dispersion, and radiation
• Selection and sizing other key components of a relief/flare system

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 set point pressures • Types, applications, and sizing of common relief devices • Blow-down/pressurizing - purpose and design/operational considerations • Design and specification considerations for relief valves and header systems, including fluid characteristics, service 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/flame stack, vent/flare tips, and flare ignition systems • Defining need and quantity of purge gas • Flare gas recovery, smokeless flaring, and flare gas conservation • Operational and troubleshooting tips

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2017-18 Schedule and Tuition (USD)
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 gas gathering systems

COURSE CONTENT
Gas well inflow performance and deliverability • Overview of gas well decontamination 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/light • 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

Trioubleshooting 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 operation 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 dehydration 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 purification 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 • Pumps and compressors • Fluid flow and special pipeline design considerations such as the control of ductile fractures • Dehydration of CO2 and CO2-rich gases • General overview of processes to treat/recover CO2

2017-18 Schedule and Tuition (USD)

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<th>Location</th>
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<td>DALLAS, US</td>
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† includes field trip

For more information, visit: petroskills/elearning
Instrumentation, Controls and Electrical Systems for Facilities Engineers – ICE21

FOUNDATION 5-DAY

This course provides an introduction and overview of electrical systems, instrumentation, process control, and control / safety systems typically encountered in oil and gas facilities. The course will highlight the fundamental concepts, terminology, and equipment specifications. 

YOU WILL LEARN
- Functions of electricity, as well as voltage, current, resistance, power factor, and single / three phase power systems.
- Electrical specifications, including voltage selection, load list, 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 functions 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.
- Fundamentals of control systems, sensors, controllers, and final elements.
- Key requirements for instrument specifications such as accuracy, signal selection, process conditions, material compatibility, installation considerations, capabilities and limits, and relative cost.
- Basics of specification of shutdown and control valves.
- Control system functions, limitations, and architectures, including PLC, DCS, SIS, RTU, and SCADA; common networking systems, including Ethernet, Modbus and Fieldbus.
- Exposure to the typical documentation and drawings necessary for the design, specification, installation, operation and maintenance of electrical, instrumentation and control systems.

COURSE CONTENT
Fundamentals of electricity – Power distribution and motor control systems for oil and gas applications – DC systems to power systems – Hazardous area classification for oil and gas applications – and more...

2017-18 Schedule and Tuition (USD)

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Electrical Engineering Fundamentals for Facilities Engineers – E3

FOUNDATION 5-DAY

This course provides an introduction to 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 power transformers, motors, generators, one-line diagram interpretation, protection and coordination of electrical equipment, site and standby generation, electrical safety, and hazardous area identification. Participants will gain a better understanding of electrical power systems in oil and gas facilities. This course is a more in-depth version of the content of ICE21 and ICE22 is not a prerequisite for taking this course.

COURSE CONTENT
- Fundamental concepts of electricity including voltage, current, resistance, power, induction, capacitance, and power factor.
- The components of facilities electrical power distribution systems, which includes circuit arrangements, low and medium voltage switchgear, and single- and three-phase power 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.
- Introduction to control systems – SCADA versus DCS systems.
- Power systems and control engineering principles to oil and gas facilities.
- Programmable logic controllers, power supplies, devices, final elements and actuators, pressure and temperature and flow.
- The concepts, terminology, and application of hazardous area classification standards, equipment protection methods, and installation requirements for NEC and IEC projects.

2017-18 Schedule and Tuition (USD)

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Instrumentation and Controls Fundamentals for Facilities Engineers – IC3

FOUNDATION 5-DAY

This course provides an introduction to basic instrumentation and control 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, final elements and actuators, pressure relief and regulation, documentation, programmable logic controllers, power supplies, SCADA, DCS, SIS, hazardous areas, and installation methods. This course is a more in-depth version of the content of ICE21 and ICE22 is not a prerequisite for taking this course.

COURSE CONTENT
- Control system functions, limitations, and specifications.
- Key requirements for instrument specifications.
- Safety risks and mitigation strategies for power systems.
- The function and considerations of electrical power distribution 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.
- Introduction to control systems – SCADA versus DCS systems.
- Power systems and control engineering principles to oil and gas facilities.
- Programmable logic controllers, power supplies, devices, final elements and actuators, pressure and temperature and flow.
- The concepts, terminology, and application of hazardous area classification standards, equipment protection methods, and installation requirements for NEC and IEC projects.

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PLC and SCADA Technologies – IC71

INTERMEDIATE 5-DAY

This workshop provides engineers and technicians with an 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 communication architectures, it may be combined with Supervisory Control and Data Acquisition (SCADA) systems to allow stand-alone control systems to be configured. Throughout the workshop, participants will learn through active participation using exercises, questionnaires, and practical PC-based simulation (LogoPro) covering basic ladder logic programming, hardware diagnostics, and implementation of various communication strategies. Participants will also be exposed to the basic requirements of a safety PLC and the various voting system architectures required to meet different Safety Integrity Levels (SILs).

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 • Binary and hexadecimal numbering systems • The IEC 61131-3 • Ladder logic diagrams • Functional block diagrams • Derived function blocks • Structured text • Instruction lists • Sequential function chart • SCADA basics • SCADA setup and simulation • System architecture • Communication strategies • Asynchronous transmission • Coding • The RS 232 standard • The RS 485 standard • Modbus • Safety PLCs • Voting system architectures.
**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 “bunch 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 calculations; computer-based sizing; and maintenance diagnostics.

**DESIGNED FOR**

Facilities, chemical, electrical, instrumentation, maintenance, and mechanical engineers and technicians involved in designing, selecting, sizing, specifying, installing, testing, operating and maintaining shut-off, pressure relief, and control valves.

**YOU WILL LEARN HOW TO**

- Compare the major technologies used in the final control element
- Calculate the valve flow coefficient Cv
- Perform flow and system pressure head loss calculations
- Contrast the different types of control, shut-off, and check valves
- Describe the principles of cavitation control and noise reduction
- Select optimum materials of construction to avoid corrosion and erosion
- Identify the correct requirements for trim selection
- Differentiate between inherent and installed characteristics
- Identify ANSI/DIN pipe sizes and pressure ratings
- Explain the control valve seat leakage classifications
- Evaluate the optimum valve-actuator combination
- Apply on-line valve testing and diagnostics for deadband and hysteresis, stick-slip, and non-linearity
- Examine the principles of preventive maintenance through the application of signature analysis
- Perform a bench set and calculate actuator spring wind-up
- Pick the correct positioner using our set of guidelines

**COURSE CONTENT**

Choked flow • Pressure recovery • Flushing and cavitation • Seat leakage • Sizing for liquids and gases • Valve construction • Cavitation control and noise reduction • Valve types • Valve trim and characterization • Valve selection • Actuators and positioners • Valve testing and diagnostics • Maintenance and repair

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**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 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.

**DESIGNED FOR**

This workshop is specifically tailored for any personnel who are, or will be, responsible for designing, selecting, sizing, specifying, installing, testing, operating and maintaining shut-off, pressure relief, and control valves.

**YOU WILL LEARN HOW TO**

- Recall the basics of fluid mechanics
- Identify the fundamental problems related to uncertainty
- Compare the different methods of measuring flow in the oil and gas industries
- Describe the various methods of level measurement
- Compare the different methods used to derive stripping tables
- Evaluate the different custody transfer standards in use today
- Contrast the methods used in flow calibration
- Identify the different types of prover systems
- Explain the methodology used in truck custody transfer
- Examine the challenges regarding pipelines
- Describe the basics of leak detection
- Analyze the methodology for monitoring and controlling production losses
- Evaluate and compare the problems and solutions associated with the measurement of NGL, LPG, and LNG

**COURSE CONTENT**

Fluid mechanics • Flowmeter classification • Uncertainty analysis • Flow measurement • Turbine • Positive displacement • Ultrasonic flowmeters • Coriolis mass flowmeters • Level measurement • Ducting • Valve sizing • Hydrostatic pressure • Ultrasonic measurement • Radar measurement • Flow calibration • Terminal custody transfer • Tank management systems • Lease automatic custody transfer • Truck automatic custody transfer • Pipeline considerations • Fugitive emissions • Leak detection • Real-time transient model • Loss control systems • Custody transfer sampling • Monitoring and controlling production losses • Physical leaks • Meter prover performance • API standards • Measuring the suspended solid content • Calculating net volume • Flowmeter selection and costs • Initial considerations • Meter selection • Properties and measurement of NGL, LPG, and LNG

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**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 order 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, stiction and non-linearities and the impact on controllability; and integral windup.

**DESIGNED FOR**

Level instrumentation, automation, and process engineers and technicians involved in specifying, installing, testing, tuning, operating, and maintaining regulatory PID control systems.

**YOU WILL LEARN HOW TO**

- Describe such terms as process lag, capacitance, and resistance
- Explain the significance of the process reaction curve
- Identify the effects of filtering on loop performance
- Distinguish the effect of span on the system performance
- Analyze such problems as valve hysteresis, stiction, and non-linearities
- Evaluate the effects of proportional, integral, and derivative control
- Correctly apply both open and closed loop tuning according to Ziegler-Nichols
- Apply “as found” tuning
- Estimate the effects on loop tuning using a software-based loop analysis program
- Describe both cascade and feedforward control
- Explain split range control
- Identify and correct problems due to process dead time
- Discuss the top 20 mistakes made in the field of process control

**COURSE CONTENT**

Basic process considerations • Process lag, capacitance, and resistance • Process reaction curve • 1st and 2nd order reactions • Instrumentation cabling • Filtering • Aliasing • Reaction masking • Sensor placement • Correct PV • Effect of span • Inherent and installed valve characteristics • Actuators • Valve positioning • Testing procedures and analysis • ON/OFF control • Proportional control • Proportional offset • Reset • Integral action and windup • Stability • Derivative action • PID control • Control algorithms • Load disturbances and offset • Speed, stability, and robustness • Open loop reaction curve tuning method (Ziegler-Nichols) • Default and typical settings • Closed loop continuous cycling tuning method (Ziegler-Nichols) • Fine tuning • “As found” tuning • Surge tank control • Split/parallel range control • Cascade systems • Feed-forward and combined systems • Ratio control • System integration

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**PLANNING A MEETING?**

You plan the agenda
We’ll handle the rest

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petroskills.com/pcc
Corrosion Management in Production/Processing Operations – PF22

FOUNDER 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 different 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

2017-18 Schedule and Tuition (USD)
HOUSTON, US 9-13 APR 2018 $4240
TEXAS CITY, US 23-27 APR 2018 $4340
DURBAN, ZAF 23-27 JUL 2018 $4340
PRETORIA, ZAF 30-3 AUG 2018 $4890 +VAT
DUBAI, UAE 11-15 NOV 2018 $5190
KUALA LUMPUR, MYS 10-14 DEC 2018 $5460
LONDON, UK 10-14 DEC 2018 $5850
DUBLIN, IRL 10-14 DEC 2018 $5990
MIDLAND, US 10-14 DEC 2018 $4990 +VAT

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 include, ISO 31831, B31.3, ASME B31.4, etc., pipe 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, 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 system 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 ofsteelmaking, pipe manufacturing, and material specifications
• Joining methods and inspection techniques
• Key considerations for flare and vent systems, including FSV 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 • Piping design 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.

2017-18 Schedule and Tuition (USD)
DURBAN, ZAF 22-26 JUL 2018 $4240
KUALA LUMPUR, MYS 29 OCT-2 NOV 2018 $5460
DUBLIN, IRL 12-16 MAR 2018 $4890 +VAT
BRISBANE, AUSL 19-23 AUG 2018 $5700 +GST
LONDON, UK 30 JUL-3 AUG 2018 $4190
DUBLIN, IRL 3-7 DEC 2018 $4290
LONDON, UK 3-7 DEC 2018 $4890 +VAT
MIDLAND, US 3-7 DEC 2018 $4890 +VAT

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 pressure vessels, heat exchangers, and other pressure-containing equipment for oil and gas facilities.

DESIGNED FOR
Mechanical, facilities, construction, or project engineers and plant piping/pump 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

2017-18 Schedule and Tuition (USD)
HOUSTON, US † 27-31 AUG 2018 $4650 † includes field trip

2017-18 Schedule and Tuition (USD)
DURBAN, ZAF 12-16 NOV 2017 $5190
HOUSTON, US 11-15 NOV 2018 $5850
KUALA LUMPUR, MYS 20-24 NOV 2018 $5460
LONDON, UK 10-14 DEC 2018 $5850
MIDLAND, US 30-31 AUG 2018 $4990 +VAT
DUBLIN, IRL 4-8 DEC 2018 $4890 +VAT
PITTSBURGH, US 3-7 DEC 2018 $4290
TEXAS CITY, US 1-5 OCT 2018 $4340

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 compressor units (drivers, pumps, compressors, and auxiliary systems)
• 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 operations
• 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 • Essential safety considerations • Key auxiliary systems including control 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 auxiliary systems, 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 and control devices in the operation, maintenance, and troubleshooting of compression 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 auxiliary 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 reliability 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 (FRACAS)
• Developing policies and procedures; developing failure reporting codes; statistical analysis of failures using Weibull; and developing root cause analysis (RCA) programs (triggers for RCA and analyzing recommendations)
• Developing maintenance strategies with condition monitoring
• Identifying applicable condition monitoring methods; using criticality 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
Criticality analysis • 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

Risk Based Inspection – REL61

INTERMEDIATE 5-DAY
The risk-based approach requires a systematic and integrated use of expertise from the different disciplines that impact plant integrity. These include design, materials selection, operating parameters and philosophies, and understanding of the current and future degradation mechanisms and risks involved. Risk-based methodologies enable the assessment of the likelihood and potential consequences of equipment failures. Risk-based inspection (RBI) provides companies the opportunity to prioritize their equipment for inspection; optimize inspection methods, frequencies, and resources; and develop specific equipment inspection plans. This results in improved safety, lower failure risk, fewer forced shutdowns, and reduced operational costs.

DESIGNED FOR
Inspection, maintenance, production, and other plant engineers and technicians responsible for the safe on-going operation of pressure-containing equipment in oil and gas facilities.

