

PetroSkills®

2014 - 2015 FACILITIES TRAINING GUIDE



INSIDE THIS ISSUE: Technical Training Courses for Facilities & Process Engineers in Oil and Gas
Topics Include: Gas Processing, Process Facilities, Troubleshooting, Mechanical, IC&E, Process Safety Engineering, Offshore Facilities, Gas Gathering Systems, Operations & Maintenance, Utility Systems and more.

NEW COURSES:

- PF-3 Introduction to Oil and Gas Production Facilities (pg 19)
- PL-22 Pipeline Systems Overview (pg 31)
- PL-44 Terminals and Storage Facilities (pg 32)
- OGBD Oil and Gas Business Discovery (pg 42)
- PMRM Risk Management for Upstream Capital Projects (pg 45)
- FPM63 Advanced Project Management II (pg 46)
- OT-44 Fractional Distillation for Operations & Maintenance (pg 62)

ADDITIONAL COURSES FOR:

- Many new courses for Petroleum Professional Development
- Petroleum Business
- Project Management
- Procurement/Supply Chain Management
- Health, Safety, Environment
- Operations & Maintenance

OGCI



50 Years of Training Excellence

John M. Campbell

Message from the CEO



We are happy to announce our new 2015 schedule. This catalog describes hundreds of 'best of the best' training courses and development programs – for both face-to-face learning and distance learning. I hope you will use these opportunities to become a more valuable technical professional.

2014 has been an exciting year at PetroSkills as we continue to celebrate our 50th anniversary. Since the first iterations of Production Operations 1 and the Campbell Gas Course™ five decades ago, we're building more and more technical professionals and serving the ever-broader needs of the industry. Our competency-based professional development programs are designed and delivered under the auspices of the PetroSkills Alliance—30 of the top petroleum companies worldwide who work together with us to help us truly offer an industry-driven, industry-approved set of courses, products and services.

With Resource Development Company (RDC) joining PetroSkills, we are poised to provide broader, deeper and more flexible solutions in the development and assurance of competent personnel. PetroSkills can now help build competency for tens of thousands of operators, technicians and professionals each year with ePILOT™ and Active Learner®. ePILOT™ is our e-Learning library containing more than 750 hours of industry-validated content. Additionally, we develop effective custom content, leveraging decades of knowledge transfer experience and industry-proven instructional design. Active Learner® is our learning and compliance management system specifically designed to address the unique complexities and regulatory requirements of learning in process manufacturing environments. See page 16 for more information on ePILOT and Active Learner.

PetroSkills is now even more prepared to meet the challenge of being the industry leader in Workforce Development solutions. Our PetroSkills consulting team is positioned to help you build and implement the needed programs, processes and solutions to develop your workforce. See page 69 for more information on our Competency Development and Assurance Solutions.

As our industry evolves and the big crew change marches on, the ability to apply knowledge at the point of work becomes ever more crucial. PetroSkills is addressing this need through expansion of PetroCore® Reference – anytime-anywhere access to technical e-reference resources – bringing knowledge where and when it is needed. See page 59 for more information on PetroCore®.

Some NEW things you will find in this training guide include:

- New title and description for our simulation course *Advanced Applications in Gas Processing* (see page 15)
- New Process Facilities course *Introduction to Oil and Gas Production Facilities* (see page 19)
- New Pipeline course *Pipeline Systems Overview* (see page 31)
- New Pipeline course *Terminals and Storage Facilities* (see page 32)
- New Business course *Oil and Gas Business Discovery* (see page 42)
- New Project Management course *Risk Management for Upstream Capital Projects* (see page 45)
- New Project Management course *Advanced Project Management II* (see page 46)
- Many new exciting courses in *Petroleum Professional Development* (see page 50)
- New Operations & Maintenance course *Fractional Distillation for Operations & Maintenance* (see page 62)

If you would like more information about anything you see in this guide, or our subsurface courses, I invite you to take a look at petroskills.com or contact us. If there's anything I can do to help, please email me directly at ford.brett@petroskills.com. I'd be happy to hear from you.

FORD BRETT
CEO, PETROSKILLS



PetroSkills®
50 Years of Training Excellence

What Sets PetroSkills Apart? The Alliance.



THE PETROSKILLS ALLIANCE | Created in 2001 by BP, Shell, and OGCI to provide “important but not unique” high-quality, business-relevant, competency-based training. Through its membership PetroSkills has successfully evolved into an industry-driven, industry-approved program that spans the value chain. PetroSkills continues to grow as additional organizations join the PetroSkills Alliance at various levels. ■ **For more information on membership, go to petroskills.com/membership**

Mission: Build competent petroleum professionals by delivering learning and development when, where and how customers need it.



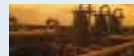
OBJECTIVES:

- Provide the highest quality, business relevant programs that span all technical processes, and give management assurance that they have the skilled people they need to maximize asset value
- Offer added value to employees via new, broad-reaching courses that fill gaps, and deliver the ability to perform and be able 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

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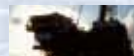
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- 22 PF-23 Produced Water Treating
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- PF-43 Heat Transfer Equipment
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- IC-3 Instrumentation and Controls Fundamentals for Facilities Engineers
- 35 IC-71 PLC and SCADA Technologies
- IC-72 Valve and Actuator Technologies
- IC-73 Flow and Level Custody Measurement*
- IC-74 Regulatory Control and PID Loop Tuning


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- 37 ME-41 Piping Systems - Mechanical Design and Specification
- ME-44 Fundamentals of Pump and Compressor Systems
- ME-46 Compressor Systems - Mechanical Design and Specification
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- ME-62 Turbomachinery Monitoring and Problem Analysis
- 39 REL-5 Process Plant Reliability and Maintenance Strategies
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PETROLEUM BUSINESS

- 41 IPB Intro to Petroleum Business
- CM Cost Management
- EWP Economics of Worldwide Petroleum Production
- 42 OGBD Oil and Gas Business Discovery
- PFA Petroleum Finance and Accounting Principles
- PRD Petroleum Risk and Decision Analysis
- 43 ADA Adv Decision Analysis with Portfolio and Project Modeling
- IOG Fundamentals of International Oil and Gas Law
- STT Strategic Thinking: A Tool-Based Approach


PROJECT MANAGEMENT

- 44 PPM Petro PM: Principles and Practices
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- PMRM Risk Management for Upstream Capital Projects
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- 50 ETWS Essential Technical Writing Skills
- NSPI Negotiating Skills for the Petroleum Industry
- 51 TB Team Building for In-tact Teams
- TLS Team Leadership
- PSPI Presentation Skills for Petroleum Industry
- MCPP Making Change Happen: People and Process
- 52 MMF Meeting Management and Facilitation for the Petroleum Industry
- MLO Managing and Leading Others
- RCP2 Essential Skills for Resolving Workplace Conflict Among Coworkers
- RCP3 Basic Conflict Management Skills for Managers and Leaders


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- HS45 Risk Based Process Safety Management
- 58 HS47 SHE Auditing - A Management Systems Approach
- HS70 Accredited Health & Safety Practitioner: (NVQ Level 5 Diploma in Occupational Health and Safety Practice) to CMIOSH by Applied Learning
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- BE Basic Petroleum Engineering Practices
- 66 PO3 Surface Production Operations
- BDC Basic Drilling, Completion and Workover Operations
- 67 PO1 Production Operations 1
- BR Basic Reservoir Engineering

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2014-2015 Training Schedule

See course descriptions for dates and locations.

			United States	Canada	Latin America/ Caribbean	Europe/Africa	Middle East	Asia/Australia
Gas Processing								
11	G-2	Overview of Gas Processing - Technical	•			•		•
11	G-29	LNG Short Course: Technology and the LNG Chain	•			•		•
12	G-4	Gas Conditioning and Processing	•	•		•	•	•
14	G-4 LNG	Gas Conditioning and Processing - LNG Emphasis	•	•			•	•
14	PS-4	Process Safety Engineering	•	•	•	•	•	•
15	G-5	Advanced Applications in Gas Processing	•	•			•	
15	G-6	Gas Treating and Sulfur Recovery	•	•		•	•	
Process Facilities								
19	PF-4	Oil Production & Processing Facilities	•	•		•	•	•
21	PF-21	Applied Water Technology in Oil and Gas Production	•			•		
21	PF-22	Corrosion Management in Production/Processing Operations	•			•		
22	PF-23	Produced Water Treating	•					
22	PF-42	Separation Equipment - Selection & Sizing	•					
23	PF-44	Relief and Flare Systems	•			•	•	•
23	PF-45	Onshore Gas Gathering Systems: Design & Operations	•					
24	PF-47	Process Utility Systems	•			•		
24	PF-49	Troubleshooting Oil and Gas Processing Facilities	•			•		•
24	PF-81	CO2 Surface Facilities	•	•			•	
Offshore								
27	OS-4	Fundamentals of Offshore Systems Design and Construction	•			•	•	•
27	OS-21	Overview of Offshore Systems	•			•		•
27	SS-2	Fundamentals of Subsea Systems	•			•		•
Pipeline								
31	PL-4	Fundamentals of Onshore and Offshore Pipeline Systems						•
31	PL-42	Onshore Pipeline Facilities - Design, Construction and Operations	•				•	
Instrumentation, Controls and Electrical								
34	ICE-21	Instrumentation, Controls and Electrical Systems for Facilities Engineers	•			•	•	
34	E-3	Electrical Engineering Fundamentals for Facilities Engineers	•					
34	IC-3	Instrumentation and Controls Fundamentals for Facilities Engineers	•	•		•	•	•
35	IC-71	PLC and SCADA Technologies	•			•		
35	IC-72	Valve and Actuator Technologies	•			•		
35	IC-73	Flow and Level Custody Measurement	•			•		
35	IC-74	Regulatory Control and PID Loop Tuning	•			•		

2014-2015 Training Schedule

See course descriptions for dates and locations.

			United States	Canada	Latin America/ Caribbean	Europe/Africa	Middle East	Asia/Australia
PG	COURSE CODE	Mechanical						
37	ME-41	Piping Systems - Mechanical Design and Specification	•			•	•	•
37	ME-44	Fundamentals of Pump and Compressor Systems	•		•	•	•	•
37	ME-46	Compressor Systems - Mechanical Design and Specification	•					
38	ME-47	Rotating Machinery Best Practices	•					
38	ME-49	Troubleshooting Rotating Equipment	•					
38	ME-62	Turbomachinery Monitoring and Problem Analysis	•				•	
39	REL-5	Process Plant Reliability and Maintenance Strategies	•			•	•	
39	REL-61	Risk Based Inspection	•					
PG	COURSE CODE	Petroleum Business						
41	IPB	Introduction to Petroleum Business	•			•		
41	CM	Cost Management	•		•	•		
41	EWP	Economics of Worldwide Petroleum Production	•		•	•		
42	OGBD	Oil and Gas Business Discovery	•			•		
42	PFA	Petroleum Finance and Accounting Principles	•			•		•
42	PRD	Petroleum Risk and Decision Analysis	•			•		•
43	ADA	Advanced Decision Analysis with Portfolio and Project Modeling	•		•	•		
43	IOG	Fundamentals of International Oil and Gas Law	•		•	•	•	
43	STT	Strategic Thinking: A Tool-Based Approach	•			•		
PG	COURSE CODE	Project Management						
44	PPM	Petroleum Project Management: Principles and Practices	•			•	•	•
44	FPM2	Project Management in Upstream Field Development	•			•	•	
44	FPM22	Project Management for Engineering and Construction	•			•		•
45	FPM42	Managing Brownfield Projects	•			•	•	•
45	PMRM	Risk Management For Upstream Capital Projects	•			•		
45	FPM62	Advanced Project Management	•			•		•
46	FPM63	Advanced Project Management II	•			•	•	
PG	COURSE CODE	Supply Chain Management						
47	SC-41	Contracts and Tenders Fundamentals	•					
47	SC-42	Effective Materials Management	•				•	
47	SC-61	Inside Procurement in Oil and Gas	•					
48	SC-62	Strategic Procurement and Supply Management in the Oil and Gas Industry	•				•	
48	SC-63	Supplier Relationship Management	•					
48	SC-64	Cost/Price Analysis and Total Cost Concepts in Supply Management	•					

2014-2015 Training Schedule

See course descriptions for dates and locations.

United States

Canada

Latin America/
Caribbean

Europe/Africa

Middle East

Asia/Australia

PG	COURSE CODE	Petroleum Professional Development	United States	Canada	Latin America/ Caribbean	Europe/Africa	Middle East	Asia/Australia
49	OM-23	Essential Leadership Skills for Technical Professionals	•			•		
50	ETWS	Essential Technical Writing Skills	•			•	•	
50	NSPI	Negotiation Skills for the Petroleum Industry	•			•		•
51	TB	Team Building for Intact Teams	•					•
51	TLS	Team Leadership	•			•		•
51	PSPI	Presentation Skills for Petroleum Industry	•			•		
51	MCPP	Making Change Happen: People and Process	•			•		•
52	MMF	Meeting Management and Facilitation for the Petroleum Industry	•					
52	MLO	Managing and Leading Others	•			•		•
52	RCP2	Essential Skills for Resolving Workplace Conflict Among Coworkers	•			•	•	
52	RCP3	Basic Conflict Management Skills for Managers and Leaders	•			•		

PG	COURSE CODE	Health, Safety, Environment	United States	Canada	Latin America/ Caribbean	Europe/Africa	Middle East	Asia/Australia
55	HS18	Basics of HSE Management				•		
55	HS23	Applied Environment	•					
56	HS28	Applied HSE Management	•			•		
56	HS20	Applied Safety	•			•		
57	HS37	Environmental Management Systems - A Development Workshop				•		
57	HS46	Contractor Safety Management	•			•	•	
57	HS45	Risk Based Process Safety Management	•			•	•	
58	HS47	SHE Auditing - A Management Systems Approach				•		

PG	COURSE CODE	Operations & Maintenance	United States	Canada	Latin America/ Caribbean	Europe/Africa	Middle East	Asia/Australia
60	PS-2	Fundamentals of Process Safety	•			•	•	•
60	OT-1	Oil & Gas Processing Facilities for Operations & Maintenance	•	•		•		•
62	OT-43	LNG Facilities for Operations & Maintenance	•					•
62	OM-21	Applied Maintenance Management	•					
63	OM-41	Maintenance Planning and Work Control	•					

Introduction to Oil & Gas Production Facilities



PF-3

Designed For:

Subsurface Engineers looking for a better understanding of production/processing facilities.

Facilities/Process Engineers looking for an entry level review of surface production facilities.

Technical Professionals looking for an awareness of the design and operation of production facilities.

Due to multiple requests from multiple clients, we are proud to introduce this important new course - Introduction to Oil & Gas Production Facilities (PF3).

This course provides a unique opportunity to discuss surface processing facilities used in oil and gas production with an emphasis on the selection and specification of these facilities as part of a field development plan.

The course also highlights the importance of reservoir type, produced fluid composition and properties, drive mechanism, facility location, product specifications and contractual obligations. In this 5-day course you will learn how operating conditions affect the specification of the production facilities from the wellhead through initial separation.



PF-3 will help facilitate quality discussions and quality decisions on New Field Development Teams as it's designed for a variety of technical professionals.

Plus, you'll discover the parameters that affect the design and specification of oil stabilization and dehydration equipment. By attending PF-3, you will understand the impact on the facilities design and specification of artificial lift systems as well as secondary and tertiary production. You'll also learn the principles of asset integrity and inherently safe design given the rate, composition, temperature and pressure of the production stream.

The course scope includes: ▶ Flowlines ▶ Gathering Systems ▶ Flow assurance Production separation ▶ Oil dehydration and stabilization ▶ Produced water treating and water injection systems ▶ Gas handling – including compression and conditioning ▶ Artificial lift systems ▶ Utility systems ▶ Process safety and asset integrity ▶ Environmental regulations

See page 19 for full course details

For more information on this course, visit
petroskills.com/pf3

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Personal Fast-Track

My personal fast-track to competency (3-year plan)

You know what your career goals are but have you figured out the best way to get there? Comprehensive self-assessment can highlight areas in which you may need training. Use this chart to develop your own personal FastTrack to competency progression.

* Record the Course Name, Date and Location in the boxes below.

2 Choose additional courses, such as Process Safety Engineering (PS-4) or Corrosion Management in Production/Processing Operations (PF-22), or other company-specific training, for further depth in developing competencies.

3 For broader knowledge, choose courses such as Project Management for Engineering and Construction (FPM22).

1 Choose a Foundation course, such as Gas Conditioning and Processing (G-4), Oil Production and Processing (PF-4), Fundamentals of Offshore Design and Construction (OS-4) or Fundamentals of Onshore and Offshore Pipeline Systems (PL-4).

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PetroSkills[®]
John M. Campbell

How Do You Develop Facilities Engineers at Your Company?

What kinds of engineers do you want? 'Discipline Specialists', 'Generalists', or a mix of both?

What competencies do your different kinds of engineers need as a function of experience level?

Factors to consider

What kinds of engineers (by degree) are you hiring from universities? What kinds of engineers (by experience) are you hiring from outside of your organization?

What combination of courses, work experiences, job assignments, and mentoring is best for developing competent engineers?

How will you develop their competencies in a timely and cost effective manner?



Building a High-Performance Facilities Organization

Building a high-performance team begins by answering the questions above. In addition to these, there are other questions to consider that effect how you recruit, train, and retain facilities engineers. What is your asset portfolio – example: offshore oil, onshore sour gas, onshore heavy oil, and LNG? And what is the life cycle stage of your projects – example: appraise, select, design, execute, and operate? All these factors play in to how many engineers and what kinds of engineers you need (and at what experience levels). Plus, what will your engineers do and what will others do – like engineering contractors and consultants?

These are the kinds of questions we help our members with and we can help your company too. We are here to help!



For more information on developing performance ready facilities engineers, and to request a Strategic Development Road Map, visit ...

petroskills.com/roadmap

PetroSkills
John M. Campbell

Gas Processing Engineer

Course Progression

The Gas Processing Progression covers equipment and processes primarily focused on the handling of natural gas and its associated liquids. The wellhead is the starting point, ending with delivery of the processed gas, meeting the required specifications, into a sales gas or reinjection pipeline. Recovered natural gas liquids (NGL), again meeting the required specifications, are delivered to an export point – either a pipeline or storage facility. The NGL may be fractionated into individual specification products or sold as a mix for fractionation elsewhere. Waste by-products are disposed of in accordance with the applicable regulatory requirements. Main topics covered include: fundamentals, natural gas characterization, phase behavior, vapor–liquid equilibrium, basic thermodynamics, and water–hydrocarbon behavior and all the key equipment to process natural gas. PetroSkills | John M. Campbell training delivers competency-based training in these and other areas, at progressive levels to provide the skills necessary to successfully support the operation of oil and gas production processes.

Gas Processing Engineer 3-Year Course Progression

Below is an example of a 3-year course progression covering topics we believe critical to developing technically strong Gas Processing Engineers.

2 Additional courses offer further depth in developing competencies.

Gas Treating and Sulfur Recovery (G-6)

PAGE 15

Corrosion Management in Production/Processing Operations (PF-22)

PAGE 21

Troubleshooting Oil and Gas Processing Facilities (PF-49)

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Onshore Gas Gathering Systems: Design & Operation (PF-45)

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Process Utility Systems (PF-47)

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Heat Transfer Equipment (PF-43)

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Fundamentals of Pump & Compressor Systems in Oil and Gas Facilities (ME-44)

PAGE 37

Relief and Flare Systems (PF-44)

PAGE 23

Piping Systems - Mechanical Design and Specification (ME-41)

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Instrumentation, Controls & Electrical Systems for Facilities Engineers (ICE-21)

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Process Safety Engineering (PS-4)

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3 For broader knowledge, these courses are recommended.

Project Management for Engineering and Construction (FPM-22)

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CO₂ Surface Facilities (PF-81)

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Overview of Offshore Systems (OS-21)

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LNG Short Course: Technology and the LNG Chain (G-29)

PAGE 11

1

Gas Conditioning and Processing (G-4)

PAGE 12

A 3-year progression for a Gas Processing Engineer would begin with the Gas Conditioning and Processing Course (G-4).

ADVANCED CERTIFICATE PROGRAM: Be eligible for a PetroSkills Advanced Certificate in Gas Processing by completing any four of the courses above within a period of 3 years, starting with G-4 (see page 71 for more details).

Overview of Gas Processing Non-Technical (G-1)

BASIC

DESIGNED FOR

General administration, supervisory, non-technical management personnel, as well as anyone that could benefit from a broad overview of important aspects of the gas processing industry.

YOU WILL LEARN

- Oil and gas facilities terminology
- Fundamentals of commercial and contract issues
- Key areas in oil and gas production surface facilities
- How gas is transported and sold
- Non-technical fundamentals of technology and processes
- Why various treatment processes and technologies are selected for differing gas compositions and processing applications
- Markets and uses for natural gas liquids

ABOUT THE COURSE

This course is designed for a broad non-technical audience. While the course is intended to be interactive and participatory, most technical calculations are eliminated and use of technical terminology is minimized.

COURSE CONTENT

- Basic concepts & fundamentals of natural gas
- Industry overview
- Natural gas composition and specifications
- Process facilities
- Gas properties and behavior
- Gas flow fundamentals
- Natural gas treating
- Overview of sulfur recovery and disposal
- Gas dehydration
- Conditioning and processing of natural gas
- Liquid product fractionation and treating
- Gas compression
- Transportation systems

To arrange an in-house session of this course, visit www.petroskills.com/inhouse.

Overview of Gas Processing Technical (G-2)

BASIC

DESIGNED FOR

G-2 is a versatile overview of the gas conditioning and processing industry based on highly condensed material from Campbell's G-4 and G-6 courses. As a wide ranging overview, it is suitable for interested parties, such as geologists, reservoir engineers, line managers, sales and business development staff, related specialists such as environmental staff, operational staff, shift foremen, or those new to the industry such as entry-level engineers, as well as anyone interested in a general, technically oriented overview of the gas processing industry.

YOU WILL LEARN

- Overview of world energy trends, natural gas, and the role of gas processing and conditioning
- Natural gas sources, makeup, properties, specifications, and related oil and gas terminology
- How gas is transported and sold
- Field operations that support gas processing
- Options for various basic gas conditioning and processing steps: treating, dehydration, liquid extraction, and product fractionation and treating
- Key commercial and contract issues in liquids extraction
- Principles of gas measurement and common measurement devices
- Markets and uses for NGL, LPG, ethane, propane and butane
- 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, and sulfur recovery and acid gas reinjection

ABOUT THE COURSE

This course is designed for a broad audience. It is participative and interactive, and utilizes fundamental technical exercises and terminology to communicate key learning points.

COURSE CONTENT

- Natural Gas and World Energy Trends
- A Closer Look at Natural Gas
- Gas Sweetening
- Gas Hydrates and Dehydration
- Phase Behavior and Phase Envelopes
- Stabilization and Fractionation Concepts and Facilities
- Gas Conditioning (Dew Point Control) and NGL Extraction
- Gas Processing Key Equipment and Support Systems (Heat Transfer, Compression, Pipelines, and Gathering Systems Measurement)
- Specialty Processes in Gas Processing (LNG, Nitrogen Rejection and Helium Recovery, and Sulfur Recovery and Acid Gas Reinjection)
- Special Topics in Gas Processing

2014-15 Schedule and Tuition / 3 Days

HOUSTON, U.S.	18-20 MAR 2015	US\$3,150
	11-13 AUG 2015	US\$3,150
KUALA LUMPUR, MALAYSIA	2-4 DEC 2014	US\$3,820
	1-3 DEC 2015	US\$3,820
LONDON, U.K.	13-15 APR 2015	US\$3,610+VAT
PERTH, AUSTRALIA	22-24 JUN 2015	US\$3,820+GST
PITTSBURGH, U.S.	10-12 NOV 2014	US\$3,120
	9-11 NOV 2015	US\$3,120
STAVANGER, NORWAY	22-24 SEP 2015	US\$3,610

LNG Short Course: Technology and the LNG Chain (G-29)

BASIC

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; Staff involved in LNG commerce interested in LNG technical fundamentals; People wishing to understand "LNG jargon"

YOU WILL LEARN

- What is LNG and why LNG is produced
- LNG industry current status review
- LNG facilities world-wide
- A survey of commercial and contractual issues
- About project costs, feasibility and development
- Some fundamentals of gas processing technology
- Technologies used in the production of LNG
- To apply knowledge of LNG gas pretreatment, drying and refrigeration
- To describe liquefaction technologies and appreciate the differences
- The types of compressor drivers, gas turbines and electric motors
- About LNG storage, shipping and terminals
- Regasification of LNG and distribution to consumers
- New developments in off-shore LNG for regasification and liquefaction

ABOUT THE COURSE

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. Designed to be presented over 5-days, the course covers technical LNG basics, facility operation topics, technical and design issues. Key commercial issues are also discussed. Selected exercises and syndicates are used throughout the course that 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 G-4 Gas Conditioning and Processing – LNG emphasis.

COURSE CONTENT

- Introduction: What is LNG and where it comes from
- Technical Fundamentals #1: Molecular weight, heating value and Wobbe Index
- Technical Fundamentals #2: Vapour pressure, multi-component mixtures, thermodynamics
- Gas Pre-treatment: Removal of acid gas, water, mercury and NGLs
- Heat Exchangers: Description of heat exchangers specifically used for LNG production including Plate Fin and Coil Wound exchangers
- Refrigeration: Single and multi-component refrigeration cycles
- Rotating machinery: Compressors and drivers used for LNG, pumps and turbo expanders
- Liquefaction: Description of typical liquefaction technologies for base-load and small scale production, issues relating to technology selection and operation.
- LNG Storage: Description of LNG storage tanks, sizing basis, small scale tanks
- LNG Shipping: Types of LNG carriers, marine management issues and LNG transfer
- Siting Issues: Site selection and HSE considerations
- LNG Importing: Basis for sizing, technology selection, energy integration
- Commercial Issues: The LNG chain and impact of contractual issues on LNG plant design and operation; LNG pricing
- Project Issues: What influences LNG facility costs, benchmark costs, construction issues
- New Developments: Development of off-shore LNG operations to regasification and liquefaction, coal seam gas project issues.

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	10-14 AUG 2015	US\$4,150
JAKARTA SELATAN, INDONESIA	14-18 SEP 2015	US\$5,460
LONDON, U.K.	18-22 MAY 2015	US\$4,780+VAT
PERTH, AUSTRALIA	1-5 DEC 2014	US\$5,460+GST
	20-24 JUL 2015	US\$5,460+GST
	30 NOV-4 DEC 2015	US\$5,460+GST

Gas Conditioning and Processing (G-4)

FOUNDATION

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 that select, design, install, evaluate or operate gas processing plants and related facilities. A broad approach is taken with the topics.

YOU WILL LEARN

- About the selection and evaluation of processes used to dehydrate natural gas, meet hydrocarbon dewpoint specifications and extract NGLs
- Application of gas engineering and technology in facilities and gas plants
- Important specifications for gas, NGL and condensate
- 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 to example operating problems and control issues in gas processing facilities

ABOUT THE COURSE

The "Campbell Gas Course™" has been the standard of the industry for forty-five years. Over 35,000 engineers have attended our G-4 program, considered by many to be the most practical and comprehensive course in the oil and gas industry. Both 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.

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 thermodynamic concepts
- General system energy changes and rate processes
- Process control fundamentals
- Fluid hydraulics; two-phase flow
- Separation equipment
- Heat transfer, heat exchangers
- Pumps
- Compressors and gas turbines
- Refrigeration
- Fractionation/distillation
- Glycol dehydration; TEG
- Adsorption systems, molecular sieves

SEE SAMPLE COURSE OUTLINE AND DAILY SCHEDULE ON PAGE 13.

2014-15 Schedule and Tuition / 10 Days			KUALA LUMPUR, MALAYSIA	13-24 OCT 2014	US\$9,720
ABERDEEN, U.K.	17-28 NOV 2014	US\$9,620+VAT	LONDON, U.K.	8-19 DEC 2014	US\$9,720
	13-24 APR 2015	US\$9,620+VAT		12-23 OCT 2015	US\$9,720
	14-25 SEP 2015	US\$9,620+VAT		7-18 DEC 2015	US\$9,720
BRISBANE, AUSTRALIA	9-20 NOV 2015	US\$9,620+VAT	ORLANDO, U.S.	6-17 OCT 2014	US\$9,620+VAT
	8-19 DEC 2014	US\$9,720+GST		1-12 DEC 2014	US\$9,620+VAT
	7-18 DEC 2015	US\$9,720+GST		2-13 FEB 2015	US\$9,620+VAT
CALGARY, CANADA	25 MAY-5 JUN 2015	US\$8,670+GST	PERTH, AUSTRALIA	22 JUN-3 JUL 2015	US\$9,620+VAT
DENVER, U.S.	2-13 MAR 2015	US\$8,670		5-16 OCT 2015	US\$9,620+VAT
	15-26 JUN 2015	US\$8,670		30 NOV-11 DEC 2015	US\$9,620+VAT
DOHA, QATAR	20 SEP-1 OCT 2015	US\$9,620	PITTSBURGH, U.S.	20-31 OCT 2014	US\$8,670
DUBAI, U.A.E.	16-27 NOV 2014	US\$9,620		1-12 DEC 2014	US\$8,670
	12-23 APR 2015	US\$9,620		19-30 OCT 2015	US\$8,670
HOUSTON, U.S.	15-26 NOV 2015	US\$9,620	STAVANGER, NORWAY	30 NOV-11 DEC 2015	US\$8,670
	27 OCT-7 NOV 2014	US\$8,760		1-12 DEC 2014	US\$9,720+GST
	2-13 FEB 2015	US\$8,760		3-14 AUG 2015	US\$9,720+GST
	20 APR-1 MAY 2015	US\$8,760	7-18 DEC 2015	US\$9,720+GST	
	13-24 JUL 2015	US\$8,760	9-20 NOV 2015	US\$8,670	
	24 AUG-4 SEP 2015	US\$8,760	SAN ANTONIO, U.S.	10-21 AUG 2015	US\$8,670
26 OCT-6 NOV 2015	US\$8,760	WASHINGTON, U.S.	3-14 NOV 2014	US\$9,620	
7-18 DEC 2015	US\$8,760		9-20 MAR 2015	US\$9,620	
			2-13 NOV 2015	US\$9,620	
			4-15 MAY 2015	US\$8,670	

For updated schedule information or to arrange an In-House session of this course, contact jmcsupport@jmcampbell.com.

INSTRUCTOR SPOTLIGHT



YUV MEHRA

What courses do you teach?

I teach the two-week G-4 "Gas Conditioning and Processing" course in both public and in-house settings. In addition, I teach a one-week process overview course at locations around the world.

Do you have a favorite city to visit?

Each city has its own culture, history and charm. My favorite cities are St. Petersburg and Stockholm. While teaching over the last two years, I have enjoyed visiting Bangkok, Aberdeen and Kuala Lumpur.

A favorite food from one of the cities in which you teach?

While most of the locations have diversified international cuisines, I have enjoyed the Tex-Mex food in Houston, the fresh green coconut drink in Bangkok, and relish the tastes of Italian cuisine with different local flavors.

Do you have a favorite hobby you enjoy?

Traveling and photography are my hobbies. While teaching courses, I take pictures of participants in action, and collect their portraits for my memories, which I share with the participants at the end of each class.

Do you have a short story to share from a session?

At an in-house course offering, a participant shared the recurring problem at one of his Company's gas plants. Near the end of the course, all participants used the course topics to first identify and understand the causes of the problem, and then used the course materials to help identify the needed steps to resolve the situation. Subsequently, the participants followed up with their management, and implemented the discussed steps to successfully resolve the problem. Putting into practice what engineers learn is not only cost-effective for the Companies but also a basis for supporting the development of competencies through PetroSkills' courses.

Gas Conditioning and Processing (G-4)

Course Outline

Considered by many to be the most practical and comprehensive course in the oil and gas industry, the "Campbell Gas Course™," has been attended by over 35,000 engineers. The standard of the industry for well over forty-five (45) years, Gas Conditioning and Processing (G-4) deals with the practical planning, design, specification and operation of gas processing and production systems.