YOU WILL LEARN
• To apply fundamental principles of risk analysis, using practical application through case histories and a step-by-step evaluation process for each type of damage mechanism • To obtain, understand, and apply knowledge of RBI that is integrated into the integrity process • To understand the mechanics of developing initial maintenance strategies • To identify key opportunities and issues for risk-based inspection (RBI) • To apply RBI strategies to develop and implement RBI programs

COURSE CONTENT
RBI philosophy based on API RP 580 • Risk-based decision making fundamentals and tools • Technical integrity and mechanical properties of pressure equipment • Understanding and managing risk • Fracture mechanics and fast fracture • Pressure vessel integrity • API RP 580 recommended practices; for pressurized components (e.g. pressure vessels and piping), these inspections can be used to determine optimum inspection intervals through the considered application of ASME section V NDE techniques

Pipeline Systems Overview – PL22

BASIC 5-DAY
This course that provides awareness level training for engineers new to the hazardous liquid and gas pipeline industry. The topics include the technical and economic basis for pipelines, an overview of the facilities that connect pipelines to the other elements of the hydrocarbon value chain; regulatory and environmental compliance issues; key considerations for public and governmental interaction; project development and construction challenges; and the strategies for safe and efficient pipeline system operations, maintenance, and asset integrity. Case studies are an integral part of this course.

DESIGNED FOR
Recent graduate engineers involved in midstream activities of pipeline and terminal design, construction, and operations. It also provides effective grounding for upstream and downstream managers, business development, legal, human resources, finance, land acquisition, and public relations professionals, as well as independent investors interested in a general technically oriented overview of pipeline systems. For pipeline and terminal engineering, and operations supervision and management personnel with 1-3 years of direct experience in pipeline construction, installation, and operations. An understanding of the operation of pipelines in the oil and gas industry and the key components and facilities involved in the knowledge, we refer you to PL42, Onshore Pipelines and/or PL44, Terminal Design, Construction and Operations.

YOU WILL LEARN
• Pipeline history
• Basic concepts of liquid and gas pipelines economics
• Pipeline design overview
• Construction methods and challenges
• Essential operations
• Asset integrity management
• Regulatory and code compliance requirements

COURSE CONTENT
The business model and value-added premise of pipelines and their role in the overall energy value chain • The advantages and limitation of pipelines, and the scope and general structure of the industry • The key components and facilities that are integrated into pipeline systems • How to recognize regulatory codes and industry guidelines (API and others) that control the permitting, design, construction, operations, and maintenance of pipeline facilities • The steps from concept to operating system to abandonment - design, permitting, land acquisition, construction, and startup - with each tied to the key issues for project and operations management • The strategic operational and maintenance needs and options for pipeline systems, including system monitoring and control, leak detection, measurement and quality control, asset integrity management, efficient and safe operations, and emergency response capability

2017-18 Schedule and Tuition (USD)

2017-18 Schedule and Tuition (USD)

HOUSTON, US
10-14 SEP 2018
$4440

HOUSTON, US
7-11 MAY 2018
$4340

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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 efficiency, 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
• Describe methods of river and road crossings, HDD crossings, bores
• Identify the principle interfaces and potential interrelationships of pipeline facilities, such as pump stations and terminals, on design and operations
• Apply operational and maintenance tools and procedures, including system monitoring and control, leak detection, corrosion control, custody measurement and quality control, asset integrity management, and emergency response planning

COURSE CONTENT
Regulations and code compliance requirements • Pipeline survey and routing • Mechanical and hydraulic design • Proper system sizing and design • Equipment selection criteria • Facilities site and design concerns • Construction methods and contracting approaches • Operations and asset integrity management

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, structural, 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, structural, and physical principles to offshore pipeline design, material selection, construction, and operation
• Describe the key construction methods
• 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 most 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 • Pipeline conceptual and mechanical design for strength, stability, and constructibility • Pipeline materials and components selection including line pipe, corrosion and cathodic protection, and coatings • Specialized equipment and materials for integration of 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 offshore 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

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 is intended 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 bulkets and spheres
• Fundamentals of underground storage (salt and rock caverns)
• Safety, product quality, and 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 storage and terminal configurations • Various design issues associated with storage and terminals connected to pipelines, rail, barges, tankers and/or truck loading facilities

Flow Assurance for Pipeline Systems – PL61

INTERMEDIATE 5-DAY

This course will provide an understanding of flow phenomena that can help the participant avoid problems such as hydrate formation, pressure (surge) waves, or high viscosity liquid flow failure. This intensive, five-day intermediate level course addresses several critical problems in achieving pipeline flow assurance. The focus of this course is on potential challenges to pipeline operations including: surge, corrosion, hydrate formation, wax deposition, multiphase fluids, and slugging. The causes for these problems, design solutions, and operational responses will be an integral part of the course.

DESIGNED FOR
Technical professionals engaged in pipeline flow assurance offshore and onshore including: project managers, pipeline engineers, facilities engineers, design engineers, and engineering contractors.

YOU WILL LEARN
• Identifying and applying fluid characteristics and behavior in the design and operations of pipeline systems • Assess the physical behavior of the flow key flow assurance and integrity challenges: corrosion, hydrate formation, transient behavior and wax deposition • Evaluate mechanical integrity of the pipeline • How to evaluate the effectiveness of pigging operations and leak detection systems • Define the roles and uses of Supervisory Control and Data Acquisition Systems (SCADA) in flow assurance

COURSE CONTENT
Introduction to oil and gas fluid transport properties • Fluid property data and phase determination • Fluid flow analysis – single and multiphase • Slug formation and prediction • Surge analysis • Corrosion – internal and external • Hydrate formation and prevention • Wax formation and deposition, including prevention and remediation • Asphaltene prediction, scale precipitation and sand production • Pigging operations • Leak detection methods and SCADA, Startup/ shutdown issues

2017-18 Schedule and Tuition (USD)

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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.

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

COURSE CONTENT
Field development concepts, fixed and floating
- Subsea systems
- Wells, construction, and servicing
- Topsides facilities; processing; utilities
- Oil and gas transportation systems
- Design and installation
- Production operations
- Offshore construction; equipment
- Fabrication; transportation; integration; installation project management
- Life-cycle considerations, including decommissioning

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.

OVERVIEW
- 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 architectures
- 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

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 offshore 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. A multi-discipline approach is used 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.

OVERVIEW
- 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 topside facilities (drilling, well servicing, processing, and utilities) affect the structural design and how the topside design process is conducted
- Recognize and manage key design and operational interfaces between the major components of offshore facilities systems
- Understand and apply the key design, construction, and installation issues associated with fixed and floating platforms to your work

COURSE CONTENT
- Offshore systems overview and field architecture selection
- Well construction and servicing equipment and operation
- Flow assurance
- Topside facilities
- Oil and gas transportation facilities
- Riser systems
- Subsea systems
- Production operations
- Infrastructure impact on design and operations
- Effects of the ocean environment
- Introduction to naval architecture
- Structural design processes and tools
- Construction plans and execution
- Project management lessons learned
- Life-cycle and decommissioning considerations

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 thermodynamic design, waxes, asphaltenes, emulsions, scale, corrosion, erosion, solids transport, slugging, and operability are all important issues which require considerable effort. The participant will be presented with sufficient theory/correlation information to be able to understand the basis for the applications. This intensive five-day course has considerable time devoted to application and design exercises to ensure the practical applications are learned.

OVERVIEW
- Design for Engineers, operators, and technical managers who are responsible for offshore completions, production, and development; technical staff needing a foundation in principals, 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 principles of reservoir fluids and how they are modeled for the production systems
  - Understand the thermodynamic modeling of steady state and transient multiphase flow in offshore production systems
  - Evaluate and compare mitigation and remediation techniques for gas hydrates, paraffin (waxes), asphaltenes, emulsions, scale, corrosion, erosion and solids transport, and slugging
  - Understand the elements of an operability report for subsea production facilities, flowlines, and export flowlines

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

2017-18 Schedule and Tuition (USD)

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*plus computer charge

2017-18 Schedule and Tuition (USD)

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2017-18 Schedule and Tuition (USD)

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<td>14-18 MAY 2018</td>
<td>$4995+VAT</td>
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## 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, lean, 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 practices for perforating operations
- Plan well intervention jobs using wireline, snubbing, and coiled tubing methods
- Manage corrosion, erosion, soluble and insoluble scales, and produced water handling challenges
- Apply well completion and workover fluid specifications for solids control and filtration
- Employ the five main types of artificial lift systems
- Identify formation damage and apply remedial procedures
- Design and execute successful carbonate and sandstone reservoir acidizing programs
- Understand the causes of sand production and how to select sand control options
- Understand the proper use of oilfield surfactants and related production chemistry
- Identify and successfully manage organic paraffin and asphaltene deposits
- Choose cased hole production logging tools and interpret logging results
- Understand modern conventional fracture stimulation practices
- Understand multistage, horizontal well shale gas and shale oil massive frac job design and operations
- Review heavy oil development and extraction including mining operations and current modern thermal processes

**COURSE CONTENT**

- Importance of the geological model
- Reservoir engineering fundamentals in production operations
- Understanding inflow and outflow and applied system analyses
- 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
- Surface fluids: Paraffin and asphaltene
- Sand control
- Hydraulic fracturing
- Unconventional resources: shale gas and oil, heavy oil and bitumen

**2017-18 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 many short directed 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 natural gas testing 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, asphaltene
- Hydrotreaters, sales, Dehydrators
-Water treaters: SP packs, plate interceptors, gas floatation, coalescers, hydrocyclones, membranes
- Acid gas treatment: coasting, closed system, chemicals, solvents, conversion, stress cracking
- Valves: all types; regulators
- Pumps/ Compressors: centrifugal, positive displacement, reciprocating, ejectors
- Metering: orifice, head, turbine, and others
- Corrosion/Scales: inhibition and treatment

**2017-18 Schedule and Tuition (USD)**

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

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## 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. Terminology, 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 set up. 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
- Compilation design
- Inflow and outflow performance
- Artificial lift well completion systems (beam pump, gas-lift, ESP, PCP, plunger lift)
- Formation damage and well acidizing
- Perforating practices
- Sand control
- Hydraulic fracturing
- Shale gas and oil development
- Smart well completions
- Field surveillance and data management

**2017-18 Schedule and Tuition (USD)**

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*plus computer charge

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Also available as a virtual/blended course. See website for dates.
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.

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, choking, safety values; 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

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 must understand the complex process of fluid flow. This course will begin with an overview of the fundamentals of fluid flow, including pressure loss, flow rate, and momentum. Participants will then move on to learn about different types of reservoirs and how they affect water management. Additionally, the course will cover the various options available for managing water, including injection, recycling, and reusing water. Finally, participants will learn how to develop an optimized water management plan that maximizes the efficiency and effectiveness of water management 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 • Water management in support of hydraulic fracturing operations • Establishing a water management plan for unconventional resource plays

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If you do not have enough participants for an in-house session, we may be able to schedule an on-demand public session in your location.

For more information, or to reserve training for your team, go to petroskills.com/inhouse
### Oil and Gas Processing Facilities for Operations and Maintenance – OT1

**BASIC** 5-DAY

This course will provide the basic knowledge required for understanding processes and operating issues common to gas processing facilities. Course content is customizable to client needs.

#### COURSE CONTENT
Basic chemistry and physical principles related to hydrocarbons • Quick overview of gas processing • Phase behavior fundamentals • Mass transfer operations • Amine gas sweetening • Water-hydrocarbon behavior, including hydrate formation • TEG gas dehydration • Solid bed adsorbers • Mechanical refrigeration • Gas expansion NGL recovery (turbo expanders and Joule-Thompson effect) • NGL stabilization and fractionation • Claus sulfur recovery • Specific to Geographical Regions: Stavanger/Aberdeen • Typical North Sea oil and gas producing operations, produced water treating, seawater treating, and other offshore topics of general interest • Brisbane • Gas processing and introduction to liquefied natural gas (LNG) processes • Midland • Gas conditioning and processing, sour gas treating, and sulfur recovery operations • Pittsburgh • Mechanical refrigeration principles and equipment, NGL fractionation, and cryogenic NGL recovery • How to apply course material to facilities. Course content is customizable to client needs.

#### YOU WILL LEARN
- About the effects of produced fluid (OGW) compositions on facility design and operation
- About various separation and conditioning processes for meeting specifications on oil, gas, and produced water streams
- Refrigeration 4-cycle process and application of economizers to the refrigeration process
- To understand how to operate facilities so as to minimize processing costs
- How to apply course material to troubleshooting gas conditioning and process anomalies

### LNG Facilities for Operations and Maintenance – OT43

**FOUNDATION 5-DAY**

This is a 5-day, LNG-industry version of our popular OT-1 Gas Production/Processing for Operations and Maintenance course, with expanded coverage on refrigeration, liquefaction, and utilities. The course includes in-depth information on basic LNG mixed refrigerant processing. Instructors will explain contaminant removal processes employed in LNG processes. Relevant details of the API LNG liquefaction processes are described. Class exercises/problems focus on application of theory to operational trends, so operators can understand their processes and become proficient at identifying issues and troubleshooting problems before production suffers. Course content is customizable to client needs.

#### COURSE CONTENT
Basic chemistry and physical principles related to hydrocarbons • Quick overview of gas processing • Phase behavior fundamentals • Mass transfer operations • Amine gas sweetening • Water-hydrocarbon behavior, including hydrate formation • TEG gas dehydration • Solid bed adsorbers • Mechanical refrigeration • Gas expansion NGL recovery (turbo expanders and Joule-Thompson effect) • NGL stabilization and fractionation • Claus sulfur recovery • Specific to Geographical Regions: Stavanger/Aberdeen • Typical North Sea oil and gas producing operations, produced water treating, seawater treating, and other offshore topics of general interest • Brisbane • Gas processing and introduction to liquefied natural gas (LNG) processes • Midland • Gas conditioning and processing, sour gas treating, and sulfur recovery operations • Pittsburgh • Mechanical refrigeration principles and equipment, NGL fractionation, and cryogenic NGL recovery • How to work with contractors more effectively

### 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. Better utilization of Computerized Maintenance Management Systems (CMMS) will also be covered in this course. 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
Basic chemistry and physical principles • How to work with contractors more effectively

### 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 toward. 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. Those 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
Basic chemistry and physical principles related to hydrocarbons • Phase behavior fundamentals • Mass transfer operations • Amine gas sweetening • Water-hydrocarbon behavior, including hydrate formation • TEG gas dehydration • Solid bed adsorbers • Mechanical refrigeration • Gas expansion NGL recovery (turbo expanders and Joule-Thompson effect) • NGL stabilization and fractionation • Claus sulfur recovery • Specific to Geographical Regions: Stavanger/Aberdeen • Typical North Sea oil and gas producing operations, produced water treating, seawater treating, and other offshore topics of general interest • Brisbane • Gas processing and introduction to liquefied natural gas (LNG) processes • Midland • Gas conditioning and processing, sour gas treating, and sulfur recovery operations • Pittsburgh • Mechanical refrigeration principles and equipment, NGL fractionation, and cryogenic NGL recovery • Techniques: critical equipment analysis, critical spares control, and emergency response work

### 2017-18 Schedule and Tuition (USD)

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<th>Dates</th>
<th>Tuition (USD)</th>
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### 2017-18 Schedule and Tuition (USD)

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<td>HOUSTON, US</td>
<td>2-6 Apr 2018</td>
<td>$3940</td>
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+1.918.828.2500   | petroskills.com   | +1.800.821.5933 (toll free North America)   | All classes available at your location. Contact us today.
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.

**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**

- Explain regulatory codes, standards, and industry guidelines (PIPSMA 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 pipeline
- 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 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, environmental 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 repair and maintenance • Corrosion overview and prevention • Leak detection methods • CFR 49, Part 195 review of documentation requirements and terminology

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Turnaround, Shutdown and Outage Management – TSOM

**INTERMEDIATE 3-DAY**

**NEW**

This course addresses TSOM principles and practices as they relate to activity planning, execution and closedown activities for midstream, petrochemical and refining facilities in the petrochemical industry. The specific training received in TSOM management and the proper use of scarce resources (time, people and materials) will help the TSO or Project Manager improve cost, schedule and operability results. Upon completion of this course, the participants will know what the critical success factors for a TSO are and be able to utilize best practices in TSO planning, execution and closedown. Participants will understand how maintenance, operations and contractor resources relate to one another and what tools are available for the TSO team to ensure properly-managed interfaces among key stakeholders. The course is taught using a combination of instruction, facilitated discussion, and hands-on exercises using real-world TSO examples. 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**

Maintenance superintendents and supervisors, project managers and project engineers, maintenance engineers, planner/schedulers, operations representatives, HSE representatives, and procurement professionals who plan, manage, or participate in turnarounds, shutdowns and outage management. Special emphasis will be placed on best practices and future trends in TSO management.

**YOU WILL LEARN HOW TO**

- Understand what a day in the life of a TSO Manager during a shutdown is like
- Establish business strategies and objectives for a TSO to ensure support from all facility stakeholders
- Develop a robust TSO resource plan and get the resources you need
- Develop and validate work scopes for both maintenance and project activities
- Establish criteria early in the planning cycle for TSO work scope selection
- Select a computerized maintenance management system, including those features needed for TSO management
- Integrate capital projects and maintenance work during a TSO
- Identify and address key TSO constraints and operations interfaces
- Develop a robust contracting plan for the TSO to align work scope
- Prepare a TSO execution plan
- Utilize fit-for-purpose progress measurement and control techniques

**COURSE CONTENT**

Six-phase TSO management process • TSO issues and challenges • TSO quality plan • TSO safety planning • CMMS benefits, selection and implementation • Developing an integrated TSO plan • Managing TSO stakeholders and resources • Monitoring progress and controlling change • Procurement and contracting for a TSO

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Basics of HSE Management – HS18

**BASIC 5-DAY**

Recognition and effective management of HSE risks/impacts is a fundamental requirement of companies operating in our sector. This course provides participants with the underpinning knowledge on how to specify and implement an effective HSE management system at the technical level. The course is based upon a common HSE management system which explains the elements and their interaction. A variety of exercises and case studies based on our Petro Barola on and off-shore case studies, as well as readings and videos will be used to develop understanding and practice the skills.

The course is designed for the oil, gas and petrochemical industries around the PetroSkills competency maps for HSE Management at the Awareness level. This class can be taken alone, or together with our Basics of Safety (H510). It provides the underpinning knowledge for participants seeking a career first-step qualification – the NEBOSH International General Certificate in Occupational Health and Safety (IGC). For holders of the NGC gained within the last five years, this class provides for conversion to the IGC (upon request).

**DESIGNED FOR**

All workers requiring basic awareness and/or a qualification in HSE management. These may include field/operations staff, office workers, engineers, supervisors, project managers, and aspiring HSE professionals. It is ideal for anyone with no prior HSE management knowledge.

**YOU WILL LEARN**

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

**COURSE CONTENT**

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

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Fall Protection Supervisor Training – 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 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 using or entering an aerial lift
- The regulations and standards for scaffolding including supported scaffolds and suspension scaffolds
- 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 HESIs 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 • Root fall protection • Fall clearances • Anchorages • Horizontal lifelines • Rescue

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2017-18 Schedule and Tuition (USD)

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<td>PITTSBURGH, US</td>
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See website for dates and locations.
**Health, Safety, Environment**

**Applied Environmental Management – HS23**

**FOUNDATION 5-DAY**

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

The course is designed to introduce participants to solutions to environmental challenges and to become an agent for change in their own organization. The course is recommended for those developing a career in environmental management and/or planning to progress towards Full or Associate membership of the Institute of Environmental Management and Assessment (IEMA) using our IEMA Certificate in Environmental Management course (HS71).

**DESIGNED FOR**

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

**YOU WILL LEARN HOW TO**

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

**COURSE CONTENT**

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

**2017-18 Schedule and Tuition (USD)**

**HOUSTON, US**

- 9-13 OCT 2017 $4040
- 1-5 OCT 2018 $4240

**2017-18 Schedule and Tuition (USD)**

**LONDON, UK**

- 9-13 JUL 2018 $4240
- 17-21 SEP 2018 $4990 + VAT

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**Applied HSE Management – HS28**

**FOUNDATION 5-DAY**

In just five days, learn how to develop and use an HSE management system to drive improvement and learning into your organization! This course is about understanding and applying common HSE management systems in oil, gas, and petrochemical industries. It includes a rich blend of knowledge development sessions, individual and team exercises, problem-solving, and sector case studies. These come together to challenge participants in a realistic but fictional case study facility, PetroBarola Barola Limited.

Course content is built around the PetroSkills competence maps at the Fundamental Application level. The course may be taken either independently or in conjunction with our Applied Safety, Applied Health, and/or Applied Environmental courses. This course also provides practical learning for participants seeking professional accreditation through Distance Learning Vocational Diploma in Occupational Safety and Health or Accredited Environmental Practitioner programs (to MIEMA and CEnv) - HS70 and HS71 respectively.

**DESIGNED FOR**

Functional specialists seeking to improve their knowledge and application of HSE management system to developing operating systems. It is aimed at engineers, contractor managers, project managers, and all staff who have the responsibility for designing, implementing, or supporting HSE management. Some prior knowledge of HSE management related topics is desirable but not essential.

**YOU WILL LEARN HOW TO**

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

**COURSE CONTENT**

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

**2017-18 Schedule and Tuition (USD)**

**HOUSTON, US**

- 6-10 NOV 2017 $4040
- 5-9 NOV 2018 $4340

**LONDON, UK**

- 4-8 OCT 2018 $4990 + VAT
- 23-27 JUL 2018 $4990 + VAT

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**Applied Safety – HS20**

**FOUNDATION 5-DAY**

This course teaches participants about a selection of advanced safety tools and facilitates practice use of these in a case study setting. During just five days, we learn about safety techniques for the oil, gas, and petrochemical industries including the HSE case, Bowtie, JHA, JSA, HAZOP, fault, and event tree analysis. We use a rich blend of exercises, problem-solving, videos, and case studies to support the learning in realistic situations. These come together to challenge participants in our case study scenario PetroBarola.

The class concludes with participants defending the company before the HSE regulator explaining why the company should retain its operating license following a serious incident. The course content is built around the PetroSkills competence maps at the Fundamental Application level. It may be taken either independently or in conjunction with other Foundation level courses - Applied HSE Management, Applied Occupational Health and Industrial Hygiene (OH&I), and/or Applied Environmental Management.

**DESIGNED FOR**

HSE specialists as well as operations engineers, supervisors and project managers, and other staff with responsibility for designing, implementing, or supporting safety techniques in their respective positions. Some prior knowledge of safety science is desirable but not essential.

**YOU WILL LEARN HOW TO**

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

**COURSE CONTENT**

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

**2017-18 Schedule and Tuition (USD)**

**HOUSTON, US**

- 30 JUL-3 AUG 2018 $4240
- 10-14 SEP 2018 $4990 + VAT

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**Contractor Safety Management – HS46**

**FOUNDATION 5-DAY**

In many companies, contractors work 50%+ of the hours in the field. That is why it is important to prequalify, mobilize, execute, demobilize, and close out contracted activities to a high standard. An effective relationship between clients and contractors at all stages of the supply chain is essential for competently managing health and safety in a facility or project.

In just five days, you will learn the processes for developing and managing a contractor safety management system based on recognized management systems, such as API Recommended Practice 2220 ‘Contractor Safety Performance Process’ and OGP Guidelines for Working together in Contracting Environment.’ The course includes knowledge development sessions, practical exercises and problem-solving set in a case study setting. The course concludes with a contractor pre-qualification, selection, and justification exercise.

**DESIGNED FOR**

Project, procurement, and supply chain managers, HSE specialists, auditors, engineers, and supervisors who want to know how to manage contractors.

**YOU WILL LEARN HOW TO**

- Implement a contracting supply chain strategy based on the risks and benefits of outsourcing high risk, low risk, and specialist activities.
- Develop a contracting strategy based on prequalification.
- Prepare a program to initiate the use of competent contractors based on bid documents covering HSE and other relevant criteria.
- Communicate effectively with contractors, including reporting requirements for incidents and emergency preparedness.
- Identify the barriers that could prevent successful implementation of a contractor safety program, and how to overcome them.
- Develop a program for supply chain performance monitoring.
- Perform an effective contractor selection interview.
- Provide feedback likely to initiate improvement in contractors’ performance.
- Use sector contractor management systems such as OGP 6.64/291, API standard 2220, and HSE management systems such as ISO 14001, OHSAS 18001, ISO 45001 and HG65 as methods for initiating and maintaining improvements in contractor performance.

**COURSE CONTENT**

Supply chain strategies • Management systems • API 2220, OGP guidelines, and others • Prequalification - bidding, evaluation criteria, appointment • Contractor selection • Mobilization, execution and demobilization • Supply chain performance monitoring and auditing • Final evaluation and close out.
Fundamentals of Process Safety – PS2

FOUNDATION 5-DAY

The course will cover the fundamentals of Process Safety for all staff levels of processing facilities in the upstream and downstream oil, gas, and petrochemical industry. To identify how different disciplines and roles can have an impact on Process Safety performance, there is a rolling case study (Project COLEX) throughout the course that involves the installation of a separator vessel, and the Process Safety considerations and implications are explored and discussed at the various stages, from design to full operation.

DESIGNED FOR

The course will benefit all staff associated with the operation, maintenance, and governance in production and processing facilities and is relevant to roles, including senior management, project and engineering support teams, HSE support, supervisors, and operator and maintenance technicians. It provides an understanding of the design basis and essentials for safe operations, without addressing the more detailed calculation aspects covered in Process Safety PS4.

YOU WILL LEARN HOW TO

- Identify the systems and processes required to create process safety in a high hazard installation
- Identify and choose appropriate techniques and tools to qualitatively assess process hazards
- Determine appropriate risk reduction strategies and identify effective risk reduction measures to prevent, control, and mitigate process safety risk
- Recognize and develop systems to manage Process Safety in operations through operating procedures and operating limits, ensuring plant integrity through maintenance and inspection
- Use a management of change process to minimize risk of change
- Identify and monitor key performance measures and verifications to maintain and improve safety performance

COURSE CONTENT

Business context for Process Safety • Risk assessment [hazard identification, hazard scenarios, consequence and likelihood analysis, and risk analysis and tools and techniques] • Risk reduction measures [barriers] • Management of process safety in operations [operating procedures, design and operating limits, human factors, inspection and maintenance, emergency response] • Management of change • Learning from previous incidents and near misses • Self-verification and measurement • Process safety key performance indicators • Management review and auditing • Process safety leadership [governance and culture]

Risk Based Process Safety Management – HS45

FOUNDATION 5-DAY

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 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 safe guarding 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

Lead Auditor for Health and Safety ( IOSH) and Environment (IEMA) – HS47

INTERMEDIATE 5-DAY

This auditor training course is uniquely approved by IEMA and IOSH for developing integrated management systems auditors for ISO 14001 and OH&SA 18001/ISO 45001. It is recognized by IEMA (and others) for accreditation as a lead auditor, after suitable practical experience. Participants work in teams of internal auditors to appraise the HSE-MS of Petros Barola Ltd, a fictitious but highly realistic case study based on the distribution department of an integrated oil company located on the Island of Barola. Each audit team is led by an experienced lead auditor, through each stage of a 5-day audit in real time. The audit includes an opening meeting, live interviews, corporate documents and test results. The class concludes with a presentation of the audit report to senior management. The class is firmly based in the principles of corporate responsibility for risk management and business control, and the theory and practice of modern risk-based auditing. The book ‘HSEQ Audits - A Risk-based Approach’ by Stephen Asbury is included for all participants.

DESIGNED FOR

HSE professionals, line managers and supervisors; aspiring and experienced auditors. The class has proven extremely beneficial for those preparing for secondment to an audit team.