GAS CONDITIONING AND PROCESSING (G-4)

EXAMPLE OF DAY BY DAY COURSE TOPICS

DAY 1	<p>Introduction to gas processing; gas and liquid contracts and specifications; gas process systems and options; physical properties of hydrocarbon fluids; and phase behavior.</p> <ul style="list-style-type: none"> • Course Introduction • Gas Processing Systems • Physical Properties of Hydrocarbons • Qualitative Phase Behavior 	DAY 6	<p>Heat Exchangers - Overview, design and specification, shell and tube, plate, plate fin, heaters, cooling towers, and aerial coolers; pump principles; power and head; NPSH evaluation of pump performance and system curves; positive displacement and centrifugal pumps; and pump control.</p> <ul style="list-style-type: none"> • Heat Transfer • Pumps
DAY 2	<p>Principles of vapor-liquid equilibrium; K-values; dewpoints; bubblepoints; flash calculations; water content of natural gas; and hydrates.</p> <ul style="list-style-type: none"> • Vapor-Liquid Equilibrium • Water-Hydrocarbon Behavior • Phase Envelopes and Flash Calculations 	DAY 7	<p>Overview and principles of compression including reciprocating and centrifugal compressors, power consumption, performance curves, axial compressors, compressor drivers and compressor control; principles of refrigeration including pressure vs. enthalpy charts, basic simple refrigeration cycle, economizer systems, power consumption, condenser load and mixed refrigerants; LTS/LTX processes; and turboexpanders.</p> <ul style="list-style-type: none"> • Compressors • Refrigeration
DAY 3	<p>Hydrate inhibition with glycols and alcohols, low dosage; energy balances; energy and power; tables of data; and basic thermodynamic concepts.</p> <ul style="list-style-type: none"> • Water-Hydrocarbon Behavior (Cont'd) • Basic Thermodynamic Concepts • System Energy Changes 	DAY 8	<p>Fractionator operation, design and specification; mass transfer fundamentals; minimum reflux, theoretical trays; overall efficiency; energy balances; and oil stabilizers.</p> <ul style="list-style-type: none"> • Refrigeration (Cont'd) • Fractionation • Refrigeration/Fractionation Exercise
DAY 4	<p>Control modes (proportional, reset, derivative); valve characteristics; DCS and PLCs; flow measurement; examples of control applications, including liquid and gas flow, looped systems, complex systems and 2 phase horizontal and vertical flow.</p> <ul style="list-style-type: none"> • Process Control Fundamentals • Fluid Flow • Consolidated Problem. NGL extraction for HC dewpoint control and hydrate inhibition. 	DAY 9	<p>Principles of glycol dehydration; glycol unit operation and design; absorber design and specification; equilibrium concepts; regeneration; coabsorption of aromatics; troubleshooting; foaming; and corrosion.</p> <ul style="list-style-type: none"> • Fractionation (Cont'd) • Glycol Dehydration
DAY 5	<p>Pressure vessel design; principles of separation; vessel sizing - vertical and horizontal, two/three phase; mist extraction; internals and specification; principles of rate processes; series and parallel resistance; and fundamentals of heat transfer.</p> <ul style="list-style-type: none"> • Separation Equipment • Rate Processes 	DAY 10	<p>Operation and design of adsorption dehydration systems; properties of desiccants; sizing tower; regeneration requirements; and hydrocarbon recovery units.</p> <ul style="list-style-type: none"> • Glycol Dehydration (Cont'd) • Adsorption Systems • Course Overview

Gas Conditioning and Processing – LNG Emphasis (G-4LNG)

FOUNDATION

DESIGNED FOR

Personnel involved with natural gas processing and LNG production, as well as anyone interested in a solid understanding of the principles of an LNG plant. A broad approach is taken with the topics.

YOU WILL LEARN

- Fundamentals of gas processing and conditioning for the LNG industry
- How gas engineering and technology is applied in LNG facilities
- About important specifications for gas, LNG, NGLs and condensate
- To select and evaluate processes used to dehydrate natural gas and remove heavy components
- Other contaminants in LNG feed-gas
- Techniques to extract NGLs for LNG plants
- Important topics of H₂S and CO₂ removal before liquefaction
- Physical/thermodynamic property correlations and principles, including heating values, etc. as applied to gas processing facilities and LNG plants
- How to perform and review equipment sizing for major process equipment
- Fundamentals of propane, propane pre-cooled mixed refrigerant and cascade refrigerant systems as used in LNG plants
- Key points in other LNG liquefaction technologies
- Overview of LNG storage, transportation, and revaporization

ABOUT THE COURSE

This is the LNG-industry version of our popular G-4 course (the "Campbell Gas Course™") with expanded coverage on refrigeration and liquefaction. The course includes in-depth information on basic LNG gas conditioning and processing. Instructors will explain the acid gas removal processes employed in LNG processes. Relevant details of both the mixed refrigerant and cascade processes in LNG liquefaction are described. Approximately 30 class exercises/problems are assigned, reviewed and discussed during the course. Versions of this course have been taught in many of the world's base-load and peak-shaving LNG plants.

COURSE CONTENT

- Basic gas technology principles • Gas processing systems • Terminology and nomenclature • Properties of hydrocarbons – LNG focus • Vapor-liquid phase behavior and equilibrium • Water-hydrocarbon system behavior. • Hydrates and Inhibition • Thermodynamics of LNG processes • Separation equipment • Gas treatment, CO₂ and H₂S removal for liquefaction. • Dehydration of natural gas – glycol, molecular sieves • Heat transfer, heat exchangers • Pumps and compressors; gas turbines • Refrigeration systems • LNG liquefaction technologies • Fractionation and absorption • Process control examples • LNG storage, shipping and receiving overview • Course review and summary

2014-15 Schedule and Tuition / 10 Days

CALGARY, CANADA	26 OCT-6 NOV 2015	US\$7,540+GST
DOHA, QATAR	23 NOV-4 DEC 2014	US\$8,270
	22 NOV-3 DEC 2015	US\$8,270
HOUSTON, U.S.	1-12 JUN 2015	US\$7,615
JAKARTA SELATAN, INDONESIA	31 AUG-11 SEP 2015	US\$7,960
PERTH, AUSTRALIA	11-22 MAY 2015	US\$7,960+GST

Process Safety Engineering (PS-4)

FOUNDATION

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 oil & gas industry
- Basics of risk analysis
- Thinking in terms of Inherently Safer Design
- Most commonly used process hazards 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

ABOUT THE COURSE

This course provides an overview of process safety engineering fundamentals for hydrocarbon processing facilities, with emphasis on the upstream oil & 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 be reviewed. Integration of the concepts covered to achieve a measured approach to Process Safety Engineering is a key aim of this course. Exercises and group projects will be utilized throughout the course to emphasize the key learning points.

COURSE CONTENT

- Historical Incident & Problem Areas • Risk Analysis Basics • Process Hazards Analysis Techniques – Overview • Layers of Protection • Inherently Safer Design • Hazards Associated with Process Fluids • Leakage and Dispersion of Hydrocarbon Releases • Combustion Behavior of Hydrocarbons • Sources of Ignition • Hazards Associated with Specific Plant Systems • Plant Layout & Equipment Spacing • Pressure Relief and Disposal Systems • Corrosion & Materials Selection • Process Monitoring and Control • Safety Instrumented Systems • Fire Protection Principles • Explosion Protection

2014-15 Schedule and Tuition / 5 Days

BAKERSFIELD, U.S.	17-21 NOV 2014	US\$4,350
	16-20 NOV 2015	US\$4,350
BRISBANE, AUSTRALIA	3-7 AUG 2015	US\$5,780+GST
CALGARY, CANADA	27-31 JUL 2015	US\$4,350+GST
DOHA, QATAR	10-14 MAY 2015	US\$5,490
DUBAI, U.A.E.	30 NOV-4 DEC 2014	US\$5,490
	13-17 DEC 2015	US\$5,490
HOUSTON, U.S.	15-19 DEC 2014	US\$4,350
	9-13 FEB 2015	US\$4,350
	14-18 SEP 2015	US\$4,350
	14-18 DEC 2015	US\$4,350
KUALA LUMPUR, MALAYSIA	13-17 APR 2015	US\$5,780
	6-10 OCT 2014	US\$5,060+VAT
LONDON, U.K.	18-22 MAY 2015	US\$5,060+VAT
	5-9 OCT 2015	US\$5,060+VAT
ORLANDO, U.S.	3-7 NOV 2014	US\$4,350
	2-6 NOV 2015	US\$4,350
PERTH, AUSTRALIA	29 JUN-3 JUL 2015	US\$5,780+GST
RIO DE JANEIRO, BRAZIL	13-17 OCT 2014	US\$4,460
	19-23 OCT 2015	US\$4,460

Process Safety Engineering has become

MISSION CRITICAL

Process Safety Engineering PS-4

Slips, Trips and Falls are Decreasing... but Major Incidents are Increasing.

Gain Confidence in Process Safety Engineering by Knowing:

- What equipment causes the biggest problems
- What processes are causing the major issues
- How to apply the "Layers of Protection"
- What are the keys to fundamental risk analysis
- Where to use process hazard analysis most effectively
- How to apply detection and mitigation methods for different hazards
- What "Inherently Safer Design" really means and how to apply the principal in your everyday job and much more

See full course description on this page

PetroSkills®
John M. Campbell

Seats fill quickly, so enroll today!
petroskills.com/ps4

Gas Treating and Sulfur Recovery (G-6)

INTERMEDIATE

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, field supervisors and others who operate, select, design, install, or evaluate 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
- 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 sulfur recovery process given differing process conditions
- Tail gas clean-up

ABOUT THE COURSE

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 handling trace sulfur compounds and the importance of H₂S:CO₂ ratio is covered. Related topics such as liquid product treating, corrosion, materials selection and NACE requirements will also be reviewed.

COURSE CONTENT

- Fundamentals of sour gas processing, sweetening etc.
- Overview of gas treating and sulfur recovery, terminology
- Gas specifications and process selection criteria
- Generic and specialty amine treating
- Common operating and technical problems
- Proprietary amine solvents such as Sulfinol® and Flexsorb®
- Carbonate processes
- Physical absorption processes, e.g. 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
- Emerging and new technologies
- Course workshop and summary

2014-15 Schedule and Tuition / 5 Days

CALGARY, CANADA	22-26 JUN 2015	US\$4,420+GST
DOHA, QATAR	7-11 DEC 2014	US\$5,490
	8-12 NOV 2015	US\$5,490
HOUSTON, U.S.	17-21 NOV 2014	US\$4,460
	9-13 MAR 2015	US\$4,460
	16-20 NOV 2015	US\$4,460
LONDON, U.K.	20-24 APR 2015	US\$5,150+VAT
	5-9 OCT 2015	US\$5,150+VAT
ORLANDO, U.S.	1-5 DEC 2014	US\$4,420
	30 NOV-4 DEC 2015	US\$4,420

Advanced Applications in Gas Processing (G-5)

INTERMEDIATE

DESIGNED FOR

Engineers needing an intensive training in natural gas processing and associated liquids recovery processes with emphasis on the use and benefits of a simulation package. Those having a good understanding of basic sweet gas processing operations or who have attended the G4 Gas Conditioning and Processing course will benefit most from this course.

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
- Design of processes used to control the hydrocarbon dew point of sales gas streams by removing NGL's 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 consistent convergence
- Which thermodynamic property correlations are the best applications for various gas processing systems
- Limitations associated with commercial simulation packages and how the simulation results can be quickly checked for relative accuracy

ABOUT THE COURSE

The course has been designed to cover sweet gas processing and NGL recovery topics in a 5-day format using a commercial simulator to perform calculations. A basic working knowledge of the commercial process simulation package being used will provide the best opportunity to achieve the learning objectives of this course. Volumes 1 and 2 of the John M. Campbell text books, Gas Conditioning and Processing, are used as the basis for the material presented in this course. A comprehensive course exercise based on a typical gas processing facility which can be applied to either onshore or offshore facilities is used for this course. The problem is developed in stages, as the material is covered, using a commercial simulator package (typically Promax® or UNISIM®). At the completion of the course the participant will have developed a process simulation model that includes a dew point control process, a mechanical refrigeration process with economizers, hydrate inhibition using MEG, and NGL liquid product stabilization with recycle.

COURSE CONTENT

- Gas processing systems
- 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 systems

2014-15 Schedule and Tuition / 5 Days

CALGARY, CANADA	26-30 JAN 2015	US\$4,650+GST
DENVER, U.S.	3-7 AUG 2015	US\$4,650
DUBAI, U.A.E.	7-11 DEC 2014	US\$5,490
	6-10 DEC 2015	US\$5,490
HOUSTON, U.S.	20-24 OCT 2014	US\$4,700
	11-15 MAY 2015	US\$4,700
	30 NOV-4 DEC 2015	US\$4,700

Harness the Power of a Process Simulator and Learn How to Apply it to Your Everyday Job.

Work Smarter and Work Faster By Learning:

- Techniques to inhibit hydrate formation including injection of equilibrium inhibitors such as methanol and MEG.
- Preliminary design and evaluation of a TEG dehydration process using quick hand calculations
- Design of processes used to control the hydrocarbon dew point of sales gas streams by removing NGL's using mechanical refrigeration processes
- 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 consistent convergence



Advanced Applications in Gas Processing

Enroll Now at petroskills.com/g5

See full course description on this page

PetroSkills®
John M. Campbell

Knowledge gaps in your workforce equal risk.

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- Structured learning is designed for adults according to certified instructional design methodologies.
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- Content can be customized with site-specific information and links, as well as language translation.
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New in 2014!

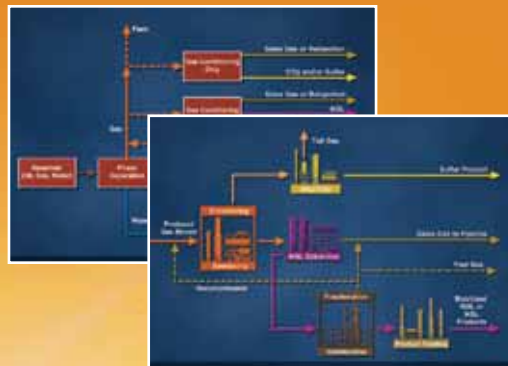
ePILOT Gas Processing Operations series

We worked with industry SMEs to identify all knowledge requirements specific to gas processing operations, and then applied proven instructional design methods and advanced web technology to create an effective learning solution that delves deep into gas processing equipment and operations. This dynamic learning environment incorporates critical information into a sustainable environment that is available online, anytime and anywhere.

Topics include:

- Introduction to Gas Processing
- Hydrocarbon Phase Behavior and Water Vapor
- Turboexpansion Processes
- Gas Processing Thermodynamics
- Fractionation In Gas Processing
- Solid Bed Adsorption and TEG Dehydration
- Amine Sweetening Process
- Gas Processing Hazards

Examples of engaging graphics and animations in the series.



PetroSkills®
RDC Solutions

The industry standard training course in

Gas Conditioning and Processing

G-4

OVER 30,000 Engineers Trained in Gas Conditioning and Processing

"By far the best course I have attended in my career." - Chris

"I loved the key learning points sessions!" - Mirna

"Instructor was really experienced, knowledgeable and most importantly, he was able to convey the information." - Mohammad

Gas Conditioning and Processing

**Aberdeen – Brisbane - Doha - Dubai - Houston
London - Perth – Stavanger - Kuala Lumpur
Orlando - Washington DC**

Considered by many to be the most practical and comprehensive course in the oil and gas industry. The "Campbell Gas Course™" is our flagship facilities course and will be coming to a location near you.

Announcing the 9th Edition of Volumes 1 and 2.

We are very proud to announce all G-4 courses will be taught using the 9th Edition of Volumes 1 and 2 - Basic Principles and The Equipment Modules. Once you see these impressive new books, you'll agree that it was worth the time and money spent to produce such important and practical reference books. Participants tell us they refer back to these books years after attending the course.