YOU WILL LEARN HOW TO

- Lead/participate effectively in an audit or review in line with the standards of the auditing profession, including ISO 19011
- Relate audit to the essential principles of corporate governance, risk management, business control and management system standards
- Add value for senior management from the auditing process
- Apply the skills necessary to conduct an effective HS/E audit, including:
  - Familiarizing with the auditee’s business environment and objectives
  - Developing a risk-based work plan
  - Effective interviewing, reviewing and testing techniques
  - Recording, analyzing and assessing audit findings
  - Evaluating the auditee’s HSE-MS
- Summarizing, presenting and reporting at high level the audit results to management

COURSE CONTENT

Risk management and business control • Principles of auditing (ISO 19011) • Initiating and planning any audit • Reviewing and testing effectiveness • Effective interviewing • Legal and ethical aspects relevant to auditing • Developing audit findings and writing business-focused recommendations

For more information, go to petroskills.com/lelearning
Distance Learning Vocational Diploma in Occupational Safety and Health – HS70

SPECIALIZED

Achieve Chartered Membership of the Institution of Occupational Safety and Health (CMIOSH) by flexible, distance learning. IOSH is the world’s largest health and safety professional membership organization, and its qualifications are recognized globally.

This is a mentored program typically lasting 12-18 months. Every participant has a personal adviser who works with them on a one-to-one basis. Our support is tailored to meet your needs. Communication is usually through e-conference, e-mail and telephone. The start date is flexible, and you can work at a pace that suits you and your job.

DESIGNED FOR

Experienced health and safety managers/ advisers/specialists. You will be an active practitioner with at least two years’ experience.

YOU WILL LEARN

• To build your portfolio of evidence, supported by a personal mentor
• To write reflective reports using templates provided
• To identify and close any gaps in your H&S knowledge through assessment and internal verification of your portfolio

COURSE CONTENT

Develop and implement effective communication systems for health and safety (401) • Promote a positive health and safety culture (501) • Develop and maintain individual and organizational competence in health and safety (502) • Identify, assess, and control health and safety risks (503) • Develop and implement proactive monitoring systems for health and safety (504) • Develop and implement reactive monitoring systems for health and safety (505) • Develop and implement health and safety emergency response systems and procedures (506) • Develop and implement health and safety review systems (507) • Maintain knowledge of improvements to influence health and safety practice (508) • Develop and implement the health and safety policy (601)

IEMA Certificate in Environmental Management by Applied Learning (Leading to PIEMA) – HS71

SPECIALIZED

This advanced level course has been developed to provide learners with detailed environmental and sustainability knowledge as well as being able to apply environmental management/ assessment tools and skills that are needed to be an effective environment/sustainability practitioner. Practitioner membership of IEMA (PIEMA) is a recently introduced membership level for the working experts who are driving change. Many environmental roles will require PIEMA status as a prerequisite. The course is based on an applied learning model. Via an evidence-based portfolio, you are required to demonstrate not only your understanding of all the PIEMA membership criteria, but also an ability to apply your skills in a work-based setting. The applied learning approach focuses on the application of the core environmental knowledge to your own organization and is designed to appeal to those with a practical learning style, based on the concept of learning by doing. Applied learning ensures you understand the relevance of a topic to a real-world situation, helping you to comprehend and retain the information. It also allows you to work at your own pace, around work commitments, whilst still achieving a high-level qualification. It avoids the need for any examinations, but it does require effort and determination. It incorporates the competency assessment to IEMA Practitioner membership, meaning you don’t have to submit an additional competency claim to IEMA, and on successful completion of the full course, and payment of appropriate fees, learners can use the suffix PIEMA.

DESIGNED FOR

Learners who are working within environmental management and require detailed knowledge of environmental/sustainable principles, management tools and skills to effectively deliver positive change. Learners are expected to have a foundation level of environmental/sustainability knowledge gained through work experience or a relevant course, for example the IEMA Foundation Certificate in Environmental Management, or equivalent.

YOU WILL LEARN

• Participants will be supported by a personal mentor to build a structured portfolio of work-based evidence, demonstrating skilled application of environmental management techniques, which collectively meet IEMA requirements
• To prepare reports
• To close any knowledge gaps through directed reading
• Through assessment and internal verification of submitted materials
• By registering with you IEMA as a member for one year (included in your fee)

You can start the program at any time, as it is fully flexible. The program fee is US $4,099+VAT with 18 months’ support. There will be no refund issued after registration is confirmed.

To register or for more information, please email training@petroskills.com or call +1.918.828.2500 or toll free in North America +1.800.821.5933.

Introduction to Petroleum Business – IPB

BASIC

3-DAY

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-financial 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

Basic Petroleum Economics – BEC3

BASIC

3-DAY

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

You can start the program at any time, as it is fully flexible. The program fee is US $4,099+VAT with 18 months’ support. There will be no refund issued after registration is confirmed.

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2017-18 Schedule and Tuition (USD)

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All classes available at your location. Contact us today. +1.918.828.2500 | petroskills.com | +1.800.821.5933 (toll free North America)

### Expanded Basic Petroleum Economics

**BASIC 5-DAY**

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.

**DESIGNED FOR**

Managers, engineers, explorationists, field accounting supervisors and other personnel who need to develop or improve their skills 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 financing, 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 analysis
- Financing, ownership in the oil and gas industry: business arrangements between operators, between mineral owners
- Accounting versus cash flow: accounting principles and definitions, differences between accounting cash numbers, depreciation, depletion, amortization
- Budgeting: types, processes, selecting of projects for the budget
- Economic analysis of operations
- Computer economics software
- Tips on economic factors in computer spreadsheet analysis
- Ethics in economic analyses

### Cost Management – CM

**FOUNDATION 5-DAY**

Few problems threaten the petroleum businesses more than uncontrolled costs. Economic realities have made it necessary for most companies to operate with a “learn 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, field personnel, project managers, technology managers, budget managers, or anyone wanting to manage costs more effectively and effectively. A familiarity with finance is helpful but not required.

**YOU WILL LEARN HOW TO**

- Understand the different cost classifications and cost drivers
- Define 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/M) 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**

- Costing, classifications and terminology for an E&P company
- Determining 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 costs Support departments cost allocations Transaction 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 effectively manage costs Performance Measurement using capacity management techniques

### Economics of Worldwide Petroleum Production – EWP

**FOUNDATION 5-DAY**

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 the cost of capital, financial structure, risk, and uncertainty, present worth, rate of return, and other economic yardsticks? 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.

**DESIGNED FOR**

Managers, supervisors, and operating personnel concerned with costs, profitability, budgets, the company bottom line and other aspects of economic analysis of petroleum production on a project, corporate, and worldwide basis, who have had some previous experience in this area. Due to similarity in content, this course is more advanced than Expanded Basic Petroleum Economics. Take one or the other, but not both courses.

**YOU WILL LEARN HOW TO**

- Use cash flow techniques in economic evaluations
- Evaluate and choose investment opportunities
- Use models to weigh risk and uncertainty
- Evaluate decision alternatives using predictive techniques
- Evaluate how projects effect the corporation

**COURSE CONTENT**

- Pricing: natural gas, marker crude, OPEC, 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 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 formal and inclusion of economic factors
- Computer spreadsheet analysis: Ethics in economic analyses

### Petroleum Finance and Accounting Principles – PFA

**FOUNDATION 5-DAY**

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.

**DESIGNED FOR**

Personnel new to the oil and gas accounting industry - accounting, finance, or economists, others desiring to understand or refresh their knowledge of basic petroleum accounting concepts, financial personnel needing to understand unique issues as they relate to the petroleum industry. Technical or asset team members looking for the basic concepts of accounting and finance. Participants are encouraged to bring their company’s financial reports. This course may quality for up to 34 hours of CPE for U.S. CPAs.

**YOU WILL LEARN HOW TO**

- Understand financial reporting requirements for oil and gas companies under IFRS and U.S. GAAP
- Apply basic concepts and terminology for accounting and finance in oil and gas
- Create accounting statements, including a cash flow statement from data accumulation to audited financial statements
- Distinguish between the different financial statements and their roles
- Distinguish between financial, managerial, and contract (joint operations) accounting
- Recognize the different oil and gas accounting methods
- Determine the difference between profits and cash flow
- Apply capitalization rules and depreciation methods
- Recognize accounting treatments of joint ventures such as Production Sharing Agreements
- Evaluate capitalized assets using a ceiling-test
- Read and understand those confusing footnotes
- Prepare, read, and use the disclosures for oil and gas companies
- Recognize how accounting decisions can affect earnings, cash flows, and operational decisions
- Calculate, understand, and analyze financial reports and basic oil and gas ratios

**COURSE CONTENT**

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

FOUNDATION  5-DAY
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 evaluating 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.

DESIGNED FOR
Geologists, engineers, geophysicists, managers, team leaders, economists, and planners.

YOU WILL LEARN HOW TO
• Describe the elements of the decision analysis process and the respective roles of management and the analysis team
• Express and interpret judgments about risks and uncertainties as probability distributions and popular statistics
• Represent discrete risk events in Venn diagrams, probability trees, and joint probability tables
• Solve for expected values with decision trees, pay-off tables, and Monte Carlo simulation (hand calculations)
• Craft and solve decision models
• Evaluate investment and design alternatives with decision tree analysis
• Develop and solve decision trees for value of information (VOI) problems

COURSE CONTENT
Decision Tree Analysis: decision models, value of information (a key problem type emphasized in the course), flexibility and control, project threats and opportunities • Monte Carlo Simulation: Latin hypercube sampling, portfolio pro-forma, optimization, advantages and limitations • Decision Criteria and Policy: value measures, multiple objectives, HSE, capital constraint, risk aversion • Modeling the Decision: influence diagrams, sensitivity analysis, modeling correlations • Basic Probability and Statistics: four fundamental rules including Bayes’ rule (the easy way), calibration and eliciting judgments, choosing distribution types, common misconceptions about probability and more . . .

2017-18 Schedule and Tuition (USD)

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Advanced Decision Analysis with Portfolio and Project Modeling – ADA

SPECIALIZED  5-DAY
Quality forecasts and evaluations depend upon well-designed project and portfolio models that are based upon clear decision policy, sound professional judgments, and a good decision process. In this course participants learn to build good models. We use the familiar Microsoft Excel spreadsheet as the platform for project and risk assessment models. Add-in software provides Monte Carlo and decision tree capabilities. The course emphasis is on the decision evaluation concepts and techniques, not on software programs.

DESIGNED FOR
Evaluation engineers, analysts, managers, planners, and economists. This course is intended for professionals involved with developing project evaluation, portfolio, and other forecasting and assessment models. Prior background in decision analysis is expected. Before registering, please visit http://www.decisionapplications.com/data-pre-read to review a course prerequisites list and to take a short self-assessment quiz. You may login using ‘ada’ (no quotes) as the password.

YOU WILL LEARN HOW TO
• Frame, build, and evaluate decision models and extract key insights
• Apply the exponential utility function for risk policy
• Design investment portfolio optimization models that include constraints, requirements, and specific interrelationships between projects
• Use decision tree software for value of imperfect information analysis
• Use Monte Carlo simulation software with optimization
• Develop quality Excel models for projects and portfolios

COURSE CONTENT
Decision Modeling: application of DA process for modeling: influences diagrams; judgments and biases, sampling error bias; sensitivity analysis; documentation and good modeling practices; real options overview • Monte Carlo Simulation: multi-pay prospect risk (similar to play analysis); calculating payoffs 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 frontier; multi-criteria decision; risk policy as 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

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 we make our international transactions work, including the principles that apply to interpreting and enforcing their agreements, the procedures for resolving their disputes, addressing interpretational 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.

DESIGNED FOR
Petroleum managers who deal with international oil and gas legal matters in the course of their business, and legal professionals with little formal, specialized training in oil and gas law, but expect to deal with international oil and gas law matters.

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 F.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, 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 and the petroleum entities and privatization • Laws bearing on development rights • Legal interpretational issues of common contract provisions • Interpretational issues for service contracts • Transfer and protection of contract provisions, and avoiding liability under environmental and bribery laws • Basic legal concepts of ownership of mineral rights (onshore, offshore, and deep sea bed) • Expropriation and compensation issues • Laws bearing on development rights • Legal interpretational issues of common contract provisions • Interpretational issues for service contracts • Transfer and protection of contract provisions, and avoiding liability under environmental and bribery laws

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 industry 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 top 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 • STEEPLE 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 • Six sigma • Boston Consulting Group (BCG) growth share matrix • Personal application of strategic thinking
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 effectively managed in 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 performance 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 • Bidding evaluation and award considerations including price/cost analysis • Using a formal contract change control process

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 needed 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 responsibilities 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, contracts, inventory, and integrated supply agreements
• How inventory systems use forecasting techniques and what can be done to improve them
• How to improve warehousing 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 • Segmenting 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

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 material designed 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 for anyone who needs a better understanding of procurement value creation in the oil and gas industry and includes buyers, procurement specialists, logistics specialists, business analysts, team leaders, project managers, commodity managers, materials managers, and new sourcing specialists or category managers.

YOU WILL LEARN
• How 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 good practices in 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 • Key risk and cost considerations • Influence of e-Commerce and eProcurement initiatives in oil and gas

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 a 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, and logistics. The course is for those wishing to add value to their company as well as all 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 define a ‘Procurement KPI 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 costs” • Producer price indexes • Requesting supplier’s cost and pricing data • How to handle price 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 reduction and cost avoidance • Savings reporting procedures • 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

2017-18 Schedule and Tuition (USD)

**2017-18 Schedule and Tuition (USD)**

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<th>14-16 Nov 2017</th>
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**2017-18 Schedule and Tuition (USD)**

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**2017-18 Schedule and Tuition (USD)**

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**2017-18 Schedule and Tuition (USD)**

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<td>Dubai, UAE</td>
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+1.918.828.2500  |  petroskills.com  | +1.800.821.5933 (toll free North America)
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 meet 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 relationship • 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

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/price 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 buyers. This course covers all aspects of maintaining the relationship, 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 Producer Price Indexes
• Methods of cost analysis
• Development of “Should Cost”
• Types of TCO models

COURSE CONTENT
Use of price indexes • Cost/pricing analysis • Total cost of ownership • RFQ/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 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

Petroleum Project Management: Principles and Practices – PPM

INTERMEDIATE 5-DAY
Running a successful petroleum operation requires a blend of technology, business savvy, and people skills. If you already have a firm grasp of exploration or production technology, learn to amplify its effectiveness with applied project management techniques. This course is aimed at helping technical personnel make the best business decisions, decisions that lead to lowest project cost while still meeting all production or exploration goals. Petroleum Project Management covers the principles and application of project management to the upstream oil and gas business. Participants may choose a case study from a number of real-life exploration, production, facilities, and general management situations, or they may bring the details of one of their own current projects. Because of this experience with practical situations, participants can use these project management principles their first day back on the job.

DESIGNED FOR
Exploration, production, and management personnel interested in applying project management techniques to their operations. If you are a facilities engineer, we refer you to our Project Management for Engineering and Construction (PM2E) and Project Management for Upstream Field Development (PMF2E) courses.

YOU WILL LEARN HOW TO
• Properly define a project’s scope
• Use project management tools to create a project schedule to meet goals, deliverables, and resource constraints
• Use practical tools to identify and manage a project’s risks
• Manage a project team
• Organize your project to capture lessons learned

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

Project Cost Scheduling – PCS

INTERMEDIATE 5-DAY
The financial dynamic to successful project delivery lies at the very heart of effective project management. A project is a complex series of interactions between time, people, and resources - their allocation and utilization. All of these activities have a cost, which may be either direct or indirect, but nevertheless, will impact a project's budget. Although many projects deliver what they set out to achieve, they are often over budget which raises the ultimate question as to whether or not they should be considered as successful. Project Cost Scheduling highlights and informs the participant of how to manage the project cost function, its dynamics and components, leading to an enhanced understanding and application of techniques that will contribute directly to more efficient project management processes. This course is not about number crunching, it is about becoming familiar with the interactions and processes that underpin and ultimately inform the cost scheduling activities within projects. The course contains a significant element of practical exercise that builds daily, allowing participants to grasp the inter-relationships between cost, project lifecycle, and operational activities, thereby imparting clarity to the whole process of successful project delivery.

DESIGNED FOR
Exploration, production, and management personnel who wish to apply project management techniques to their activities and operations.

YOU WILL LEARN HOW TO
• Understand the integration of cost scheduling into project management processes and procedures
• Have awareness throughout a project lifecycle of the central importance of managing costs
• Apply such techniques as the Work Breakdown Structure (WBS), the Work Package, and the Cost Breakdown Structure (CBS)
• Estimate costs and deal with cost escalations and reductions
• Understand key contractual forms and issues
• Apply the basics of managing a project budget
• Have awareness of reporting responsibilities

COURSE CONTENT
Project estimation and schedule • Integrating cost and schedule • The project lifecycle • Tools and techniques used in cost scheduling • Cost estimation • Cost escalation and reduction • Information, communication, monitoring, and control • Stakeholder management • Contractual issues and forms • The project budget • Ownership and reporting requirements

See website for dates and locations

2017-18 Schedule and Tuition (USD)

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*plus computer charge
**PROJECT MANAGEMENT**

**INTERMEDIATE 5-DAY**

Managing Brownfield Projects – FPM42

This course is designed to teach the skills necessary to effectively plan and manage Brownfield projects or those in existing facilities. This includes due diligence of existing infrastructure, framing the project, concept selection techniques, managing stakeholders, and integration with Operations led projects. The course focuses on the unique challenges of Brownfield projects and how project leaders can effectively work in this Operations-centric project environment. Exercises, the case study, and discussions make the sessions challenging and insightful.

**DESIGNED FOR**
Project managers, asset managers, project control managers, and project engineers that are involved in the engineering, procurement, and construction of surface facilities and pipelines for large onshore and offshore projects.

**YOU WILL LEARN HOW TO**
- Plan and deliver a Brownfield project
- Effectively manage Brownfield project challenges
- Apply the unique stage elements of a Brownfield project
- Utilize methods for conducting facility due diligence, and why this is critical to project success
- Establish a project oversight board to ensure alignment among all stakeholders
- Skills to develop, gain stakeholder alignment, and control a Brownfield scope of work
- Develop a contracting strategy for a Brownfield project
- Address the unique constructability issues associated with a Brownfield project
- Ensure that operations staff align with project objectives

**COURSE CONTENT**
Brownfield stage gate system • Brownfield project challenges • Staffing the Brownfield project team • Communications management • Stakeholder management • Concept selection and Brownfield projects • Key value improving practices for Brownfield projects • The importance of due diligence on the existing facility • Quality management in engineering, procurement, and construction • Brownfield projects and risk • Change management • Contract strategy and contractor selection • Procurement, logistics, and material management • Construction management and HSE • Managing cost/schedule stakeholder expectations for a Brownfield project • Performance reporting • Commissioning and startup • Roles and qualities of successful project managers

**ADVANCED PROJECT MANAGEMENT – FPM62**

**SPECIALIZED 5-DAY**

This five-day, specialized level course is for project managers, asset managers, project control managers, and project engineers seeking an in-depth understanding of key topics associated with large domestic and international projects. This course provides advanced knowledge in contract strategy, project governance, engineering and technology management, stakeholder management, joint venture and non-operated projects, interface management, risk management, reviews and approvals, and management information systems.

**DESIGNED FOR**
Project managers, asset managers, project control managers, and project engineers who plan, manage, or participate on multi-discipline project teams.

**YOU WILL LEARN**
- Assess project governance structures for both domestic and international projects and create a plan to facilitate decision making
- Develop a project work breakdown, assess key market drivers, and compose a contract strategy plan that minimizes project risk and effectively utilizes resources
- Identify and evaluate risks associated with technology selection and engineering development and prepare an engineering management plan
- Identify internal and external stakeholders and create a strategy to address their needs
- Establish a program to identify and manage project interfaces
- Evaluate the effects of major project risks and mitigate their impact on cost, schedule, and operability
- Create a decision support package and successfully navigate the reviews and approvals process associated with funding gates

**COURSE CONTENT**
Key aspects of a stage gate process • Influence of markets and regional practices on contract strategy development • Governance structure influence on decision making • Technology selection and engineering management in a limited resource environment • Stakeholder identification and influence planning for large, complex projects • How to influence the outcome of joint venture and non-operated projects • Critical factors in successful interface management • Risk identification and mitigation methodologies essential to preserve project value • Managing expectations associated with peer reviews, technical assists, and gate approvals

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**PROJECT MANAGEMENT 29**

**INTERMEDIATE 5-DAY**

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

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**2017-18 Schedule and Tuition (USD)**

**INTERMEDIATE 5-DAY**

**MANAGING BROWNFIELD PROJECTS – FPM42**

- **HOUSTON, US 23-27 OCT 2017** $4140
- **HOUSTON, US 30 JUL-3 AUG 2018** $4340
- **HOUSTON, US 7-11 MAY 2018** $4440

**ADVANCED PROJECT MANAGEMENT II – FPM63**

- **HOUSTON, US 23-27 OCT 2017** $4340
- **HOUSTON, US 30 JUL-3 AUG 2018** $4540
- **HOUSTON, US 7-11 MAY 2018** $4640

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+1.918.828.2500 | petroskills.com | +1.800.821.5933 (toll free North America)
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? Chance leaves through ineffective leadership and management practices.

Unfortunately, that chance occurs every time an employee is promoted to a leadership, supervisory, or management position without training in the techniques and practices of effective leadership and management. 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 than any other single entity in the 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 when dealing with others. You will explore different concepts of management and leadership and how to apply your new skills in real world applications.

**DESIGNED FOR**

Anyone responsible for leading others in the daily performance of work, including those who are to be leaders, front-line leaders, new and experienced supervisors, and managers, team leaders, coaches, and mentors.

**YOU WILL LEARN HOW TO**

- Apply concepts of leadership and management to real work situations
- Coach and supervise a diverse and dispersed workforce
- Set appropriate goals and manage performance and change to ensure these goals are reached
- Empower your workforce to exceed expectations
- 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

Creating positive and functional thinking about work • Making ongoing change for growth and improvement • Taking personal responsibility • Developing personal plans to improve team effectiveness

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

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Essential Leadership Skills for Technical Professionals – OM23

**ESSENTIAL 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 for leader 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

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Essential Technical Writing Skills – ETWS

**BASIC 5-DAY**

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

**DESIGNED FOR**

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

**YOU WILL LEARN HOW TO**

- To focus on the reader as the receiver of the information
- To develop quality writing that will:
  - Improve business relationships and communication
  - Enable you to write better and faster
  - Make your writing more credible
  - Make you more confident in your writing

**COURSE CONTENT**

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

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2017-18 Schedule and Tuition (USD)

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For more information, contact PetroSkills at +1.918.828.2500 or petroskills.com, +1.800.821.5933 (toll free North America) for all classes available at your location. Contact us today.
PETROLEUM PROFESSIONAL DEVELOPMENT

Negotiation Skills for the Petroleum Industry – NSPI

BASIC 3-DAY

This course helps you to develop strong interpersonal skills in the art and science of negotiation. You will learn to apply these skills to complex organizational issues and individual needs. The course includes a Negotiating Style Profile self-assessment to determine your preferred negotiation style(s). Various tools and techniques are used to negotiate differences and disagreements to produce positive results. A group workshop conducting a collaborative negotiation, allows attendees to engage in, comment on, and improve their competencies in negotiation skills.

DESIGNED FOR
Petroleum industry personnel who are responsible for negotiating the best possible terms of an agreement in public and private sectors and those negotiating resources and deliverables in projects and programs.

YOU WILL LEARN HOW TO
• Follow a step-by-step method to the structure, techniques, and approaches available to positively influence an effective negotiation
• Adapt negotiation at each stage of the negotiation
• Leverage the power of Best Alternative To A Negotiated Agreement (BATNA), WORST Alternative To A Negotiated Agreement (WATNA), Zone of Possible Agreement (ZOPA), and Walk Away Price (WAP)
• Modify your communication style to achieve desired results
• Respond to tough negotiators
• Select a strategy for your negotiation
• Use the Agree, Bargain, Control or Delay (ABCD) method
• Select a strategy for your negotiation
• Leverage the power of Best Alternative To A Negotiated Agreement (BATNA), WORST Alternative To A Negotiated Agreement (WATNA), Zone of Possible Agreement (ZOPA), and Walk Away Price (WAP)
• Modify your communication style to achieve desired results
• Respond to tough negotiators
• Select a strategy for your negotiation
• Use the Agree, Bargain, Control or Delay (ABCD) method
• Practice your negotiation skills in real world practice sessions
• Apply what you’ve learned to plan a negotiation back on the job using the Strengths, Weaknesses, Opportunities, and Threats (SWOT) model

COURSE CONTENT
Learn a step-by-step method to the structure, techniques, and approaches available to positively influence an effective negotiation: Know what behavior to adapt at each stage of the negotiation, Leverage the power of Best Alternative To A Negotiated Agreement (BATNA), WORST Alternative To A Negotiated Agreement (WATNA), Zone of Possible Agreement (ZOPA), and Walk Away Price (WAP) Adjust your communication style to achieve desired results. Deal with tough negotiators. Craft a strategy for your negotiation. Use the Agree, Bargain, Control or Delay (ABCD) method. Practice your negotiation skills in real world activities

Team Building for Intact Teams – TB

FOUNDATION 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 opportunity for intact teams to strengthen team performance and team productivity.

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 responsibility
• 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 relationships
• Understand system influences
• Promote conditions for effective team building
• Conduct individual and team assessments
• Improve team communications
• Improve group dynamics
• Solve problem 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 responsibility • 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

FOUNDATION 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/presenter, 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. Participant’s progress will also be charted to quantifiably show areas in which actual improvement has taken place.

DESIGNED 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 fundamentals and techniques needed to design and 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. Participant’s progress will also be charted to quantifiably show areas in which actual improvement has taken place.

Making Change Happen: People and Process – MCPP

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

Meeting Management and Facilitation for the Petroleum Industry – MMF

FOUNDATION 2-DAY

Properly planned and managed, meetings are extremely positive and dynamic ways to exchange ideas, shape policy, resolve problems, effect change, etc. However, when poorly designed and implemented, meetings become virtual breathing grounds for confusion, tension, frustration, boredom, and negativity. During this interactive session, participants will learn how to perfect meeting facilitation skills; master meeting agenda design skills; and polish meeting communication skills so that they’ll be able to run meetings efficiently, effectively, and smoothly.

YOU WILL LEARN HOW TO
• Run efficient face-to-face and online meetings
• Prepare and implement meeting agendas
• Incorporate meeting facilitation techniques and tools
• Understand meeting roles and responsibilities
• Use meeting facilitation tools
• Master meeting management skills, i.e., use time wisely, avoid topic confusion, handle personal attack, avoid traffic problems, deal with individual and group communication, and maintain topic (agenda) focus
• Recognize and understand the various roles that a facilitator plays during the course of a meeting

All classes available at your location. Contact us today.

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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.

DESIGNED 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 (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

Basic Petroleum Technology Principles – BPTP

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. Participants first learn and understand why various oil and gas production types and plays (unconventional and conventional) have different values. 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 technology and the oil industry. Learning is achieved through guided discussions, videos, animations, and progressive team exercises utilizing ‘Our Reservoir’ and ‘Our Well’ as working models.

DESIGNED 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 on reservoir fluid properties • Petroleum geology • The petroleum reservoir, conventional and unconventional • Exploration technologies for conventional and unconventional reservoirs (including initial reserve estimates and consequent field development) • Drilling and operations • Well completions and workovers • Production operations • Reservoir recovery mechanisms • Surface processing

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 shale (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 the relative 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 oil and gas production types and plays (unconventional and conventional) have different values. 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 technology and the oil industry. Learning is achieved through guided discussions, videos, animations, and progressive team exercises utilizing ‘Our Reservoir’ and ‘Our Well’ as working models.