For details on the new books, visit
petroskills.com/volumes1and2

COURSE CONTENT:

- Gas Processing Systems
- Physical Properties of Hydrocarbons
- Qualitative Phase Behavior
- Vapor-Liquid Equilibrium
- Water-Hydrocarbon Behavior
- Basic Thermodynamic Concepts
- System Energy Changes
- Separators
- Heat Transfer
- Pumps
- Compressors
- Refrigeration
- Fractionation / Distillation
- Glycol Dehydration
- Adsorption System

See pages 12 and 13 for full course details.

PetroSkills®
John M. Campbell

Enroll at www.petroskills.com/g4

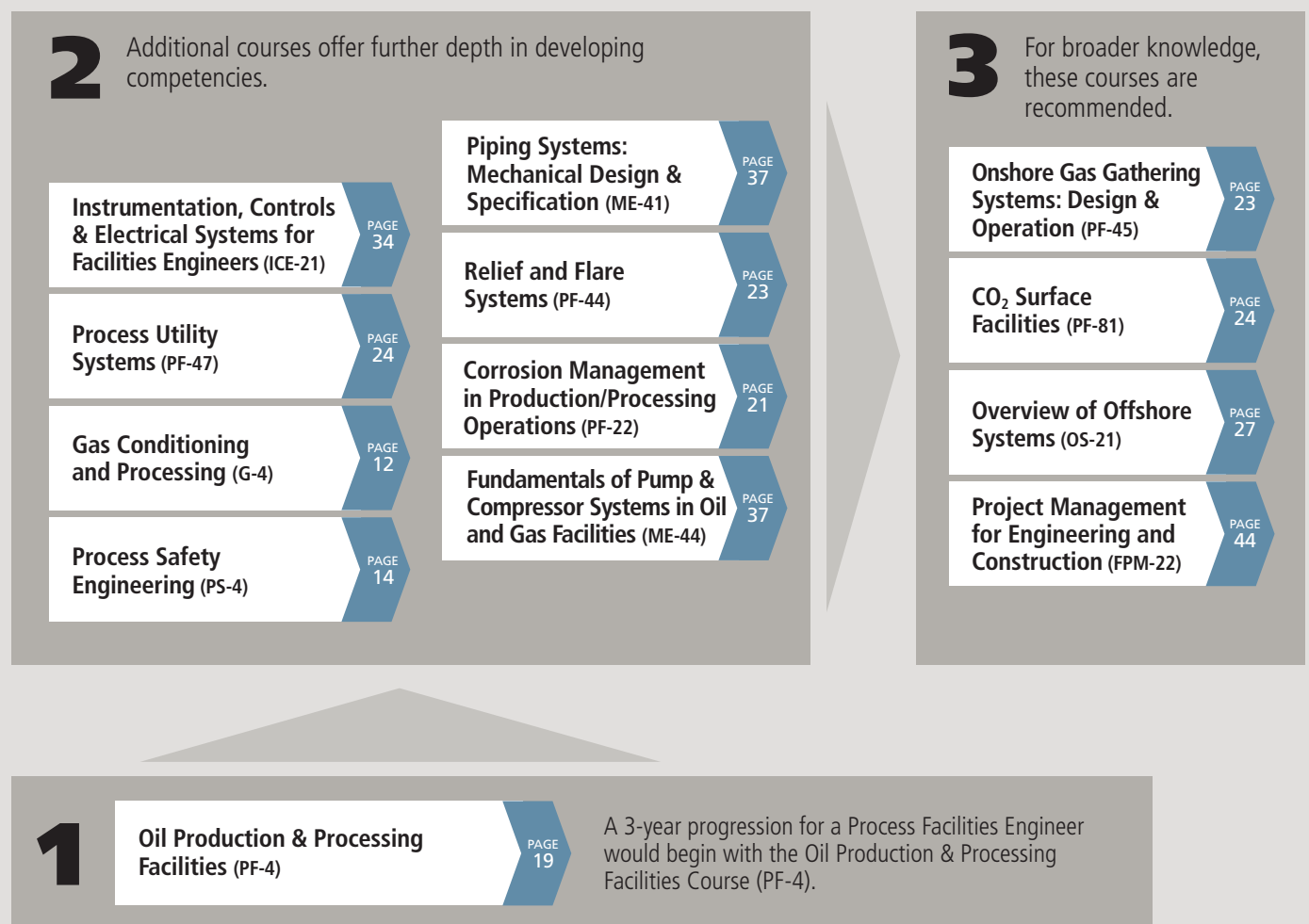
Process Facilities Engineer Course Progression

Process Facilities separate the well stream into three phases - oil, gas and water - and process these phases into marketable products or dispose of them in an environmentally acceptable manner. Gas handling/processing facilities are a major part of Process Facilities, and are covered in detail as Gas Processing elsewhere in this catalog. Process Facilities, as used here, will mainly include:

- Single-well, satellite & central tank batteries, including:
 - Oil treating - Stabilization
 - Separation equipment
 - Desalting - Storage
- Produced-water treating facilities
- Water injection facilities
- Offshore topsides facilities
- Corrosion management

Process Facilities Engineer 3-Year Course Progression

Below is an example of a 3-year course progression covering topics we believe critical to developing technically strong Process Facilities Engineers.



ADVANCED CERTIFICATE PROGRAM: Be eligible for a PetroSkills Advanced Certificate in Process Facilities by completing any four of the courses above within a period of 3 years, starting with PF-4 (see page 71 for more details).

Introduction to Oil and Gas Production Facilities (PF-3)

BASIC

NEW**DESIGNED FOR**

The course is intended for those who are interested in how production facilities are selected and specified:

- Subsurface engineers looking for a better understanding of production/processing facilities
- Facilities/Process engineers looking for an entry level review of surface production facilities
- Other technical professionals not directly involved in the design and operation of production facilities looking for an awareness of such facilities

YOU WILL LEARN

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

ABOUT THE COURSE

This course provides a high level discussion of surface processing facilities used in oil and gas production with emphasis on the selection and specification of these facilities as part of a field development plan. The importance of knowledge about reservoir type, produced fluid composition and properties, drive mechanism, facility location, product specifications and contractual obligations is highlighted.

COURSE CONTENT

The course scope includes the following:

- Flowlines, gathering systems, flow assurance and production separation
- Oil dehydration and stabilization
- Produced water treating and water injection systems
- Gas handling including compression and conditioning
- The effect of artificial lift systems and secondary and tertiary recovery projects
- Other facility considerations: utility systems, process safety and asset integrity, and environmental regulations
- Midstream facilities: gas processing, pipelines, product storage and LNG

See website for dates and locations, or to schedule an in-house course.

Oil Production & Processing Facilities (PF-4)

FOUNDATION

DESIGNED FOR

Process/facilities engineers, senior operating personnel, and production chemists. Wide-ranging skills for design, operation and troubleshooting of oil and water production equipment.

YOU WILL LEARN

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

ABOUT THE COURSE

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 will be discussed. Produced-water treating and water injection systems are also covered. Solution gas handling processes and equipment will be discussed as well, though at a relatively high level. In addition to the engineering aspects of oil production facilities, practical operating problems will also be covered including emulsion treatment, sand handling, dealing with wax and asphaltenes, etc. Exercises requiring calculations are utilized throughout the course. The course is intended to be complementary to the G-4 Gas Conditioning and Processing course which is focused on the gas handling side of the upstream oil and gas facilities area.

COURSE CONTENT

- Overview of upstream oil and gas production operations
- Fluid properties and phase behavior
- Overview of artificial lift
- Processing configurations (example PFD's)
- Phase separation of gas, oil, and water
- Emulsions
- Sand, wax, and asphaltenes
- Oil treating
- Field desalting
- Crude stabilization and sweetening
- Crude oil storage and vapor recovery
- Measurement of crude oil
- Transportation of crude oil
- Produced water treating
- Water injection systems
- Overview of solution gas processing
- Compressors
- Relief and flare systems

2014-15 Schedule and Tuition / 10 Days

BAKERSFIELD, U.S.	10-21 NOV 2014	US\$8,670	HOUSTON, U.S.	1-12 DEC 2014	US\$8,760
	20 APR-1 MAY 2015	US\$8,670		26 JAN-6 FEB 2015	US\$8,760
	9-20 NOV 2015	US\$8,670		27 JUL-7 AUG 2015	US\$8,760
				30 NOV-11 DEC 2015	US\$8,760
CALGARY, CANADA	14-25 SEP 2015	US\$8,670+GST	KUALA LUMPUR, MALAYSIA	9-20 MAR 2015	US\$8,760
DENVER, U.S.	1-12 JUN 2015	US\$8,760	LONDON, U.K.	13-24 OCT 2014	US\$8,760+VAT
DOHA, QATAR	9-20 NOV 2014	US\$8,760		8-19 JUN 2015	US\$8,760+VAT
	8-19 NOV 2015	US\$8,760		12-23 OCT 2015	US\$8,760+VAT
DUBAI, U.A.E.	7-18 DEC 2014	US\$8,760	ORLANDO, U.S.	21 SEP-2 OCT 2015	US\$8,670
	6-17 DEC 2015	US\$8,760		7-18 DEC 2015	US\$8,670
			STAVANGER, NORWAY	7-18 SEP 2015	US\$8,760

For updated schedule information or to arrange an In-House session of this course, contact jmcsupport@jmcampbell.com.



Oil Production & Processing Facilities (PF-4)

Course Outline

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 will be discussed. This course is intended to be complementary to the G-4 Gas Conditioning and Processing course which is focused on the gas handling side of the upstream oil and gas facilities area.

OIL PRODUCTION & PROCESSING FACILITIES (PF-4)

EXAMPLE OF DAY BY DAY COURSE TOPICS

DAY 1	<ul style="list-style-type: none"> • Course introduction • Reservoir Traps, Rocks & Drive Mechanisms; Porosity & Permiability, Drive Mechanisms • Phase Envelopes & Reservoir Fluid Classification; Phase behavior of different reservoirs • Well Inflow Performance; Inflow performance curve & Effect on facilities • Artificial Lift: When it is required, Types and selection of artificial lift • Oil, Gas & Water <ul style="list-style-type: none"> – Composition & Properties – Calculation of properties needed for equipment sizing 	DAY 7	<ul style="list-style-type: none"> • Crude Oil Flow Measurement <ul style="list-style-type: none"> – Types, accuracy and selection of liquid and gas meters • Fired Equipment <ul style="list-style-type: none"> – Direct & Indirect fired heaters – Fire tube and process tube sizing criteria • Pipeline Transportation of Crude Oil <ul style="list-style-type: none"> – Bernoulli's equation, friction loss and piping codes – Line sizing and heat loss calculations
DAY 2 & 3	<ul style="list-style-type: none"> • Emulsions; Definition, causes and characterization • Gas – Liquid Separation <ul style="list-style-type: none"> – Types of equipment used – Feed pipe and inlet devices – Gas gravity separation section – Mist extractors 	DAY 8	<ul style="list-style-type: none"> • Pumps <ul style="list-style-type: none"> – Types of pumps & their applications – Calculation of head requirements, NPSHA/NPSHR and specific speeds • Produced Water Treating <ul style="list-style-type: none"> – Produced water composition → characterization of hydrocarbon content – Importance of oil droplet size – Typical discharge/disposal specifications – Treating equipment options and performance – Combination of different equipment types
DAY 4	<ul style="list-style-type: none"> • Gas – Liquid Separation (cont'd) <ul style="list-style-type: none"> – Liquid handling section • Oil – Water Separation <ul style="list-style-type: none"> – Types of equipment used, including compact coalescers – Residence time & droplet settling theory 	DAY 9	<ul style="list-style-type: none"> • Water Injection Systems <ul style="list-style-type: none"> – Typical flow diagrams and equipment – Source water quality and injection water quality • Relief & Flare Systems <ul style="list-style-type: none"> – Causes of overpressure – Types of relief valves & sizing; Flare system components – Radiation calculations – Flare gas recovery
DAY 5	<ul style="list-style-type: none"> • Oil Treating <ul style="list-style-type: none"> – Oil treating methods – Heat input requirements – Demulsifiers – Types of equipment, selection, performance and sizing methods • Desalting <ul style="list-style-type: none"> – Why desalt? → crude oil salt specifications – Overview of desalting, processes, sizing and selection • Crude Oil Stabilization & Sweetening <ul style="list-style-type: none"> – Crude oil vapor pressure & H₂S specifications – Stabilization and Sweetening processes 	DAY 10	<ul style="list-style-type: none"> • Solution Gas Handling <ul style="list-style-type: none"> – Sales gas specifications, sweetening, dehydration, NGL recovery, etc • Compressors <ul style="list-style-type: none"> – Types of compressors & applications • Course Wrap-up
DAY 6	<ul style="list-style-type: none"> • Oil Storage & Vapor Recovery <ul style="list-style-type: none"> – Types of storage tanks & their applications – How vapor recovery systems work & where they are used • Sand, Wax & Asphaltene <ul style="list-style-type: none"> – Problems caused & typical solutions for surface facilities 		

FOR SCHEDULE AND TUITION INFORMATION, SEE PAGE 19.

NOTE: Course schedule is approximate and may be adjusted for location and participant interest. PF-4 is an intensive course and classroom hours are generally longer than a typical training course. Extended evening sessions are sometimes used for additional problems, exercises and syndicate work.

Applied Water Technology in Oil and Gas Production (PF-21)

FOUNDATION

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 oil field 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

ABOUT THE COURSE

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 be reviewed as well as water injection and disposal systems. An exercise will be given to identify typical system problems and attendees will be able to apply the knowledge gained to propose solutions. Emphasis will be placed on understanding and resolving operational problems in process equipment.

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

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	11-15 MAY 2015	US\$4,150
	10-14 AUG 2015	US\$4,150
LONDON, U.K.	16-20 MAR 2015	US\$4,780+VAT
ORLANDO, U.S.	10-14 NOV 2014	US\$4,110
	2-6 NOV 2015	US\$4,110

Corrosion Management in Production/Processing Operations (PF-22)

FOUNDATION

DESIGNED FOR

Managers, engineers, chemists, and operators needing 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

ABOUT THE COURSE

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. You will review approaches to selecting materials and coatings for corrosion resistance for different conditions and applications, including the use of NACE MR0175. You will be introduced to CP surveys, selecting the CP system type, estimating current requirements and the design principles of simple cathodic protection systems. There is an opportunity to review some of the selection criteria used to find the optimum corrosion inhibitor for different systems. 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. This course provides an appropriate balance of necessary theory and practical applications to solve/mitigate corrosion related problems.

COURSE CONTENT

- Fundamentals of corrosion theory
- Major causes of corrosion (O₂, CO₂, H₂S, microbiologically influenced corrosion)
- Forms of corrosion damage
- Materials selection
- Protective coatings & 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

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	17-21 AUG 2015	US\$2,950
LONDON, U.K.	23-27 MAR 2015	US\$2,950+VAT
ORLANDO, U.S.	17-21 NOV 2014	US\$2,950
	16-20 NOV 2015	US\$2,950

Our Clients Say It Best.



"The methodology for solving practical oil field problems has significantly increased my confidence in future projects."

BLAKE | OIL PRODUCTION AND PROCESSING FACILITIES • PF-4 • BAKERSFIELD



"I have made significant contributions to an on-going project using knowledge acquired during the training."

CURTIS | APPLIED WATER TECHNOLOGY IN OIL AND GAS PRODUCTION • PF-21 • HOUSTON

Listen to what more course attendees are saying! Go to www.petroskills.com/listen

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Produced Water Treating (PF-23)

FOUNDATION

DESIGNED FOR

Managers, engineers, chemists, and senior operations personnel who are responsible for designing, operating and maintaining oil and gas facilities that process produced water. This course will assist participants in developing a broad understanding of the technical aspects which are required to select, design, maintain, and troubleshoot produced water process equipment and systems.

YOU WILL LEARN ABOUT

- How the volumes & compositions of water associated with oil and gas production impacts operations, including disposal well injectivity
- What the produced water treatment and disposal options are for offshore and onshore operations
- Water quality requirements for the disposal options and environmental regulations
- Analytical methods for produced water
- The types of equipment used for produced water treatment, how they work, typical performance, selection criteria, sizing and operations
- Common causes of water treating problems, how to diagnose resolve them
- Typical facility PFD's and the operational issues associated with process systems

ABOUT THE COURSE

This course covers technical topics related to produced water operations and the required processing in upstream oil and gas operations. Typical produced water composition and physical properties are covered. Water quality requirements as a function of disposal method are addressed, including onshore processing, surface discharge, offshore discharge, and reinjection. Regulatory requirements and typical analytical test methods necessary to monitor and ensure regulatory compliance are covered. Treatment theory is discussed, followed by practical application in selecting and operating typical water handling equipment. Typical process flow diagrams are used to illustrate equipment selection, design features, layout and processes. Chemical treatment is also covered.