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MR. STEPHEN ASBURY is the author of six internationally published books on safety and risk management and has been a HSE practitioner and instructor. He is a Chartered Safety and Health Practitioner (CIFOSH), a Chartered Environmentalist (C Env 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 and HSE management programs. He has over 30 years’ risk management experience gained working in leading organizations, in consultancy, and in the London insurance market, where together he has worked in over 20 countries 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 AUSafe Group Limited, a leading international HSE consulting company. In addition to his books, Stephen is a HSE practitioner and instructor. He is a Chartered Safety and Health Practitioner and instructor. He is a Chartered Environmentalist and an Associate Member of OPQS. He holds the MSc in Risk and Safety Management as awarded by Cranfield University. He received a Chemical Engineering state diploma from the National Polytechnic School of Algiers, an MS and a PhD from the University of Tulsa. 

MR. PAUL M. BARRY is a petroleum engineering consultant specializing in production technology, production operations, and project evaluations. Mr. Barry has over 42 years of international and domestic USA upstream oil and gas production and reservoir engineering experience 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 offshore re-development project for PETROKARIM in Venezuela which required a combination of new development well and well re-completion designs for gas lift, submersible pump, and rod pump artificial lift technology, and frac and pack gravel pack sand control well completions. Previous Indonesian experience was in the design and completion of dual string, multiple lateral, cased and uncased, tubing conveyed perforated high pressure gas wells, exploration well testing and evaluation for Pertamina and Atlantic Richfield, Hufco, Virginia Indonesia, and joint venture partner contracts for both oil operations and Bontang LNG gas supply operations. As district reservoir engineer for Pertamina and Arco partners in Indonesia, Mr. Barry was responsible for the plan of development 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 1.2MMWBD reservoir pressure support injection well system, injection water quality assurance, producing well gravel pack completions, internal and external well and flowline corrosion control systems, and, as Mobil Oil field engineer in the Arabian American Oil Company (Aravco) Gas Projects department. He has represented company technical and commercial interests in both UK and Norwegian North Sea oil and gas processing fields. Mr. Barry has served as an officer in the Jakarta and Dubai SPE sections. He holds a BS from the University of Notre Dame and an MS 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 subsurface 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 Emergency (DW RUPE) and Subsea Tieback Forum (STBF). 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 has almost 30 years in the oil and gas industry. His expertise is the use of process engineering to optimize operating facilities economics via availability, product recovery and bottleneck issues. As such, Rob has tested, identified, designed, project managed and implemented numerous molecular sieve, NGL recovery, sulfur recovery and debottleneck projects in several countries. He also has had roles in operations, business development and management. Mr. Bendorfi co-authored a paper on molecular sieve dehydration that was selected Best Paper Award at the 2008 Gas Processors Association annual convention and was published in the Oil and Gas Journal. He has a B.Sc. in Chemical Engineering from the University of Alberta and an M.B.A. from Tulane University.

MR. ROBERT BOMBARDIERI has almost 30 years in the oil and gas industry. His expertise is in the use of process engineering to optimize operating facilities economics via availability, product recovery and bottleneck issues. As such, Rob has tested, identified, designed, project managed and implemented numerous molecular sieve, NGL recovery, sulfur recovery and debottleneck projects in several countries. He also has had roles in operations, business development and management. Mr. Bombardier co-authored a paper on molecular sieve dehydration that was selected Best Paper Award at the 2008 Gas Processors Association annual convention and was published in the Oil and Gas Journal. He has a B.Sc. in Chemical Engineering from the University of Alberta and an M.B.A. from Tulane University.
MR. MARK BOWERS is the Head of Training for Corporate Risk Systems Ltd and is a Chartered Health and Safety practitioner with over 30 years of occupational health, safety and environmental experience. His early career was engaged in the Royal Air Force training in both aircraft engineering and environmental health and safety, where he was engaged in operations worldwide including the Falkland Islands, Northern Ireland, the Balkans and in the Gulf. Mark has also provided health and safety consultancy to worker within safety critical industries including the railways, power supply industry and petrochemicals. He has also applied his health and safety knowledge and expertise in a diverse blend of industries and business across the United Kingdom as well as internationally. Mark is a registered trainer and examiner for National Examination Board in Occupational Safety and Health (NEBOSH), Institution of Occupational Safety and Health (IOSH) and Chartered Institute of Environmental Health (CIEH). He has set up and training and consultancy businesses in the universities sector developing a department teaching safety at University College London (UCL) along with a specialist asbestos skills training business and a behavioral safety consultancy. He is an active member of the East Midlands IOSH Branch and provides a national asbestos skills training business and a behavioral safety consultancy. 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 member of the board of the Conference in Midland. Mark holds a degree in Chemical Engineering from the University of Tulsa with a degree in Mechanical Engineering.

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 activities including engineering, construction, project management, and overseeing the reactivating of a hyperbaric vessel 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 member of the board of the Conference in Midland. Mark holds a degree in Chemical Engineering from the University of Tulsa with a degree in Mechanical Engineering.

MR. AJEY CHANDRA has over 35 years’ experience in engineering applications most of which was devoted to a major oil company in various management level positions. He has extensive experience in exploration, business development, strategic planning, training and development of multi-disciplinary teams. He is fluent in French, English and Russian and is knowledgeable in German. He has served as a vice president of Engineering and Construction from Eole Nationale Superieure des Techniques Avancées (ENSTA) in Paris.

MR. STEWART CLARKE is an occupational health and safety practitioner employed with Corporate Risk Systems Limited. He has over twenty years’ experience in training, personnel development and mentoring at various levels within a range of organisations. He is a Chartered Member (MCIEH) and a Member of the Institute of Occupational Safety & Health (IOSH), with a background in engineering and teaching. Stewart was formerly a principal tutor at the Centre for Occupational and Environmental Health in the Division of Epidemiology and Health Sciences in the School of Medicine at The University of Manchester. Stewart’s technical expertise includes mentoring oil and gas project teams, offshore construction projects, and PSA (Petroleum Safety Authority) HS70 investigation, loss events, and providing instruction on NEBOSH, IOSH and CIEH externally certified courses.

MR. JIMMY CLARY has 25 years of experience in the Hydrocarbon Processing Industries. During his 17 years with RWD Technologies, he held technical and management positions including Senior Training Analyst, Project Manager and Team Leader. Mr. Clary has lived and worked in Los Angeles, California and Houston, Texas; completing projects in Asia, Africa and the Middle East. Mr. Clary has also spent nearly 10 years working for Petroleum Testing Services and NPR services in Special Core Analysis, Fluid Analysis and Amine reclamation areas. Mr. Clary earned a BA in Mathematics and a BS in Physics from the University of Oklahoma.

MR. MICK CRABBET 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 (ESD), Turbine, Emergency Shutdown Valves (ESV) and Pressure Release Systems. 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 Defence and he was responsible for ensuring the reliability, maintainability and safety of British Military equipment throughout its lifetime. RAF. He is the former editor and manager editing 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 distinction).
become an active member of the Humburdes, UK ‘Business Hive’ group and a volunteer Health and Safety Advisor for the Lincolshire region of the National Wildlife Trust. Altogether, Chris has over 40 years’ experience working with occupational health safely.

MR. PHILLIP DUCKETT has a background in construction and engineering. He has held senior management positions in plant and machinery installation businesses. He has over ten years' experience in health and safety and is a Chartered Member of IOSH. Phillip has HSE experience from working in the oil and gas, pharmaceutical, automotive, food and beverage, military supply, aircraft manufacture and general engineering sectors in Europe, North and South America and North Africa. He prides himself on helping and encouraging clients to achieve a high standard of health and safety. Phillip is a member of a long line of a lacrosse team and is an active participant in a karate club.

MR. KERRY EDWARDS is a lead instructor for the Petcoils Health classes, with over twenty years’ HSE experience. She is a Licensed Safety and Health Practitioner and a Member of the International Institute of Risk and Safety Management. Mr. Edwards' prior career was spent in paramedic nursing, specialised in intensive care and major trauma. In 1992, she joined an international manufacturing group as Health and Safety Manager. In 1997, she was awarded a Recognition Award for her achievements. After five years, she moved into accident investigation, where she used her biomechanics and medical knowledge to aid research into vehicle safety and future vehicle design. She presented her research into vehicle safety at the World Class in contender for the Rising Star in Safety and Health Management Award. She was also nominated for the Distinguished Instructor of Petroleum Technology at Mount Royal College and SAIT in 2000-2001, and has authored over 25 professional publications. At Unocal, he was responsible for developing the water treating systems, which were installed in the Gulf of Thailand to remove mercury and arsenic as well as residual oil from the produced water. At Natco Group he developed an effective vertical column floation vessel design and used CFD to diagnose problems with existing water treatment equipment as well as to develop new equipment. He was an SPE Distinguished Lecturer on Produced Water Treatment in 2009-10, and serves on the SPE Steering Committee for their Global Workshop on Produced Water and Saline Water Treatment and Control.

MR. RONALD FRENDS is a registered engineer, and has extensive experience in the oil and gas sector. He rose to a senior position in Shell International in the Netherlands, Poland and Russia, followed by a period of consultancy based in England and a senior position in a global training enterprise. His entire career has been concerned with practical applications of maintenance and engineering from a solid business foundation. Ron is experienced in a variety of maintenance analytical techniques as well as in the commissioning, management and operation of major multi-national companies in the oil and gas industry. Ron has also undergone specialized training on the following topics: management techniques, non-destructive testing, oil tanker cargo operations, instrumentation and control, resistance and gas welding, vibration analysis, infrared thermography, and ultrasonics. He is a Registered Engineer with an MSc from Huddersfield University in England as well as being a certified Chief Engineer Officer (maritime).

Mr. RICHARD (RICK) GENTGES has over 32 years’ experience in the design, construction, and operation of underground natural gas storage facilities. His experience includes assignments in operations, technical support, engineering management, and project management. Most recently (2010-2013) he served as Senior Project Manager for Cook Inlet Natural Gas Storage, Alaska, LLC, and was responsible for overall construction of the first 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 supervising pipeline integrityuko inspections, hydraulic model development, pipeline and valve testing, water simulation, and overall storage facility optimization. During his career he managed construction projects that involved enhancements to existing gas storage facilities and construction of new gas storage facilities. The scope of construction includes: the drilling and completion of both 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 (1996-2003), 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. GIBSON is a consulting engineer with over 35 years' experience in the design, operation, and management of water treatment plants. He is a member of APEGGA, AAPP, SPE, HGS and SPWLA. He serves as Publications Chairman and on symposium committees for the CWLS; he has co-authored a paper on computer data formats (LAS) and has compiled numerous technical papers and training materials; he is a certified tutor for online learning.

Mr. Theo (Ted) Frankiewicz has over 30 years’ experience in the oil industry with Occidental Petroleum, Unocal Corp., Natco Group (now Camden), and currently, SPEC Services. He has a PhD in Chemical Engineering and an on-bottom safety specialist. Ted joined NATCO in 1982 and has authored over 25 professional publications. At Unocal, he was responsible for developing the water treating systems, which were installed in the Gulf of Thailand to remove mercury and arsenic as well as residual oil from the produced water. At Natco Group he developed an effective vertical column floation vessel design and used CFD to diagnose problems with existing water treatment equipment as well as to develop new equipment. He was an SPE Distinguished Lecturer on Produced Water Treatment in 2009-10, and serves on the SPE Steering Committee for their Global Workshop on Produced Water and Saline Water Treatment and Control.

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, crude oil facilities, sales and marketing, 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 Wyoming.

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, helium recovery, argon recovery, 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 turbines, cryogenic expanders, centrifugal compressors, reciprocating compressors, gas processing compressors, gas treating compressors, positive displacement pumps, polymer separators, refrigeration systems, diesel engines, motors, generators, dryers, chemical injection systems, cooling towers, boilers, and loading arms. Mr. Foenig holds a MS, Mechanical Engineering from Stevens Institute of Technology and a BS, Mechanical Engineering from Cornell University. He is a Registered Professional Engineer in Wyoming, Colorado, Alberta, and Texas and is a CHEST Safety Trained Supervisor (STS).

Mr. Eric A. Foster is a Geoscience Technical Advisor with PetroSkills-OGCI based in Houston. He has 40 years of operations and management experience in the oil and gas industry. Prior to joining PetroSkills, he was with Landmark and responsible for managing geoscience and engineering services in the Americas, Europe, and Asia. Mr. Foster is responsible for all aspects of geophysical and petrophysical software applications and services for global operations. Starting as a geologist in field operations in the US, South America, North Sea, Trinidad and Mexico, he then worked as a training instructor and coordinator for worldwide operations at Conoco in Denmark, and subsequently for Shell Exploration and Production International Operations. His background has included all aspects of formation evaluation and the application of software to geological and drilling engineering data acquisition and interpretation. He has acted as a technical advisor/consultant on projects throughout the world; and has extensive experience in the application of this training to both in-house and client organizations.

Mr. Guidroz has been with Teams International for over 30 years, working with occupational health safety. Altogether, Chris has over 40 years’ experience in the oil and gas business. He has been involved with major refinery upgrades, multiple turnaround and greenfield projects. He has acted as owner’s engineer on projects including a new spill response barge for drilling in the arctic. Mr. Guidroz has been involved with all phases of projects from FEED/Conceptual Design to Detailed Design on through construction. His areas of expertise are in piping specifications, stress analysis, explosion prevention systems, pressure vessels, heat exchangers, tanks, heaters, pumps, compressors, drivers, valves, pipelines, and stress analysis. Mr. Guidroz has a broad knowledge base from over twenty 8 years of experience in the oil and gas business.

Mr. ROGER HADDAH, 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 management, he has developed a strong network of contacts and works 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 chemical industries (Shell). He is experienced with thorough knowledge and experience in LNG, gas and refinery operations, start-up, design, process technology, teamwork, change processes, and competency assessment. He started his career with the Gulf Oil Refinery in The Hague. He has held various engineering and technical jobs for Gulf Oil Chemicals in Lincoln, Nebraska after which he transferred to Shell for 29 years. During his career with Shell, Mr. Hageman has worked in numerous countries including Malaysia, Thailand, Saudi Arabia, Oman, United Arab Emirates, United Kingdom, Denmark and, of course, The Netherlands. He has been responsible for Process Engineering, Design, Operations, Start-up, Process Safety (Integrity), Interface Management, Change Processes, Competency Assurance and Training. He holds an MS in Chemical Engineering from Twente University in The Netherlands. He is...
a member of KVL, i.e. The Royal Dutch Institute of Engineers. Mr. Hagemeijer joined PetroSkills! in 2003. He holds a masters degree in Chemical Engineering from the Delft University of Technology. Mr. Hagemeijer is the Engineering Director for PetroSkills' Houston office and is a member of the SPE and ASEE.