COURSE CONTENT

- Introduction to Water Treatment Technology and Issues
- Produced Water Chemistry and Characterization
- Defining and Characterizing Emulsions that Impact Water Treatment
 - Oil Continuous, Water Continuous, Solids-stabilized
- Water Quality Requirements for Injection and Overboard Disposal
 - NPDES Permits
 - Analytical Techniques and Methods
- Primary Water Treatment Technologies
 - Separators, Hydrocyclones, and CPIs
- Secondary Water Treatment Technologies
 - 3 Modes of Flotation
- Tertiary Water Treatment Technologies
 - Bed and Membrane Filtration
- Chemical Treatment
- Water Treatment for Steam Generation
- Diagnostic Testing and In-Field Observations
- Diagnosing & Resolving Water Treatment Issues
 - Actual PFDs and Field Experiences

2014-15 Schedule and Tuition / 5 Days

DENVER, U.S.	27-31 JUL 2015	US\$4,110
HOUSTON, U.S.	10-14 NOV 2014	US\$4,150
	1-5 JUN 2015	US\$4,150
	9-13 NOV 2015	US\$4,150

Separation Equipment - Selection & Sizing

(PF-42)

INTERMEDIATE

DESIGNED FOR

Process/Facilities engineers needing 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

ABOUT THE COURSE

This course covers the different types of separation equipment typically encountered in oil & gas process 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 (PFD's). Typical operational problems and their solutions will be discussed. Exercises requiring calculations are utilized throughout the course.

COURSE CONTENT

- Fluid properties & phase behavior
- Phase separation processes
- Gas-liquid separation equipment
 - Slug catchers
 - Conventional separators (horizontal & 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 & freewater knockouts
 - Wash tanks
- Oil treating & desalting equipment
 - Mainly electrostatic coalescers
- Liquid-liquid coalescing filters
- Mechanical design aspects
 - Pressure vessel codes
 - Wall thickness & vessel weight estimation
 - Material selection
 - Relief requirements
- Operational problems

Participants, 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.

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	2-6 MAR 2015	US\$4,150
ORLANDO, U.S.	21-25 SEP 2015	US\$4,110

Heat Transfer Equipment (PF-43)

INTERMEDIATE

DESIGNED FOR

Engineers and senior operating personnel involved in the design, specification, or operation of heat transfer equipment.

YOU WILL LEARN

- Select the correct heat transfer equipment for a particular application with reference to typical facility process flow diagrams (PFD's)
- Apply heat transfer principles to design and specify heat transfer equipment
- Evaluate the performance of heat transfer equipment and recommend solutions to problems
- About the typical instrumentation and control schemes used by the various types of heat transfer equipment

ABOUT THE COURSE

This course reviews the selection, basic design, and operation of heat transfer equipment commonly used in the oil and gas industry with focus on E&P process facilities. Heat transfer equipment discussed will include shell and tube exchangers, compact heat exchangers, brazed aluminum exchangers, air coolers, and fired equipment (fire-tube and direct-fired).

COURSE CONTENT

- Typical process heating & cooling applications
- Fluid properties
- Heat transfer principles
- Shell and tube exchangers
- Compact heat exchangers
 - Plate-frame
 - Printed circuit
 - Welded plate
- Brazed aluminum exchangers
- Air coolers
- Fired equipment (furnace type & fire-tube)
- Operating problems
- Typical instrumentation control schemes

To arrange an in-house session of this course, visit www.petroskills.com/inhouse.

Relief and Flare Systems (PF-44)

INTERMEDIATE

DESIGNED FOR

Engineers & 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
- Relief case scenarios and relief load determination
- How to select and size pressure relief devices
- Relief device installation, including sizing their associated inlet and outlet lines
- Set/relieving pressures to meet operational, safety and code requirements
- Relief and flare system design and operating considerations, including fluid characteristics, service conditions, volumes, gas dispersion and radiation
- Sizing and selection of relief/flare system components such as flare knockout drums, flare stacks and tips, pilot and ignition systems

ABOUT THE COURSE

This is an intensive 5-day course providing a comprehensive overview of relief and flare systems for oil and gas processing facilities. The course begins with the need for pressure control/overpressure protection, continues with the key engineering and design aspects including code considerations, and concludes with selecting and 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.

COURSE CONTENT

- Purposes and overview of typical relief and flare systems and key components
- Safety implications and the causes of overpressure
- Codes, standards and recommended practices used for overpressure protection design and operation in oil and gas facilities
- Overpressure protection methods including pressure source isolation using high integrity protection systems (HIPS)
- Introduction to Process Hazard Analysis
- Determination of relief requirements and defining setpoint pressures
- Types and applications of common relief devices
- Blowdown/depressurizing – purpose & design/operational considerations
- Design and specification considerations for relief valves and header systems including fluid characteristics, services conditions, material selection, and header sizing
- Radiation calculations and the impact of flare tip design
- Selection and sizing of key components such as knockout and seal drums, vent/flare stack, vent/flare tips and flare ignition systems
- Defining need and quantity of purge gas
- Use of environmental friendly strategies such as flare gas recovery, smokeless flaring and purge gas conservation
- Operational and troubleshooting tips

2014-15 Schedule and Tuition / 5 Days

ABERDEEN, U.K.	1-5 JUN 2015	US\$4,780+VAT
ABU DHABI, U.A.E.	13-17 SEP 2015	US\$5,190
BAKERSFIELD, U.S.	17-21 NOV 2014	US\$4,110
	11-15 MAY 2015	US\$4,110
DUBAI, U.A.E.	7-11 DEC 2014	US\$5,190
	22-26 NOV 2015	US\$5,190
HOUSTON, U.S.	16-20 MAR 2015	US\$4,150
	13-17 JUL 2015	US\$4,150
	21-25 SEP 2015	US\$4,150
KUALA LUMPUR, MALAYSIA	27-31 OCT 2014	US\$5,460
	2-6 NOV 2015	US\$5,460
LONDON, U.K.	19-23 OCT 2015	US\$4,780+VAT
ORLANDO, U.S.	20-24 OCT 2014	US\$4,110
	26-30 OCT 2015	US\$4,110
PERTH, AUSTRALIA	17-21 AUG 2015	US\$5,460+GST

Onshore Gas Gathering Systems: Design & Operation (PF-45)

INTERMEDIATE

DESIGNED FOR

Production & 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 & operation
- Evaluate field facility & gathering system configurations for different applications
- Recognize and develop solutions to operating problems with existing gas gathering systems

ABOUT THE COURSE

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.

COURSE CONTENT

- Gas well inflow performance & deliverability
- Overview of gas well deliquification methods for low-rate, low pressure gas wells
- Effect of gathering system/abandonment pressure on reserves recovery
- Impact of produced fluids composition
- Sweet/sour
- CO₂ content
- Rich/lean
- 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

2014-15 Schedule and Tuition / 5 Days

DENVER, U.S.	13-17 JUL 2015	US\$4,110
HOUSTON, U.S.	27-31 OCT 2014	US\$4,150
	26-30 OCT 2015	US\$4,150
ORLANDO, U.S.	8-12 DEC 2014	US\$4,110
	7-11 DEC 2015	US\$4,110

INSTRUCTOR SPOTLIGHT



Mick and Pam — his wife of nearly fifty three years

MICK CRABTREE



What courses do you teach?

I teach all the regular E&I courses: I, C & E; IC-4; E-3; E-4; and ICE-21. In addition, I have also written and developed a number of specialised courses: IC-71 'PLC and SCADA Technologies'; IC-72 'Valve and Actuator Technologies'; IC-73 'Flow and Level Custody Measurement'; and IC-73 'Regulatory Control and PID Loop Tuning'.

Do you have a favorite city to visit?

Difficult to choose – there are so many places I love to visit. However, if I've got to narrow it down I'd rate Istanbul pretty high. But then there's also Kuala Lumpur, Muscat, and San Francisco – all have their unique attractions.

A favorite food from one of the cities in which you teach?

I've recently discovered that genuine Turkish food is superb. But a traditional Omani lamb Shuwa (roasted in a special oven in a pit dug in the ground) is hard to beat.

Do you have a favorite hobby you enjoy?

Both my wife and I enjoy cycling – particularly in France. I also enjoy rambling, writing, reading and history.

Do you have a short story to share from a session?

Several years ago a client requested that the section on Variable Speed Drives (a one-hour section within E-3) be expanded to cover a full morning. On arrival at the venue I was faced with a group of specialist engineers expecting a full week on the subject. Fortunately I was able to muster a variety of resources and deliver to their expectations. This is typical of some of the challenges faced by (and overcome) by PetroSkills instructors on an almost daily basis.

Process Utility Systems (PF-47)

FOUNDATION

DESIGNED FOR

Facility Engineers or engineers new to utility systems who are responsible for designing, operating and maintaining utility systems in oil and gas processing and related facilities. Most operations and planning activities depend on a fundamental knowledge of utility systems. This important subject is frequently overlooked however it is vital to successful oil and gas operations. Attending this course will assist participants in developing a broad background in utility systems.

YOU WILL LEARN

- To list the various options in selecting utility systems
- How to evaluate and select systems based on key criteria and considerations
- Key site selection considerations
- How to efficiently provide utilities
- Utilities management issues

ABOUT THE COURSE

This 5 day course will provide an overview of the various Utility Systems, key selection considerations and how they are integrated into onshore and offshore oil and gas facilities. Individuals will develop a basic understanding of the wide variety of utility systems and components and how they integrate with the process facilities and overall operation. System selection, relative costs and other managerial decisions pertinent to utility operations are covered. Exercises are used to identify utility consumers, summarize utility requirements, consider high level utility systems options, and select the most energy efficient alternatives from an onshore and offshore perspective.

COURSE CONTENT

- Process heating systems
 - Steam
 - Hot oil
 - Glycol and water
- Process cooling systems
 - Indirect- cooling water
 - Direct-seawater
- Process drains – open and closed
- Refrigeration
- Power generation and distribution
- Instrument/Plant air and breathing air
- Fresh & potable water
- Fuel systems
 - Natural gas
 - Diesel
- Firewater
- Inert gas systems
- Utilities energy considerations
- Utilities management issues

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	11-15 MAY 2015	US\$4,150
LONDON, U.K.	8-12 JUN 2015	US\$4,780+VAT
ORLANDO, U.S.	15-19 DEC 2014	US\$4,110
	14-18 DEC 2015	US\$4,110

Troubleshooting Oil and Gas Processing Facilities (PF-49)

INTERMEDIATE

DESIGNED FOR

Process/Facilities engineers with 5-10 years of experience, Facilities Engineering team leaders/supervisors, Senior Facilities operational personnel.

YOU WILL LEARN

- The difference between troubleshooting, optimization and debottlenecking
- How to recognize trouble when it is occurring
- How to develop a methodical approach to troubleshooting
- To recognize how different components of a facility interact with each other, and the significance of these interactions
- How to gather, validate and utilize the data needed for troubleshooting
- The basics of root cause analysis
- 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 oil and gas industry

ABOUT THE COURSE

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.

COURSE CONTENT

- Understanding the similarities and differences between Troubleshooting vs. Optimization vs. Debottlenecking
- Types of oil and gas processing facilities
- Typical processing facility block flow diagrams and how to use them
- System trouble versus Component/Equipment-Specific trouble
- Defining good/normal operation
- Quantifying the cost of the trouble
- Gathering, validating and utilization of data (Types of data, Sources of data, Data quality and validation, Using the data)
- Fundamentals of root cause analysis and methodology
- Developing a step-by-step troubleshooting methodology/flowchart (What, why, how, who, when?)
- Identifying the best solution (Criteria for defining best solution [cost/profitability, safety, environmental impact, regulatory, combination of above])
- Troubleshooting checklists for main processes and major equipment types

2014-15 Schedule and Tuition / 5 Days

DENVER, U.S.	10-14 AUG 2015	US\$4,110
HOUSTON, U.S.	27 APR-1 MAY 2015	US\$4,150
	14-18 SEP 2015	US\$4,150
KUALA LUMPUR, MALAYSIA	5-9 OCT 2015	US\$5,460
LONDON, U.K.	17-21 AUG 2015	US\$4,780+VAT
OKLAHOMA CITY, U.S.	9-13 MAR 2015	US\$4,110
ORLANDO, U.S.	3-7 NOV 2014	US\$4,110
	26-30 OCT 2015	US\$4,110

CO₂ Surface Facilities (PF-81)

SPECIALIZED

DESIGNED FOR

Engineers and senior operating personnel involved with carbon dioxide (CO₂) Enhanced Oil Recovery (EOR) systems.

YOU WILL LEARN

- What to expect over the life of a CO₂ EOR system
- The impact of CO₂ on the design and operation of oilfield equipment
- The physical and thermodynamic properties of pure CO₂ and the impact of CO₂ as a component in hydrocarbon mixtures
- Unique characteristics of dehydrating CO₂ and CO₂-rich gases
- Best practices to deal with dense phase in pipelines, meters, flare and blowdown systems etc.
- How to compress and/or pump CO₂
- The basics of ductile fracture arrest
- The challenges of separations involving high CO₂ concentrations and the basics of specialized processes such as membranes, bulk and/or extractive distillation, and hybrid systems.

ABOUT THE COURSE

This course emphasizes the affect 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 are familiar with conventional facilities but need to understand the significance of high CO₂ concentrations. Physical and thermodynamic properties for carbon dioxide/natural gas mixtures are described and best practices are discussed. Tools are introduced and used which allow participants to predict the behavior and assess the impact of CO₂ on facilities.

The standard course has a heavy emphasis on CO₂ for enhanced oil recovery. Variations of the course have been delivered which focus on acid gas injection or CO₂ storage facilities - both of which have much in common with CO₂ injection for EOR. Numerous specialized sessions have also been conducted to prepare operations and maintenance personnel for high-CO₂ environments. An extra day will be added to the Midland course if a plant tour is available. The plant tour is optional.

COURSE CONTENT

- Overview of CO₂ injection and process facilities with an emphasis on CO₂ EOR
- 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

2014-15 Schedule and Tuition / 3 Days

CALGARY, CANADA	9-11 MAR 2015	US\$3,120+GST
DOHA, QATAR	7-9 JUN 2015	US\$3,820
MIDLAND, U.S.	17-20 NOV 2014	US\$3,120
	16-19 NOV 2015	US\$3,120
OKLAHOMA CITY, U.S.	15-17 DEC 2014	US\$3,120
	14-16 DEC 2015	US\$3,120

ONSHORE GAS GATHERING SYSTEMS: DESIGN AND OPERATION

PF-45

Build Your Knowledge - Build Your Skills - Build Your Career

Gain Critical Knowledge of Gas Gathering by Learning :

- **The design, operation and optimization of onshore gas gathering systems and their associated field facilities, from the wellhead to the central gas processing facility**
- **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**
- **How to recognize and develop solutions to operating problems with existing gas gathering systems**

See page 23 for the full course description

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John M. Campbell

Seats fill quickly, so enroll today!
petroskills.com/pf45

Offshore Engineer

Course Progression

Our Offshore Team provides technical training and consulting for the complete life-cycle of offshore oil and gas systems; from exploration and development to decommissioning. The curriculum includes courses that provide attendees the knowledge to understand and participate in evaluating the major offshore development alternatives: fixed structures, floating systems and subsea systems. Other key elements stressed in all offshore courses include life-cycle costs, constructability, operability and interface management.

Offshore instructors have extensive real world experience managing offshore development projects, well construction and servicing, asset management and producing operations. Their broad knowledge blends the unique technical and operational issues of offshore into an integrated approach to enhance understanding of the full scope of offshore facilities.

Offshore Engineer 3-year Course Progression

Below is an example of a 3 year course progression covering topics we believe critical to developing technically strong Offshore Engineers.

2 Additional courses offer further depth in developing competencies.

Instrumentation, Controls & Electrical Systems for Facilities Engineers (ICE-21)

PAGE 34

Fundamentals of Subsea Systems (SS-2)

PAGE 27

Process Utility Systems (PF-47)

PAGE 24

Fundamentals of Pump and Compressor Systems (ME-44)

PAGE 37

Relief and Flare Systems (PF-44)

PAGE 23

Oil Production And Processing Facilities (PF-4)

PAGE 19

Piping Systems: Mechanical Design & Specification (ME-41)

PAGE 37

Process Safety Engineering (PS-4)

PAGE 14

Gas Conditioning And Processing (G-4)

PAGE 12

3 For broader knowledge, these courses are recommended.

Fundamentals of Onshore and Offshore Pipeline Systems (PL-4)

PAGE 31

Project Management for Engineering and Construction (FPM22)

PAGE 44

Corrosion Management in Production/Processing Operations (PF-22)

PAGE 21

1

Fundamentals of Offshore Systems: Design and Construction (OS-4)

PAGE 27

A 3-year progression for an Offshore Engineer would begin with the Fundamentals of Offshore Systems Design and Construction course (OS-4).

ADVANCED CERTIFICATE PROGRAM: Be eligible for a PetroSkills Advanced Certificate in Offshore by completing any four of the courses above within a period of 3 years, starting with OS-4 (see page 71 for more details). A participant will typically take the G-4 course for a gas track and the PF-4 course for an oil track.



Fundamentals of Off-shore Systems: Design & Construction (OS-4)

FOUNDATION

DESIGNED FOR

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

YOU WILL LEARN

- Identify the key facilities parameters that must be evaluated for field development
- Describe the types and capabilities of offshore well construction, pipeline, riser and production (surface and subsea) facilities needed for all water depths, from shallow to ultra deepwater
- Recognize the best applications and characteristics of each type of offshore fixed and floating structure
- Account for the affects 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 how topside facilities (drilling, well servicing, processing and utilities) affect the structural design and how the topside design process is done
- 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

ABOUT THE COURSE

The 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 asset development, surveillance and management. The content includes the full range of water depths from shallow water to ultra deepwater and will also address life-cycle considerations in all phases of offshore field development and operation. All major components required for offshore developments such as fixed and floating platforms, drilling rigs, workover equipment, pipelines, risers, process and utilities and construction equipment are discussed. Emphasis is placed on the multi-discipline team approach needed to manage the myriad interfaces of offshore facility design, construction and operations. Individual and group exercises are used throughout the course. A case study project exercise is included to develop field architecture recommendations, basic design and high level project execution plans for an offshore development. The course instructors are experienced offshore managers.

COURSE CONTENT

- Offshore systems overview and field architecture selection
- Well construction and servicing equipment and operations
- 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

2014-15 Schedule and Tuition / 10 Days

DUBAI, U.A.E.	16-27 NOV 2014	US\$8,270
	8-19 NOV 2015	US\$8,270
HOUSTON, U.S.	20 APR-1 MAY 2015	US\$7,615
	17-28 AUG 2015	US\$7,615
LONDON, U.K.	28 SEP-9 OCT 2015	US\$8,270+VAT
ORLANDO, U.S.	1-12 DEC 2014	US\$7,540
	7-18 DEC 2015	US\$7,540
PERTH, AUSTRALIA	10-21 AUG 2015	US\$7,960+GST
SINGAPORE	3-14 NOV 2014	US\$7,960
	26 OCT-6 NOV 2015	US\$7,960

Overview of Offshore Systems (OS-21)

BASIC

DESIGNED FOR

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

YOU WILL LEARN

- Identify the key steps in the development of offshore fields from discovery through decommissioning
- Understand the elements of field architecture to define an optimum field development
- Recognize key technical and non-technical stakeholder issues
- Recognize the types and terminology of offshore process facilities and structures - fixed and floating.
- Understand the impact of the ocean environment on facilities design and operations
- Identify major design, construction, and operational issues and interfaces of offshore systems
- Recognize important forces on offshore structures and their influence on design and cost
- Understand strategic options for well drilling (construction) and servicing
- Appreciate the basic processes and equipment involved in the topsides design and operation
- Understand the options and equipment used for transportation of produced fluids and treatment chemicals
- Develop an appreciation for the marine equipment used in the construction of offshore facilities.
- Understand basic issues in life-cycle and decommissioning decisions
- Appreciate the continuing advances being made in the technology of offshore

ABOUT THE COURSE

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 case study exercises are used throughout the course. The course instructors are experienced offshore managers.

COURSE CONTENT

- Field development concepts: - Ocean environment and its impact on offshore systems - Fixed and floating structures - options and applications • Subsea Systems • Drilling wells, their construction and servicing operations • Topsides Facilities: - Processing - Utilities • Oil and gas transportation system design and installation • Production operations • Offshore Construction - Equipment - Fabrication, Transportation, Integration, Installation • Project Management
- Life-cycle considerations including decommissioning

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	20-24 JUL 2015	US\$4,150
	14-18 SEP 2015	US\$4,150
LONDON, U.K.	3-7 NOV 2014	US\$4,780+VAT
	13-17 APR 2015	US\$4,780+VAT
ORLANDO, U.S.	12-16 OCT 2015	US\$4,780+VAT
	8-12 DEC 2014	US\$4,110
PERTH, AUSTRALIA	9-13 NOV 2015	US\$4,110
	27-31 JUL 2015	US\$5,460+GST

Fundamentals of Subsea Systems (SS-2)

FOUNDATION

DESIGNED FOR

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

YOU WILL LEARN

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

ABOUT THE COURSE

An overview of subsea components and how they are integrated into field architecture is provided during this 5-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 working underwater 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 exercise to develop field architecture recommendations, basic component selection, and high level project execution plans for a subsea development. Course instructors are experienced offshore managers.

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

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	15-19 DEC 2014	US\$4,150
	23-27 MAR 2015	US\$4,150
LONDON, U.K.	1-5 JUN 2015	US\$4,150
	5-9 OCT 2015	US\$4,150
LONDON, U.K.	30 NOV-4 DEC 2015	US\$4,150
	15-19 DEC 2014	US\$4,780+VAT
ORLANDO, U.S.	20-24 APR 2015	US\$4,780+VAT
	14-18 DEC 2015	US\$4,780+VAT
SINGAPORE	21-25 SEP 2015	US\$4,110
	10-14 AUG 2015	US\$5,460



Attention Facilities Engineers:
PetroSkills | John M. Campbell Presents

Oil Production and Processing PF-4

PF-4

PF-4 Oil Production and Processing Facilities

Gain Critical Knowledge of Oil Production & Processing Facilities

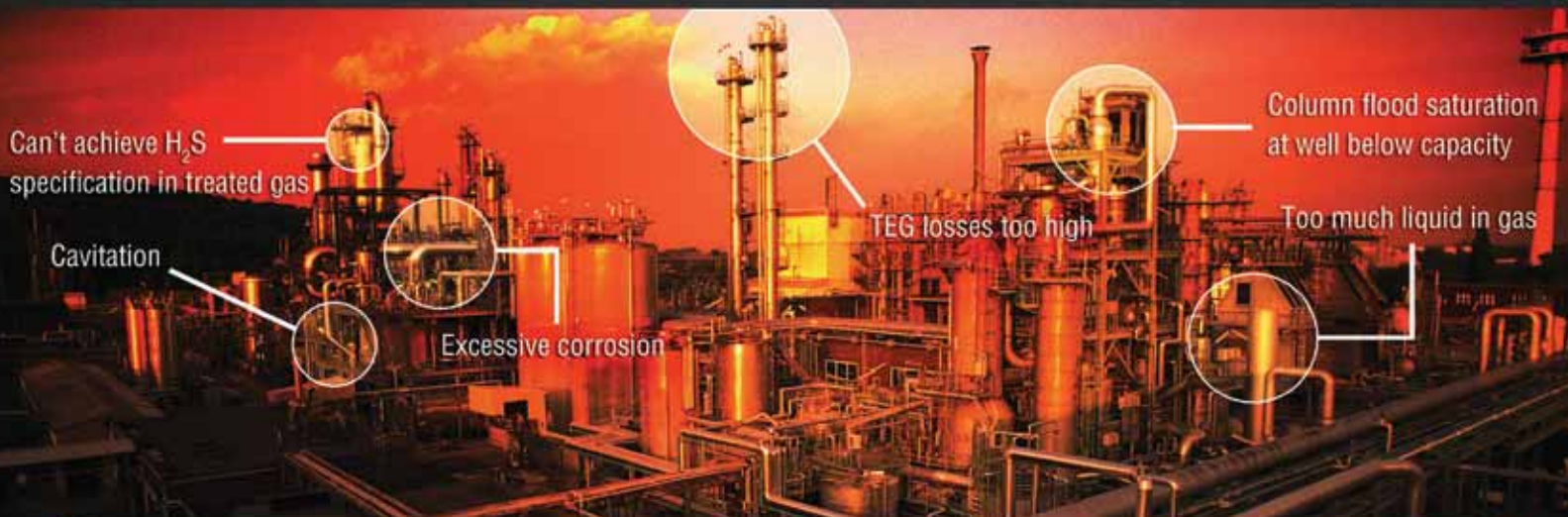
The emphasis of this course is on oil production facilities - from the wellhead to the delivery of a specification crude oil product to the refinery. Both onshore and offshore facilities will be discussed. Produced water treating and water injection systems are also covered. Solution gas handling processes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

(See page 19 for a full course description)

Build Your Career and Confidence with Skills and Knowledge on the Following Topics:

- Overview of upstream oil and gas production operations
- Fluid properties and phase behavior
- Overview of artificial lift
- Processing configurations (example PFDs)
- Phase separation of gas, oil, and water
- Emulsions
- Sand, wax, and asphaltenes
- Oil treating
- Field desalting
- Crude stabilization and sweetening
- Crude oil storage and vapor recovery
- Measurement of crude oil
- Transportation of crude oil
- Produced water treating
- Water injection systems
- Overview of solution gas processing
- Compressors
- Relief and flare systems

Announcing the Long Anticipated Course on Troubleshooting Oil & Gas Processing Facilities



PF-49 | Troubleshooting Oil & Gas Processing Facilities

You Will Learn:

- How to define and identify the best solution
- What the similarities and differences are between Troubleshooting vs Optimization vs Debottlenecking
- Root cause analysis and methodology and when to look for multiple causes
- How to properly gather and validate data (types, sources and quality)
- What the similarities and differences are between system trouble versus equipment trouble

PLUS In-Class Exercises - Exercises teach you how to analyze operational data, how to identify additional information that's needed and how to confirm the nature of the problem.

Course Handout - Leave the course with a Step-by-Step Troubleshooting Flowchart, plus Troubleshooting Checklists for main processes and major equipment types.

Seats fill quickly, so enroll today! petroskills.com/pf49

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Pipeline Engineer

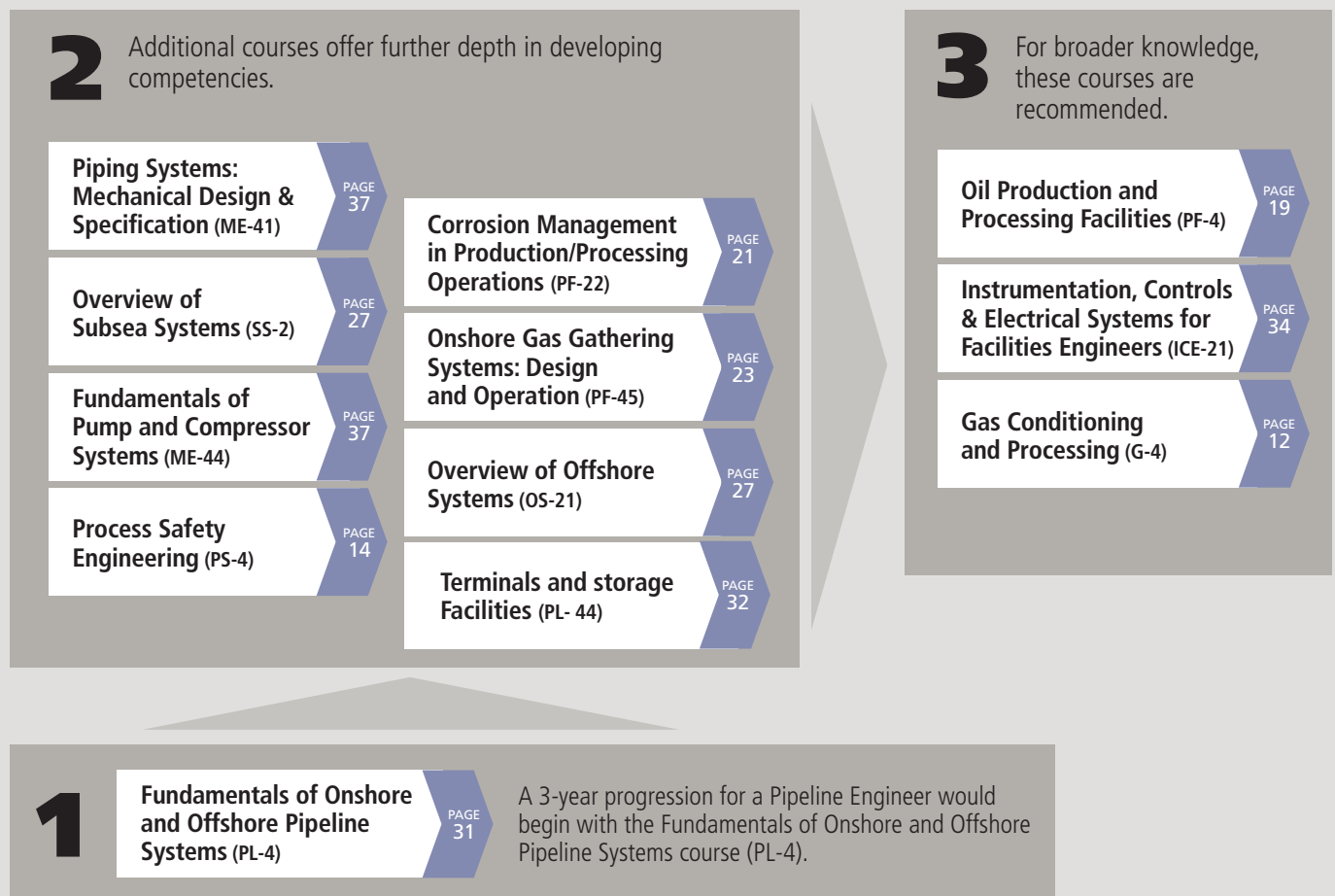
Course Progression

Our Pipeline Progression provides technical training and consulting for oil and gas transportation, focusing on pipeline systems as well as onshore infrastructure systems that support oil and gas operations. The curriculum covers pipeline transportation systems, oil and gas terminal facilities, and the onshore infrastructure from regional considerations through design and construction of site-specific systems. As with all our training programs, these discipline areas integrate with the other technical, operations and HSE disciplines.

The Instructors and Consultants that support the Pipeline discipline have extensive real world – global experience from conceptual development through operations. Their broad knowledge blends the unique technical and operational issues of pipeline systems that transport all types of fluids – from heavy oils to refined products to high pressure injection gas and water - into integrated systems. This global experience spans the pipeline industry from initial site selection through detailed design and construction of unique facilities.

Pipeline Engineer Course Progression

Example of recommended courses to develop a Pipeline Engineer over a 3-year span.



ADVANCED CERTIFICATE PROGRAM: Be eligible for a PetroSkills Advanced Certificate in Pipelines by completing any four of the courses above within a period of 3 years, starting with PL-4 (see page 71 for more details).

Pipeline Systems Overview (PL-22)

BASIC

NEW

YOU WILL LEARN

- Identify the key components and facilities that are integrated into Pipeline Systems
- Recognize the federal, state and local regulatory and environmental policies that guide the permitting, design, construction, operations and maintenance of pipeline facilities.
- List the steps from concept to operating system - design, permitting, land acquisition, construction and startup - with each tied to the key issues for project management
- Identify the strategic operational and maintenance needs and options for pipeline systems including system monitoring and control, leak detection troubleshooting and response, and efficient - safe operations.