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 reliability, and the design and testing of integrity management systems. Mr. Jentz has also worked for both operating and engineering contracting companies. He is a Registered Professional Engineer in Alaska and Washington. Mr. Jentz received his BS in Chemical Engineering from California State Long Beach in 1974.

MR. STEPHEN JEWELL is an independent oil and gas consultant and advisor with 50 years’ experience in the upstream sector. He was President of PetroSkills! for stimulation in the late 1990s, he led the introduction of various innovative business development positions at Halliburton. As global marketing manager for stimulation development as well as managing strategic relationships with customers and industry organizations. He began his career with Haliburton in 1977 as an engineer-in-training. He has numerous field engineering, sales, product marketing and business development positions at Halliburton. As global marketing manager for stimulation in the late 1990s, he led the introduction of various innovative acidizing and fracturing technologies. He left Halliburton in 2000 to start a consulting company specializing in oilfield market research and new technology commercialization. Bill has been active in SPE and served numerous positions in the SPE, including Membership Director. He also holds a BS in Chemical Engineering from the University of Saskatchewan. He currently resides by the lake in Wakow, Saskatchewan.

MR. DALE KRAUS has over 30 years of progressive responsibility from staff to management positions within the Upstream Oil and Gas Industry. Mr. Kraus has obtained a sound basis in Facility/Processing Engineering with an emphasis on Plant and Field Operations in Oil and Gas Production, both on and off-shore. He has held the positions of President of Kraus Oil & Gas Consulting Company and a member of APEGA and holds a BS in Chemical Engineering from the University of Saskatchewan.
Our Instructors

MR. JAMES LANGER is a registered professional chemical engineer in Texas and California. He graduated with a BS in Chemical Engineering from UCLA and has an MBA from Pepperdine. Jim has been working for Hess as a Senior Process Engineering Advisor for the past 7 years. He retired from the University of Illinois in 2019 as the Executive Director of the Center for Oil and Gas Process and Engineering, and Principal Technical Expert for Shell / Global Solutions. He has had a global job for the past 15 years and has experience in offshore / onshore, shallow water / deep water, heavy oil / light oil, water treating, and natural gas processing. He has been a project manager working field development projects through all of the phase gates and stages. He frequently travels the globe assisting operations with process issues, and showing them how to unlock additional barrels through the application of production optimization. Jim installed Smaller's smallest, most expensive gas plant. The project took 8 years and is located on Pacific Coast Highway in Huntington Beach, California.

MR. PERRY LOVELACE, CMRP, specializes in Maintenance and Project Management, Leadership and Competency-based Training and has over 25 years’ experience in industrial training and consulting. His work in competency-based workforce development is known worldwide. In addition to M&D, his participative leadership seminars have provided team-building skills to hundreds of staff and management. He has assisted many organizations on on-site consultation and training, clients include industrial and utility organizations of different types and sizes around the world. A certified Maintenance and Reliability Professional (CMRP) by the Society for Maintenance and Reliability Professionals and a member of the Society of Petroleum Engineers, Mr. Lovelace also holds a BS in Science Education and an MS in Botany from the University of Oklahoma, with pre-doctoral studies in Plant Ecology at the University of California.

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 background in senior management roles helping to lead major capital projects in Azerbaijan, the Middle East, and Latin America. He has held a BS and an MS in Mechanical Engineering with honors from Rice University and has completed management training at Harvard Business School. He is PMP certified.

MR. KEN LUNSFORD is the Project Management Discipline Manager for PetroSkills. He has more than 38 years’ experience in engineering and management of oil, gas, chemicals and plastics development. During his 32 years with ConocoPhillips, he led development of projects on projects in Nigeria, Turkmenistan, Qatar, and United Arab Emirates. His diverse engineering and project management background includes sour gas plants, oil and gas petrochemicals, engineered plastics processes and materials handling, batch sulfur chemical processes, liquefied natural gas plants and petcoke plants. Mike has over 20 years of experience as a corporate project manager for Phillips Petroleum with responsibility for developing business processes and training for asset development, value improving projects, project controls, contract strategy, risk management, business and asset and first capture non-operated project assurance. He received his BS and MS degrees in Mechanical Engineering from the University of Missouri-Columbia. He is a senior professional engineer in the State of Texas.

MR. JUAN C. MALAVE is an accomplished senior level project professional in major capital projects development, specializing in EPC management, contracts, procurement, and business development with more than 20 years of experience. Mr. Malave holds a BS in Chemical Engineering from the National University of Colombia. His expertise includes developing strategic direction, planning, risk management and project management for large capital projects (in excess of $100MM). He has proven success optimizing engineering, procurement and construction processes, project management, contracts management and administration, and project execution. He has managed and led teams in leading international teams with diverse cultural backgrounds working in different contracting environments. Mr. Malave has a BS in physical metallurgy from the National Science and Engineering Department of Washington State University.

MR. RAYMOND MALINO is an Consultant/Contractor for PetroSkills. Mr. Malino has 28 years of experience in the chemical and hydrocarbon processing industries. During his 28 years with Union Carbide Corporation/UPD, he held both technical and commercial positions. These included: Molecular Sieve Technical Manager- Design and Field Service; Licensing Manager for the Ethylene Glycol Business; Business Manager for the Gas Processing Business Group; and, World Wide Sales Manager for the Gas Processing Business Group. Mr. Malino has also worked in New Hampshire, Maine, New York, Singapore and Chicago. He is currently based in Charleston, 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 Launceston Reid Gas Condensing 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 in New York. He is involved in represented 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. ANDREA MANIVONGCHI is currently involved in international deep-water offshore projects on behalf of major oil and gas operators. He is also an active member of work groups involved in the development of US and international standards for offshore structures. After an early academic career with the University of Rome, Italy and with Rice University in Houston, Andrea joined Brown & Root (today KBR), where over the next 15 years he was involved in a number of major international offshore oil and gas projects (Gulf of Mexico, North Sea, South America, West Africa, Asia-Pacific). He also held a number of corporate positions in the area of deep water technology, fixed and floating offshore structures, and engineering/technology development. Andrea has a BS in Mechanical Engineering and a PhD in Aerospace Engineering, both from the University of Rome. He has authored and co-authored over 30 technical papers, and holds two patents.

MR. TONY MARCHAND is a Senior Consultant/Contractor for PetroSkills. He has over 35 years of experience in the areas of chemical engineering and gas processing. He has been involved in the design, testing, and start-up of more than 150 plants and has held positions in the areas of LNG facilities, and gas and oil facilities, and gas plants around the world. Mr. Marchand was as SPE Distinguished Lecturer in 2005/06 and was an invited speaker at many 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 engineering. He leads the PetroSkills process design team providing technology and project management services in all aspects of major projects. He has a BSc in Chemical Engineering, awarded in 2021 from the University of London. Mr. Nader is a Senior Member of the SPE and has over 100 technical papers on hydrodynamic processes and property engineering. Mr. Nader has taught courses 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. TIM NIEMAN is a Charter Member of the Institution of Occupational Safety and Health (IOSH), the International Institute of Risk and Safety Managers (MIRSM) and the Institution of Fire Engineers (MIFireE). He is a pragmatic occupational health and safety practitioner with over 35 years of experience gained from a career in public and private sector organisations including the police, local government, education, food, general and leisure retailing, healthcare and residential care, agricultural processing, facilities management and international clients in the gas processing industry. Mr. Nieman has many years of experience in providing training, and cryogenic gas processing. He consults for both North American and international clients in the gas processing industry. He performs training, and cryogenic gas processing. He consults for both North American and international clients in the gas processing industry. He performs training.

MR. JOHN ROBERT (BOB) NICHOL is President of the recently founded Petrobob Consulting Limited, located in Sherwood Park, Alberta Canada. Robert provides petroleum consulting services to the Gas Processors Association (GPA) and the Government of Alberta, Department of Energy and is a sessional lecturer in Petroleum Engineering at the University of Alberta at Edmonton. He has over 30 years’ experience in a broad spectrum of Petroleum Engineering roles including field operations, reservoir engineering and engineering research.

Bob received a BSc degree in Electrical Engineering and an ME degree in Mineral Engineering both from the University of Alberta.

MR. TIM NIEUWENHUIS is President of Decision Applications, Inc., a San Francisco area based decision analysis consulting firm. His professional experience includes 20 years in leading and consulting projects of various sizes and scopes involving the application of decision and risk analysis methodologies in the energy and environmental sectors, and 10 years as a practicing petroleum geophysicist. His background includes work in decision analysis, strategic planning, risk and uncertainty analysis, business planning, R&D portfolio management, software development, geology, and geophysics. Mr. Nieuwenhuis served as an Editorial Advisory Board GeoStat Consultants, an Oakland based geological and environmental consulting firm. Prior to that, he was Director of Operations for Lumina Decision Systems, a decision analysis, planning and consulting software firm. He has over 15 years with Amoco as a geophysicist, economist, and risk and portfolio analyst. He has a BS in geology and an 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, Ronnie served as a Sr. Consultant and frequent appointee as Director of Continuing Education at the Aramco Americas Department. Prior to joining to Saudi Aramco in 1988, 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 major
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 based in Singapore and a research fellow coordinator for the company’s technology program while at Halliburton. He has consulted on wells requiring various well completions techniques, principally in East Asia. He has conducted technical petroleum industry courses worldwide and written numerous technical papers relating to well completion and workover operations. He is a registered professional engineer in Texas and Vermont, and a 25-year member of SPE. He received a B.S. in Chemical Engineering from the University of Missouri.

Mr. William (Bill) E. Powell is an oil and gas professional with over 30 years of experience in field operations, drilling, completions, construction, sales, marketing, and management with autonomous operations and profit and loss responsibility. Prior to entering the oil and gas industry with Schlumberger he served as a commissioned officer in the U.S. Marine Corps. Bill holds BS and MS degrees in Physics. He is a member of the Society of Petroleum Engineers, American Association of Petroleum Geologists, Society of Exploration Geophysicists, and European Association of Geoscientists and Engineers. Over the course of his career, Bill has taught short courses and seminars on a variety of technical topics. Bill is currently Managing Director as a Partner for PPG and Associates Inc., a well-known petroleum consultancy where he played a key role in building the brand equity that was the basis of their successful acquisition and integration into Schlumberger. His most recent assignment with Schlumberger was as North America Business Development Manager for Data & Consulting Services where he maintained close relationships with numerous major and independent oil companies. Bill currently performs the role of PetroSkills Integrated Disciplines Manager for Unconventional Resources.

Mr. Jay Rajani worked in Amsterdam, The Hague, and London for Royal Dutch Shell Group of Companies for 33 years. He started his career in the Shell Crossfield, Alberta, Canada, where he was involved in the development of refinery burners/furnaces. He later moved to Separation Technology. He worked on the development of conventional as well as membrane based gas-liquid and liquid-liquid separators. From 1991 to 2005, he was in the Gas Division of Shell Technology and Support (Shell GenTech) as a Principal Technology Consultant where he provided technical support to our gas plants and LNG plants operated or advised by Shell. His last position (2005 to 2010) was as a Lead Process Engineer with Qatargas 3&4 LNG Project (first with EPC contractor in Japan and then in Ras Laffan in Qatar). The last three years of the project involvement was in the construction, commissioning and start-up of the 7.8 mtpd LNG trains. From 2011 to 2014 Jay worked with SMB Oilsphere in the Netherlands on the development of gas treating modules for FPSO and LNGig. Jay is now an independent consultant and is the Director/Past President of PetroSkills Management Institute. He holds BS and PhD degrees from the University of London and a Diploma in Management Studies from the University of Coventry.

Dr. Cliff Redus is an independent petroleum engineering consultant who specializes in production system optimization and subsea flow assurance. Prior to starting his consulting business, he was an Associate Professor of Petroleum Engineering at Texas A&M University. Dr. Redus has over 30 years of experience in the petroleum industry, both in production research and field operations in the area of multiphase flow. His primary areas of interest are multiphase flow in well bores, flow lines and production equipment, multiphase meters and computational fluid mechanics, advanced separation and transport phenomena analysis of complex installations, water injection flows lines and wells. He was in a supervisory capacity in production related industrial research for the last 10 years with Texaco’s Upstream Technology Department in Houston Texas, with the last four years as Director of Texaco’s five multi-phase flow laboratories in Humble, Texas. At Tulsa University, he was actively engaged in teaching, research in multiphase flow, and as executive director of Tulsa University Fluid Flow Projects. He received a B.S. in Chemical Engineering from Texas A&M University in Kingsville, Texas, an M.S. in Mechanical Engineering 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 company which was involved in designing and developing components for 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 4100m to 8000m. Mr. Rodenbusch also worked on numerous other projects in various technical problems involving hydrodynamic and hydroelastic design of offshore platforms. He has provided development planning support to operating companies around the globe in selecting systems for the development of subsea systems. Since 2005, Mr. Rodenbusch has been an Engineering Manager supervising a group responsible for the design of floating systems, risers, mooring systems and foundations for deepwater developments worldwide systems. He was actively in the API Offshore Structures subcommittee, which established and maintained key standards for offshore systems. He is a member of the SPE, SPWLA, PESGB, SEAPX and a past president of the Global Technical Expert in Offshore Structure Engineers in recognition of technical expertise and global contribution and was later named the Global Discipline Head for Offshore Engineering. He holds a BS and MME in Mechanical Engineering from Massachusetts Institute of Technology & Woods Hole Oceanographic Institution. He is a Licensed Petroleum Engineer in the State of Texas and is a member of ASME.