ABOUT THE COURSE

A 5-day course that provides awareness level training for engineers new to the design, construction, operations and maintenance of hydrocarbon liquids and natural gas liquids (NGLs) pipeline systems. The goal of this course is to establish the real world framework in which pipeline engineers design, permit, construct, operate and maintain pipelines. This course will cover pipeline systems located in the United States and integrate six topics into the life cycle of pipelines and related facilities. The topics include the technical basis for pipeline systems, the key facilities that are integrated into pipeline systems, the regulatory and environmental compliance, the key considerations for public and governmental interaction, the project development and construction challenges, and the strategies for pipeline system operations, maintenance and repair. Case studies are an integral part of this course.

COURSE CONTENT

- Pipeline Systems - What are the facilities needed and why? Overview of the typical systems arrangements and descriptions of the components and interconnection
- Pipelines in the United States - Factors that have led to the pipeline systems in United States and Canada. What are the considerations for building then operating pipelines?
- Technology and the Engineering of Pipelines - Describe the major technical considerations that drive the design of pipeline systems and the major components?
- THE PUBLIC - Land and Environmental Considerations - Describe and discuss the nature of public engagement and response to pipelines throughout the system's life cycle. Recognize the linear nature of pipeline systems that will be predominantly NOT be on Company property and the implications throughout the life cycle of the pipeline systems
- Regulatory and Environmental Framework for Pipelines - Describe the governmental and non-governmental policies that determine the control permitting, land acquisition, and often impact schedule, design, construction methods and cost.
- Constructing Pipeline Facilities - Overview of procurement and construction planning, logistics and execution for pipelines and the associated facilities.
- Operating the Pipeline - Overview of the operating cycle from commissioning through abandonment with emphasis on the long term integrity challenges of pipelines.
- Responding to Failures - Discussion on the typical modes of failures and the strategies to mitigate the causes, detection and response approaches, and methods to respond to emergencies.

See website for dates and locations, or to schedule an in-house course.

Fundamentals of Onshore and Offshore Pipeline Systems (PL-4)

FOUNDATION

DESIGNED FOR

Technical professionals new to the pipeline business or needing a broad understanding of the pipeline business including: pipeline project managers, pipeline engineers, facilities engineers, pipeline design and construction engineers, engineering and construction contractors.

YOU WILL LEARN

- How to apply mechanical and physical principles to all phases of pipeline design, construction, and operation
- Identify similarities and differences of onshore and offshore pipeline systems
- Incorporate construction methods, commissioning, pressure testing, and start-up into the design of a pipeline system
- Applying safety and environmental regulations for a sound design
- Common sense methods and technical requirements to define pipeline routes and facilities locations
- The importance of fluid properties and process to pipeline systems design and construction

ABOUT THE COURSE

This intensive, ten-day foundation level course covers the design, construction, and operation of pipeline systems. The focus is on pipeline routing, hydraulics, mechanical design, and construction for both onshore and offshore pipelines. The result of this course is cost-effective, safe and environmentally sound design, construction, inspection, operation, and maintenance of pipelines. Design problems and group projects are an integral part of this course.

COURSE CONTENT

- Pipeline systems definition and applications
- Codes and standards related to pipelines
- Pipeline hydraulics: single-phase gas and liquids, multiphase fluids and heavy/waxy crudes
- Major design considerations for strength, stability, and installation
- Pipeline survey and mapping
- Pipeline route engineering
- Pipeline materials and components
- Corrosion and cathodic protection of pipelines
- Special design aspects, covering such issues as risers, slug catchers, pigging facilities, etc
- Basic design considerations for pipeline facilities
- Pipeline construction for cross country and offshore systems focusing on welding
- Pressure testing, pre-commissioning, and commissioning
- Pipeline integrity aspects including in-line inspection
- Leak detection and emergency planning considerations
- Repairs and modification considerations
- Safety, environmental, and regulatory requirements

2014-15 Schedule and Tuition / 10 Days

KUALA LUMPUR, MALAYSIA	17-28 NOV 2014	US\$7,960
	16-27 NOV 2015	US\$7,960

Onshore Pipeline Facilities: Design, Construction and Operations (PL-42)

FOUNDATION

DESIGNED FOR

Professionals in the oil and gas industry new to the onshore pipeline business or needing a broad understanding of the design, construction and operation of onshore pipelines including: pipeline project managers, pipeline engineers, facilities engineers, pipeline design and construction engineers and engineering and construction contractors.

YOU WILL LEARN

- To apply mechanical and physical principles to pipeline design, materials and equipment selection, construction, and operation
- To identify special design and construction challenges of onshore pipeline systems
- To identify the principal interfaces and potential interrelationships of pipeline facilities such as: pump and compressor stations, storage and metering facilities, design and construction of assets, and operation of onshore pipeline systems
- To identify safety and environmental practices and their effect on design, construction, and operation
- The importance of planning for the testing, commissioning and start-up of pipeline systems

ABOUT THE COURSE

This intensive, five-day foundation level course covers the design, construction, and operation of onshore pipeline systems used in the oil and gas industry. The course focuses on pipeline routing, hydraulics, facilities design, construction methods, and operation of onshore pipeline systems. Participants will acquire and/or consolidate the essential knowledge and skills to design, construct, and operate pipelines. Design problems are an integral part of this course.

COURSE CONTENT

- Pipeline systems definition and applications
- Safety, environmental, and regulatory considerations; codes and standards related to pipelines
- Pipeline conceptual and mechanical design for strength, stability, and installation
- Impacts of pipeline hydraulics on pipeline design, construction, and operations
- Pipeline survey, mapping, and route selection
- Pipeline materials and equipment selection
- Corrosion and cathodic protection of pipelines
- Pipeline construction for onshore pipeline systems
- Introduction to flow assurance considerations and pipeline integrity aspects including in-line inspection, leak detection, and emergency planning considerations
- Pipeline operations, maintenance and repairs considerations

2014-15 Schedule and Tuition / 5 Days

DENVER, U.S.	27-31 JUL 2015	US\$4,110
DUBAI, U.A.E.	4-8 OCT 2015	US\$5,190
HOUSTON, U.S.	20-24 APR 2015	US\$4,150
ORLANDO, U.S.	17-21 NOV 2014	US\$4,110
	16-20 NOV 2015	US\$4,110
PITTSBURGH, U.S.	14-18 SEP 2015	US\$4,110

Terminals and Storage Facilities (PL-44)

FOUNDATION

NEW

YOU WILL LEARN

- Differentiate between the storage and terminals for hydrocarbon liquids (oils and products) and natural gas liquids
- Identifying various storage systems and the typical and appropriate applications.
- Defining the equipment and arrangement of typical terminals and their design considerations
- List the codes and standards as well as key regulatory and environmental compliance that apply to terminals and storage.
- Defining the typical operations of terminals and associated storage facilities
- Describing the key factors affecting safety, product quality, system reliability and availability

ABOUT THE COURSE

This five-day foundation level course for engineers reviews the key areas associated with the development, design, construction and operations of terminals and storage facilities for liquid hydrocarbons and NGLs. The storage of the liquids will include above ground atmospheric (stable hydrocarbon liquids) and pressurized systems (NGLs) and underground pressurized systems (NGLs). For terminals, the course covers the surface facilities typical for the receipt, storage and dispatch from pipelines, rail car, truck and barge/tanker. The course is focused on four areas: terminal arrangements and equipment, types of storage, key design considerations for storage and terminals, and operational considerations. Safety, quality control, system reliability and availability as well as codes and standards are integrated throughout the materials. Case studies and exercises / examples will be used to reinforce key points.

COURSE CONTENT

- Storage and terminals basics for hydrocarbon liquids and NGLs – Similarities and Differences
- How the product characteristics drive design and operations of storage and terminal facilities
- Framework and key details of industry codes and standards plus regulatory and environmental compliance
- Hydrocarbon Liquids – Atmospheric Storage Aboveground
- Natural Gas Liquids – Pressurized Storage Aboveground
- Natural Gas Liquids – Pressurized Storage Underground
- Crude Oil Terminals – Key Land and Marine Facilities and Operations
- Products Terminals – Key Facilities and operations
- NGL Terminals – Key Facilities and Operations
- Safety, Product Quality and Reliability / Availability

See website for dates and locations, or to schedule an in-house course.

Announcing Two New Pipeline Courses



PL-22 Pipeline Systems Overview

You Will Learn How To:

- Identify the key components and facilities that are integrated into Pipeline Systems
- Recognize the federal, state and local regulatory and environmental policies that guide the permitting, design, construction, operations and maintenance of pipeline facilities
- List the steps from concept to operating system - design, permitting, land acquisition, construction and startup - with each tied to the key issues for project management
- Identify the strategic operational and maintenance needs and options for pipeline systems including system monitoring and control, leak detection troubleshooting and response, and efficient - safe operations (See page 31 for full course description)

For full course description or to enroll go to petroskills.com/pl22

PL-44 Terminals and Storage Facilities

You Will Learn How To:

- Differentiate between the storage and terminals for hydrocarbon liquids (oils and products) and natural gas liquids
- Identify various storage systems and the typical and appropriate applications
- Define the equipment and arrangement of typical terminals and their design considerations
- Define the typical operations of terminals and associated storage facilities
- Describe the key factors affecting safety, product quality, system reliability and availability
- List the codes and standards as well as key regulatory and environmental compliance that apply to terminals and storage (See left column for a full course description)

For full course description or to enroll go to petroskills.com/pl44

Interested in Pipeline Technical Content?
Check out our FREE on-demand webinar
"A Key to Unlocking Pipeline Stress in
Offshore Pipeline Construction"
petroskills.com/pipelinewebinar

PetroSkills[®]
John M. Campbell

Looking for a trusted advisor to develop your midstream workforce?



From processing to pipeline, engineering to operations, PetroSkills has over 50 years of deep industry experience to help manage the talent required to execute on your midstream assets. As a trusted advisor to the industry, we can help you tackle your operational challenges.

We have the processes, tools, and people to create a holistic workforce development plan for your engineers, operators, and technicians.

- **Competency Framework** – industry-standard competency frameworks, customized to company job positions within the areas of Gathering, Processing, Transportation, and Storage
- **Learning and Development Content** – industry approved course material delivered through instructor led training, e-learning modules, or blended learning activities
- **Competency-Focused Technology** – easy-to-use software for management and reporting for Competency, Compliance, and Assurance
- **People and Process** – with a strong and proven record in the industry, PetroSkills experts will work with you to develop structured accelerated learning programs for your organization

PetroSkills—the trusted consulting partner for improving asset, operational, and organizational performance.

PetroSkills®

To learn more about PetroSkills Midstream offerings please visit www.petroskills.com/consulting or email midstream@petroskills.com

Instrumentation, Controls and Electrical Systems for Facilities Engineers (ICE-21)

FOUNDATION

DESIGNED FOR

Managers, engineers, technicians and system operators requiring a broad understanding of instrumentation, control, and electrical systems in oil and gas facilities.

YOU WILL LEARN

Electrical Power

- Defining fundamentals parameters for electrical power usage and generation such as voltage levels, self-generate versus purchased power, and basic electrical power management.
- Developing electrical power demand (load) lists, one-line diagrams, and the selecting and integration of power distribution systems.
- Identifying electrical power users (for the load list) then evaluating the equipment demand on the power system (such as intermittent or continuous service, and motor starting loads).
- Using safe practices such as hazardous area definition and circuit protection.

Instrumentation and Control

- Defining what to measure, why to measure a parameter, and how to measure.
- Determining and using the many control strategies, equipment and computer systems common to an oil and gas facility.
- Identifying equipment and instrument characteristics and using appropriate instrumentation and controls.
- Developing and integrating components into systems that monitor and locally control the process (and related equipment), safety systems, and the communications and remote control systems used.

ABOUT THE COURSE

This 5-day course provides an overview of electrical power generation and distribution, process and safety systems instrumentation, and control strategies and configurations. The focus is on application and integration into the process and control of upstream and midstream oil and gas facilities. The material of the course is applicable to field process facilities, pipelines, gas plants, and offshore systems.

COURSE CONTENT

• Key electrical power considerations and fundamentals applied in oil and gas facilities. • Voltage levels and power type (3-phase, single-phase, and direct current) selection and application. • Purchased power considerations including generation efficiency, redundant sources, transmission grid parameters, and cost considerations. • Electric power distribution, systems loads, internal grid layout, major distribution equipment and cabling. • Power users definition and integration into the power distribution system. • Electrical system safety. • Process systems operations and the key characteristics, and measurement needs, as well as techniques to measure and control. • Control modes and their applications, communications requirements, and the operator and computer controller interface. • Interrelationships between process, equipment, instruments and controls. • Field (facility) control and monitoring systems such as pressure and level indicators and controllers. • Field (facility) safety monitoring and response systems including SIS, HIPPS and emergency shutdown valves. • System-wide considerations including communications, local control, remote control, and data management and use.

2014-15 Schedule and Tuition / 5 Days

BAKERSFIELD, U.S.	16-20 MAR 2015	US\$4,110
DOHA, QATAR	7-11 DEC 2014	US\$5,190
	29 NOV-3 DEC 2015	US\$5,190
HOUSTON, U.S.	15-19 DEC 2014	US\$4,150
	21-25 SEP 2015	US\$4,150
	14-18 DEC 2015	US\$4,150
LONDON, U.K.	6-10 JUL 2015	US\$4,780+VAT

Electrical Engineering Fundamentals for Facilities Engineers (E-3)

FOUNDATION

DESIGNED FOR

Facilities and Project Engineers as well as new Instrumentation, Controls and Electrical Engineers who need to improve their basic understanding of electrical systems within oil and gas facilities.

YOU WILL LEARN

- The key components of facilities electric power distribution which include circuit arrangements, low and medium voltage switchgear, and single-phase and three phase schemes
- Operation, components, electromotive forces, turns and voltage ratios, losses, efficiency, rating, and connections of transformers
- The difference between direct current motors, alternating current motors, enclosures and how to select motors
- Protection of electrical equipment including fuses, direct tripping, relaying, and coordination
- About emergency power to include power requirements, generator sets, direct current systems, batteries, and an overview of uninterruptible power supplies (UPS)
- Power generation which includes an overview of emergency, prime, base, peak and co-generation, quality, sizing, operation, control, and power factor correction
- Grounding and bonding with an overview of systems, equipment, ignition sources, separately derived systems, performance, and substation grounding
- Hazardous areas with general information on classifications, NEC, IEC, equipment protection, certification, and definitions

ABOUT THE COURSE

This course applies fundamental electrical engineering principles to oil and gas facilities design and operation. The course is designed for Facilities Engineers with or without a background in electrical engineering and can accelerate the development of new Facilities Electrical Engineers. Through the use of individual and group problem solving, attendees will learn about transformers, motors, generators, one-line diagram interpretation, protection and coordination of electrical equipment, emergency power, site and standby generation, electrical safety, and hazardous areas. Participants will gain a better understanding of electrical components and systems and will develop a greater appreciation for electrical engineering.

COURSE CONTENT

• Fundamentals of electricity • Direct current • Basic AC theory • Transformers • Motors • Power distribution • System protection and coordination • Emergency power generators, direct current systems and uninterruptible power systems • Power generation • Variable speed drives • Programmable electronic systems • Electrical safety • Grounding and bonding • Hazardous area

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	9-13 FEB 2015	US\$4,150
ORLANDO, U.S.	5-9 OCT 2015	US\$4,110

Instrumentation and Controls Fundamentals for Facilities Engineers (IC-3)

FOUNDATION

DESIGNED FOR

Facilities and Project Engineers as well as newly graduated Instrumentation, Controls and Electrical Engineers who need to improve their basic understanding of instrumentation and control systems within oil and gas facilities.

YOU WILL LEARN

- Field measurement devices including level, pressure, temperature, and flow
- Final elements and actuators including control loops, control valves, shutdown valves, actuators, and transducers
- Pressure relief and pressure regulation
- How to document instrumentation including tag numbers, P&IDs, loop and logic diagrams
- Process control basics with emphasis on control loops, types, strategies, and loop tuning
- How programmable logic controllers operate as well as their advantages, application, functionality, architecture, and programming
- Supervisory Control and Data Acquisition (SCADA) Systems to include telemetry, RTUs, internet and web-based
- Distributed Control Systems (DCS) including Fieldbus and Profibus
- Risk mitigation, technologies, and architecture of Safety Instrumented Systems (SIS)
- Best practices for hazardous areas and equipment selection which will include area classification, NEC, IEC, equipment protection, selection, certification, location, and ingress

ABOUT THE COURSE

This course applies fundamental instrumentation and control engineering principles to oil and gas facilities design and operation and is designed for Facilities Engineers with or without a background in instrumentation or control engineering. The course is also 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. Participants will gain a better understanding of instrumentation and control components and systems and will gain a greater appreciation for instrumentation and control engineering.