Mr. Gerry H. Ross has more than 39 years of evaluation and validation based Petroleum physics expertise. He has participated in global oil and gas operations from exploration through production. From 2002 until 2015, while at Petrofac, he was an executive responsible for global discipline for the management and development of offshore platforms. He has been a member of the American Petroleum Institute since 2005. Mr. Ross 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 and has established excellent relations and strong customer awareness. He received both a B.A. and a Ph.D. in Chemistry from the University of California.
Our Instructors

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MR. JOHN SCHUYLER, CAM, CCE, CMA, CMC, 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. He has a deep focus in feasibility analysis, appraisals, corporate planning, and evaluation software. He has presented over 250 courses in 34 countries since 1989. He was vice president and petroleum engineer with Security Pacific National Bank, planning and evaluation analyst at Cities Service Oil Co., manager of business systems for Cities Service’s Petrochemicals Division, and senior management over 290 courses in 34 countries since 1989. He was vice president and 37 years of experience in analysis, consulting, training, and management, founded his consulting practice, Decision Precision, in 1988. He has over 40 years of experience within the oil and gas sector and the chemical industry. He is a Chartered Engineer and a Fellow of the Institute of Chemical Engineers. He has a particular focus on high level design and conceptual design with a view to engage EPC type contractor who will take the concept further into FEED and ultimately EPC. Additional areas include FEED and Detailed Engineering design within major contractors, construction support, commissioning and operation of a plant. He has worked on varied projects ranging from green field to debottlenecking and expansion of existing plants.

MR. RONNIE TUCKER is a chemical engineer with 20 years of experience within the oil and gas sector and the chemical industry. He is a Chartered Engineer and a Fellow of the Institute of Chemical Engineers. He has a particular focus on high level design and conceptual design with a view to engage EPC type contractor who will take the concept further into FEED and ultimately EPC. Additional areas include FEED and Detailed Engineering design within major contractors, construction support, commissioning and operation of a plant. He has worked on varied projects ranging from green field to debottlenecking and expansion of existing plants.

MR. DANNY VAN SCHIE is an engineering professor with 35 years of experience in the chemical, petrochemical, hydroprocessing and power sectors with the last 15 years predominantly in gas processing and gas and liquid pipelines. 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, RDS Technology, Engineering & Construction, working on projects around the world. He provides services in many industries from chemical processing to discrete manufacturing.

MR. PAUL VERRILL has over 35 years’ experience working in the chemicals, petrochemicals, hydroprocessing and power sectors with the last 15 years predominantly in gas processing and gas and liquid pipelines. 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, RDS Technology, Engineering & Construction, working on projects around the world. He provides services in many industries from chemical processing to discrete manufacturing.

MR. NAOMI WARR has 15 years’ management/technical experience. During her career in a research laboratory, she moved into international business, applied sciences, and project management in leading international companies. She has spearheaded a number of international bids, in major construction projects throughout the world, and has been the driving force in major construction projects dealing with roads construction, utilities, M&E, construction, building, rail, gas, sewage treatment, waste and quarantine. In 2009 Naomi, stepped into consulting and training; at the same time expanding her work into other business sectors such as manufacturing, food and beverage, distribution and food. As well as advising and carrying out assignments, she also implemented environmental management systems (EMS) for several businesses. In her spare time, Naomi competes in endurance events such as triathlons and helps with the construction and development of her family home – of course, incorporating environmental and sustainable technologies where practicable.

MR. COLIN WATSON has over 35 years’ broad experience in petrochemicals, primarily in engineering support and process safety management. He joined PetroSkills as an engineer in 2014. His experience includes assignments in technical support, operations, management and process safety and management in multiple industries. Since 2006 he has worked as an independent Engineering and Process Safety Consultant working with oil and gas clients. He has worked
**Tip of the Month**

**Valuable Technical Content Delivered to you Monthly**

**Recent Editions**

**What is the Impact of Feed Gas Conditions on the Adsorption Dehydration System?**

This month’s TOTM discusses feed gas flow rate, pressure, and temperature effect(s) on the followings: Mass of desiccant, bed diameter, bed height, regeneration gas rate, regeneration heating load, regeneration cooling load, and regeneration heater load.

**Gas-Liquid Separators Sizing Parameter**

In this Tip of the Month, we will focus on the application of Souders-Brown approach in gas-liquid separators and present diagram, simple correlations and tables to estimate the Souders-Brown equation constant, KS (the so-called sizing parameter). We will consider both vertical and horizontal gas-liquid separators.

**Effect of Relative Density (Specific Gravity) on the Saturated Water Content of Sweet Natural Gases**

In this Tip of the Month (TOTM), we will study the effect of relative density (Specific Gravity, SG) on the saturated water content of sweet natural gases. The results of this study include the water content of sweet natural gases as a function of relative density in the range of 0.60 to 0.80.

Check out the full articles and many more at petroskills.com/totm

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**MR. STUART WATSON** is the Facilities Engineering Technical Director for PetroSkills. He has over 18 years of experience in oil and gas processing. His experience has taken him to facilities around the world in regions including Australia, Africa, the Middle East and the US. Mr. Watson graduated with honors in 1995 from Curtin University, Perth, Australia, with a BS in Mechanical Engineering. After graduating he worked in Perth, Australia supporting Woodside’s offshore facilities. In January 2000, Stuart accepted a position with Pearl Development Company of Colorado where he worked over the next eight years at many of the gas production and processing facilities in the western US. His work included expansions for Unocal Alaska, facilities engineering at the El Paso Field Service’s 650MMscfd Chaco Plant and various other projects in Colorado and Wyoming. In 2008, he oversaw and commissioned a 920Mscfd amine sweetening and cryogenic NGL train for the Government of Ras Al Khaimah (UAE). Thereafter, he started his own engineering consultancy supporting both mechanical and process disciplines. In 2009 he started instructing part time for John M. Campbell and Co. in mechanical engineering and operator training. Currently, Mr. Watson supports PetroSkills in a full time role to ensure technical and quality assurance in ICE, Pipeline, Mechanical and Offshore engineering.

**MR. DAVID WHITELEGG** graduated with a BSc (Hons) in Environment Management from Cranfield University in the UK. He is a Chartered Environmentalist (CEnv) with the Society for the Environment, a Chartered Waste Manager with Chartered Institution for Wastes Management (CIWM), and a full member (MIEMA) of IEMA (Institute of Environmental Management and Assessment). Mr. Whitelegg is also a Graduate Member (GradDOSH) of IOSH. David is a member of the Professional Standards Committee at IEMA. He comes from a background in landfill and waste sites’ operations management, and is an experienced environmental and OH&S instructor with considerable international experience.

**MR. PETER WILLIAMS** 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 and 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 with 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. RONN WILLIAMSON** CFPIM, CPM, has provided education programs and consulting globally in supply management for the oil and gas industry through PetroSkills and John M. Campbell & Co. for the past eleven years. Most recently, he was the Technical Training Director for John M. Campbell & Co. Working with major oil companies, he created the PetroSkills discipline competency maps for strategic supply chain management and led the supply chain discipline network for several years. Ronn has almost 40 years of supply chain management experience, with 18 years of operational management experience and 21 years of consulting and training around the globe. As a consultant, Ronn has designed and managed projects for more than fifty organizations in numerous industries to deliver improved organizational policies and procedures, increased leverage of purchasing power, reduced inventories, and improved resource utilization in the supply chain. Ronn gained his supply management expertise in the first half of his career through ever-increasing operational and executive management roles at Thermo King Corporation, a billion-dollar global manufacturing subsidiary of Westinghouse Electric Corporation. Ronn received a BS in Physics from St. John’s University and a BME in Engineering and an MBA from the University of Minnesota. He has been a member and past chapter president, of the American Production and Inventory Control Society (APICS) and has a lifetime purchasing certification by the Institute of Supply Management (ISM).

**MR. WES WRIGHT** has 30 years’ experience in oil and gas producing facilities. Mr. Wright began teaching with PetroSkills in 2004 where he has been delivering courses in CO2 Surface Facilities, Oil and Gas Processing and Operator Training world-wide. Previously, Mr. Wright was the lead on-site engineer at the Weyburn CO2 Miscible flood where he was closely involved in the design, development, construction, start-up and operations. Through the 1980’s, Mr. Wright performed contract research at the University of Calgary in Enhanced Oil Recovery and was a consultant on a wide range of sweet and sour oil and gas projects throughout Western Canada. Mr. Wright graduated in 1983 with a BSc in Engineering from the University of Calgary. He is a Professional Engineer in Alberta, Canada and is a member of the SPE. He has been published in the ASME-OMAE, CSCE, IAHR, and in Carbon Sequestration and Related Technologies (Wiley, 2011).

**MR. CLYDE YOUNG** has over 30 years of diverse experience in operations and maintenance of production and processing facilities. This includes significant experience in operations and development of management systems for gas processing and water/wastewater treatment facilities. This includes operating procedure development, training program development, compliance auditing, vulnerability assessment, emergency planning and mechanical integrity program development. Mr. Young provides many of our clients with PHA services, compliance audits and Hazards Reviews. Mr. Young has presented at the Mary K. O’Connor Process Safety Symposium and written several papers that have been published in various industry publications. Mr. Young holds a B.S. in Social Sciences from the University of Wyoming- Laramie Wyoming.

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### Contact and Registration

To register for a course, or for questions on public training, contact +1.918.828.2500 or training@petroskills.com.

#### UNITED STATES

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<td>Toll-free</td>
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<td><a href="mailto:us@petroskills.com">us@petroskills.com</a></td>
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#### CANADA

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<tr>
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#### LATIN AMERICA AND CARIBBEAN

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#### EUROPE AND AFRICA

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### TERMS AND CONDITIONS

#### REGISTRATION AND PAYMENT

In a worldwide teaching operation, sufficient lead time is needed for course logistics. For this reason, PetroSkills would appreciate receiving registrations at least one month before the course. However, we accept paid registrations for a viable session through the day before the course begins. Registrations can be made online at petroskills.com or by contacting customerservice@petroskills.com for a Registration Form.

Registrations are confirmed upon receipt of payment. In the meantime, an Acknowledgment of Reservations will be issued via email. Once payment is received, an email will be issued confirming the registrant’s seat in the course. Please note we do not arrange hotel accommodations for participants. When possible, we reserve a block of rooms at the suggested hotel(s). Participants should contact the suggested hotel directly for room rates and availability at least three weeks before the course begins. Remember to mention that you are attending a PetroSkills course to receive a discounted rate, if applicable. Please note if a course venue changes for whatever reason, the participant or their representative will be contacted via email.

PetroSkills reserves the right, without payment, of consideration to videotape, film, photograph, and/or record course sessions and course participants in any media type and to alter or edit these images for use in its publications, including website entries.

PetroSkills complies with all U.S., European, and other international laws relating to trade and economic sanctions. PetroSkills reserves the right to refuse or cancel an enrollment if PetroSkills, in its sole discretion, determines that providing course materials or allowing an enrollee to attend could constitute a violation of law.

PetroSkills may use participant contact information (mail, email, telephone, or fax) for the following limited purposes: (i) to provide updated class information and other information related to professional development in the petroleum industry, (ii) to request help in evaluating PetroSkills courses and materials, and (iii) to provide information concerning future course offerings.

The use of any recording device (audio or video) by participants during a PetroSkills course is strictly prohibited. The unauthorized use of a recording device during a PetroSkills course presentation shall be grounds to remove the participant and confiscate or destroy the related recording. No portion of any PetroSkills course may be recorded digitally, on film, video tape, audio tape or other recording device, or be reproduced photographically or by any sight or sound device without the explicit written permission of PetroSkills. All PetroSkills course presentations are the sole property of PetroSkills. We are the exclusive owner of the copyright of all course materials.

#### TUITION FEES

Tuition fees are due and payable in US dollars upon receiving the corresponding invoice. Again, a registration will not be confirmed until payment has been received.

Tuition fees do not include living costs, but do include tuition, purchase price of course materials, daily refreshments, and a $100.00(USD) non-refundable registration fee, per five days of training or less. Tuition must be paid prior to the first day of the course. If payment has not been made prior to the course start date, the registrant or their representative should contact the Customer Service Department to make payment arrangements.

Note: Where applicable due to government regulations, Goods and Services Tax (GST) or Value Added Tax (VAT) will be added to the total tuition fees. Pricing subject to change. See website for current pricing and availability.

#### TRANSFERS, SUBSTITUTIONS, CANCELLATIONS, AND REFUNDS

Transfers may be accepted if received 30 days or more before the course begins. There is not a transfer fee, but tuition will be due based on the registered course. PetroSkills may allow a registrant to transfer to a subsequent course after the 30-day cut-off period providing the tuition fees have been paid and the requested course is open for enrollment. If a transfer is made and the subsequent course is not attended, no money will be refunded. Only one transfer per initial registration is allowed.

Substitutions may be made at any time without penalty.

If it is necessary to cancel an enrollment, full paid tuition, less the non-refundable registration fee of $100.00(USD) per five days of training or less, will be refunded providing the cancellation is received in our office 30 days or more prior to the course start date. If tuition is not paid at the time of the cancellation, the $100.00(USD) registration fee per five days of training or less is due, providing the 30-day notice was received. For cancellations received less than 30 days prior to the course, the full tuition fee is due. Please contact the Customer Service Department if you wish to cancel or transfer your enrollment. Enrollments are not automatically cancelled if tuition payment is not received by the start of the course.

Transfers and cancellations will not be honored and tuition is forfeited and non-transferable for courses that have reached maximum participation regardless of the amount of notice given.

We reserve the right to cancel any course session at any time. This decision is usually made approximately two weeks before the course begins. If we cancel a course, enrollees 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 our cancellation policy in mind when making travel arrangements (airline tickets, hotel reservations, etc.), as we cannot be responsible for any fees charged for canceling or changing your travel arrangements. We reserve the right to substitute course instructors as necessary.
Put **Blended Learning** to Work!

PetroSkills Blended Learning Skill Modules™ combine industry knowledge, expertise, content, and technology to develop workforce competency with the added benefit of:

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- Gas Conditioning and Processing *(pg 6)*
- Process Safety Engineering *(pg 8)*
- Production Operations 1 *(pg 18)*
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