COURSE CONTENT

• Fundamentals • Field measurement devices • Final elements and actuators • Pressure relief and pressure regulation • Instrumentation documentation • Control system basics • Programmable logic controllers • Supervisory control and data acquisition (SCADA) systems • Distributed control systems (DCS) • Safety instrumented system (SIS) • Hazardous areas and equipment selection

2014-15 Schedule and Tuition / 5 Days

BAKERSFIELD, U.S.	14-18 SEP 2015	US\$4,110
CALGARY, CANADA	13-17 APR 2015	US\$4,110+GST
DENVER, U.S.	20-24 JUL 2015	US\$4,110
DUBAI, U.A.E.	26-30 OCT 2014	US\$5,190
	25-29 OCT 2015	US\$5,190
HOUSTON, U.S.	17-21 NOV 2014	US\$4,150
	16-20 FEB 2015	US\$4,150
	8-12 JUN 2015	US\$4,150
	16-20 NOV 2015	US\$4,150
JOHANNESBURG, SOUTH AFRICA	20-24 APR 2015	US\$5,450
ORLANDO, U.S.	6-10 OCT 2014	US\$4,110
	12-16 OCT 2015	US\$4,110
PERTH, AUSTRALIA	10-14 AUG 2015	US\$5,460+GST

PLC and SCADA Technologies (IC-71)

INTERMEDIATE

DESIGNED FOR

Instrumentation, electrical and process engineers and technicians involved in selecting, sizing, specifying, installing, testing, operating and maintaining programmable logic controllers (PLCs) and supervisory (SCADA) systems.

YOU WILL LEARN

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

ABOUT THE COURSE

This workshop provides engineers and technicians with the basic theoretical and practical understanding of PLC and SCADA systems. It traces the evolution of the PLC as an intelligent 'black box' replacement for the relay panel and how, with the advent of modern communications architectures, it is combined with supervisory control 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 (LogixPro) covering: basic ladder logic programming; hardware diagnostics; and implementation of various communication strategies.

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 standard • Ladder logic diagrams • Functional block diagrams • Derived function blocks • Structured text • Instruction lists • Sequential function chart • SCADA basics • System architecture communication strategies • Asynchronous transmission • Coding • The RS 232 standard • The RS 485 standard • Modbus • Safety PLCs • Voting system architectures

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S. 🌐	6-10 OCT 2014	US\$4,150
	5-9 OCT 2015	US\$4,150
LONDON, U.K. 🌐	1-5 JUN 2015	US\$4,780+VAT
🌐 Available from anywhere via PetroFlex delivery (see pg. 81)		

Valve and Actuator Technologies (IC-72)

INTERMEDIATE

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

- 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/DN 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

ABOUT THE COURSE

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 'bench 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.

COURSE CONTENT

- Defining the valve flow coefficient, Cv • Choked flow • Pressure recovery • Flashing and cavitation • Cavitation control • Noise reduction • Control valve selection and sizing • Water hammer • Valve seat leakage classifications • Packing/stuffing box requirements • Globe valves • Gate valves • Pinch valves • Diaphragm valves • Ball valves • Butterfly valve • Plug valve • Check valves • Inherent vs. installed characteristics • Body selection guide • Trim selection guide • Actuator and accessory selection • Manual and computer-based valve sizing • I/P converter • Diaphragm actuators • Cylinder/piston-type actuator • Electro-hydraulic actuation • Electric actuator • Solenoid valves • Transfer mechanisms • Valve positioners • Valve testing and diagnostics • Bench Set • Valve maintenance and repair • Safety relief valves • Rupture discs

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S. 🌐	13-17 OCT 2014	US\$4,150
	12-16 OCT 2015	US\$4,150
LONDON, U.K. 🌐	8-12 JUN 2015	US\$4,780+VAT
🌐 Available from anywhere via PetroFlex delivery (see pg. 81)		

Flow and Level Custody Measurement (IC-73)

INTERMEDIATE

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 instrumentation related to the field of custody level and flow transfer measurement. This could include facilities, process, chemical, electrical, instrumentation, maintenance, and mechanical engineers and technicians.

YOU WILL LEARN

- 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 strapping 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
- Analyse the methodology for monitoring and controlling production losses
- Evaluate a variety of API standards

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S. 🌐	10-14 NOV 2014	US\$4,150
	9-13 NOV 2015	US\$4,150
LONDON, U.K. 🌐	29 JUN-3 JUL 2015	US\$4,780+VAT
🌐 Available from anywhere via PetroFlex delivery (see pg. 81)		

Regulatory Control and PID Loop Tuning (IC-74)

INTERMEDIATE

DESIGNED FOR

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

YOU WILL LEARN

- 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

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S. 🌐	17-21 NOV 2014	US\$4,150
	16-20 NOV 2015	US\$4,150
LONDON, U.K. 🌐	27-31 JUL 2015	US\$4,780+VAT
🌐 Available from anywhere via PetroFlex delivery (see pg. 81)		



Technical Training in Mechanical Engineering



Six Course Titles to Choose From:

- ME-41 Piping Systems – Mechanical Design and Specification
- ME-44 Fundamentals of Pump and Compressor Systems
- ME-46 Compressor Systems – Mechanical Design and Specification
- ME-47 Rotating Machinery Best Practices
- ME-49 Troubleshooting Rotating Equipment
- ME-62 Turbomachinery Monitoring and Problem Analysis

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Piping Systems - Mechanical Design and Specification (ME-41)

INTERMEDIATE

DESIGNED 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

- 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
- Compare alternative materials of construction
- The process of steelmaking, pipe manufacturing and material specifications
- Joining methods and inspection techniques
- Key considerations for flare and vent systems, including PSV sizing

ABOUT THE COURSE

This five-day course for engineers and piping system designers reviews the key areas associated with the design of piping systems for oil and gas facilities. The course is focused on four areas: codes and standards, pipe materials and manufacture, piping components, and piping layout and design. Applicable piping codes for oil and gas facilities (ISO, B31.3, B31.4, B31.8, etc.), 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.

COURSE CONTENT

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

2014-15 Schedule and Tuition / 5 Days

BRISBANE, AUSTRALIA	15-19 DEC 2014	US\$5,460+GST
	14-18 DEC 2015	US\$5,460+GST
DENVER, U.S.	20-24 JUL 2015	US\$4,110
DUBAI, U.A.E.	23-27 NOV 2014	US\$5,190
	22-26 NOV 2015	US\$5,190
HOUSTON, U.S.	1-5 DEC 2014	US\$4,150
	16-20 FEB 2015	US\$4,150
	30 NOV-4 DEC 2015	US\$4,150
LONDON, U.K.	16-20 MAR 2015	US\$4,780+VAT
	17-21 AUG 2015	US\$4,780+VAT
OKLAHOMA CITY, U.S.	13-17 APR 2015	US\$4,110
ORLANDO, U.S.	3-7 NOV 2014	US\$4,110
	2-6 NOV 2015	US\$4,110

Fundamentals of Pump and Compressor Systems (ME-44)

INTERMEDIATE

DESIGNED FOR

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

YOU WILL LEARN

- Selecting the appropriate integrated pump and compressors units (drivers, pumps, compressors, and 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, changes in fluid composition, and changes in operating conditions that can affect equipment selection and operating strategies.
- Assessing key pump hydraulics and compressor thermodynamics and their affect on selection and operations.
- Identifying significant conditioning operating monitoring parameters and troubleshooting techniques.

ABOUT THE COURSE

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, 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 process facilities, pipelines, gas plants, and offshore systems.

COURSE CONTENT

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

2014-15 Schedule and Tuition / 5 Days

BAKERSFIELD, U.S.	31 AUG-4 SEP 2015	US\$4,110
DENVER, U.S.	3-7 NOV 2014	US\$4,110
	27-31 JUL 2015	US\$4,110
DOHA, QATAR	27 SEP-1 OCT 2015	US\$5,190
DUBAI, U.A.E.	16-20 NOV 2014	US\$5,190
HOUSTON, U.S.	9-13 MAR 2015	US\$4,150
	17-21 AUG 2015	US\$4,150
	2-6 NOV 2015	US\$4,150
KUALA LUMPUR, MALAYSIA	1-5 DEC 2014	US\$5,460
	30 NOV-4 DEC 2015	US\$5,460
LONDON, U.K.	23-27 MAR 2015	US\$4,780+VAT
	24-28 AUG 2015	US\$4,780+VAT
OKLAHOMA CITY, U.S.	20-24 APR 2015	US\$4,110
ORLANDO, U.S.	10-14 NOV 2014	US\$4,110
	14-18 SEP 2015	US\$4,110
	14-18 DEC 2015	US\$4,110
RIO DE JANEIRO, BRAZIL	13-17 OCT 2014	US\$4,210

Compressor Systems - Mechanical Design and Specification (ME-46)

SPECIALIZED

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

ABOUT THE COURSE

This five-day 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.

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

2014-15 Schedule and Tuition / 5 Days

ORLANDO, U.S.	6-10 OCT 2014	US\$4,110
	5-9 OCT 2015	US\$4,110



MECHANICAL

Rotating Machinery Best Practices (ME-47)

FOUNDATION

DESIGNED FOR

Engineers, senior technicians and system operators designing, operating and maintaining rotating equipment in oil and gas facilities. Best practices from a variety of rotating machinery topics, representing many years of collective experiences, are presented in this course. In addition, the experience of the instructors allows many topics to be discussed in addition to those topics selected. The proper application of even one of the best practices is worth several times the cost of attending the course.

YOU WILL LEARN

- Project machinery best practices
- Pump best practices
- Compressor best practices
- Steam turbine best practices
- Gas turbine best practices
- Lubrication system best practices
- Seal oil system best practices
- Pump mechanical seal best practices
- Dry gas seal best practices
- Preventative maintenance best practices
- Predictive maintenance best practices
- Implementation & communication best practices

ABOUT THE COURSE

This is an intensive 5-day course providing a comprehensive overview of pumps, compressors, steam turbines, lubrication systems, seals and other machinery and practices related to rotating machinery. The focus is on equipment and system best practices—type, unit and station configuration, 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 all oil and gas field production facilities, refineries, pipelines, gas plants, marine applications and offshore systems.

COURSE CONTENT

- Life cycle cost considerations
- Selecting pumps to operate in best flow range
- Detailed component experience checks prior to purchase
- Review of blade experience prior to purchase
- Site power sizing guidelines
- System component design audit guidelines
- System stability modification best practices
- Practical seal monitoring guidelines
- Seal gas systems, intermediate and separation systems
- Essential PM items to assure optimum reliability
- The concept of Component Condition Monitoring
- Management presentations that assure implementation

2014-15 Schedule and Tuition / 5 Days
 ORLANDO, U.S. 20-24 OCT 2014 US\$4,110
 12-16 OCT 2015 US\$4,110

Troubleshooting Rotating Equipment (ME-49)

INTERMEDIATE

DESIGNED FOR

Maintenance, engineering and operations personnel involved in troubleshooting reliability, analysis, condition monitoring, and maintainability of rotating equipment and related systems.

YOU WILL LEARN

- Techniques for troubleshooting failure causes and consequences
- Causes of machinery failures (5 whys)
- Condition monitoring technique
- Equipment reliability and predictive maintenance fundamentals
- Lubrication monitoring and analysis
- Operating procedures best practices
- RCFA (Root Cause Failure Analysis) procedures and techniques (rotors, journal bearings and vibration, thrust bearings, balance drums, pump mechanical seals, compressor seals - liquid and dry gas, and auxiliary systems)

ABOUT THE COURSE

This is an intensive 5-day course providing a comprehensive understanding of rotating equipment failures and reliability. Condition monitoring techniques are discussed and evaluated. Scenarios involving common rotating equipment reliability issues: rotors, journal bearings and vibration, thrust bearings, balance drums, pump mechanical seals, compressor seals (liquid and dry gas) and auxiliary systems are presented. The material of the course is applicable to all oil and gas field production facilities, refineries, pipelines, gas plants, marine applications and offshore systems.

COURSE CONTENT

- Rotating equipment fundamentals and reliability basics
- The causes of machinery failures (5 why's)
 - Process condition changes
 - Installation errors
 - Operating procedures
 - Design shortcomings
 - Component wear out
- Root Cause Failure Analysis (RCFA) procedures and examples
 - Rotors – the effect of process head
 - Journal bearings and vibration
 - Thrust bearings and balance drums
 - Pump mechanical seals
 - Compressor seal systems (liquid and dry gas)
- Auxiliary systems including lubrication
- Processes for effective troubleshooting
 - Condition monitoring
 - Defining abnormal conditions
 - Listing all possible causes
 - Eliminating non-related causes
 - Stating root cause of the problem
- Solutions and maintenance

2014-15 Schedule and Tuition / 5 Days
 ORLANDO, U.S. 27-31 OCT 2014 US\$4,110
 19-23 OCT 2015 US\$4,110

Turbomachinery Monitoring and Problem Analysis (ME-62)

SPECIALIZED

DESIGNED FOR

Experienced mechanical or facilities engineers and senior technicians needing an understanding of control, monitoring and troubleshooting turbomachinery utilized in the oil and gas industry.

YOU WILL LEARN

- To understand various types and classes of turbomachinery (drivers and driven equipment)
- To understand system integrity (availability and reliability)
- How to evaluate turbomachinery performance during startup and operation
- How to identify turbomachinery system and auxiliary components
- How to define and use appropriate monitoring techniques and tools
- How to utilize effective operation and shutdown procedures
- How to analyze common turbomachinery problems, such as vibration, performance degradation, system or control induced instabilities and surge
- How to solve instrumentation, system and control problems
- Understand the inter-relationships of drivers, couplings, gearboxes, and driven equipment
- Installation techniques, equipment failures and different maintenance practices
- Economic considerations

ABOUT THE COURSE

This five-day course is an intensive, intermediate level program for experienced mechanical equipment engineers or facilities engineers to develop and expand their capabilities in controls, monitoring and problem analysis of turbomachinery. This course focuses on defining the systems and subsystems that form the turbomachinery; the potential problems with these systems and subsystems; monitoring techniques for early detection of problems; and methods to analyze the monitored variables to detect potential problems or reconstruct reasons for failures. Case studies are used throughout the course.

COURSE CONTENT

- Turbomachinery in the oil and gas industry • Machine integrity • Monitoring and turbomachinery • Vibration and vibration monitoring • Process parameters (pressure, temperature, flow, equipment performance) • Operating principles of gas turbines • Electric machinery: motors and generators • Installation • Drivers: Steam turbines, gas turbines, engines • Driven equipment: Pumps • Transmission systems • Auxiliary Systems • Pumps • Compressors • Key performance variables and means to monitor • Principals of operation and major components of gas turbines: rotors, blades, shafts, combustion chambers, nozzles, etc. • Auxiliary systems: lube oil, seal oil, fuel, start-up, etc. • Evaluation of turbine performance parameters during start-up and normal operation • Troubleshooting control systems for gas turbines: start-up, speed and temperature controls, vibration • Principles of operation and general components of compressors: rotors, seals, diaphragms, etc • Operating characteristics curves • Surge phenomenon • Choke phenomenon • Compressor instrumentation: various control loops; anti-surge control loops • Compressor safety interlock and trip systems • Gas turbine and compressor systems start-up and shutdown procedures • Normal operation - monitoring of parameters • Logging of monitoring checks • Vibration monitoring • Troubleshooting • Case Studies

2014-15 Schedule and Tuition / 5 Days
 DOHA, QATAR 1-5 MAR 2015 US\$5,190
 HOUSTON, U.S. 21-25 SEP 2015 US\$4,150

Process Plant Reliability and Maintenance Strategies (REL-5)

INTERMEDIATE

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
 - Design for Reliability
 - Design for Maintainability
 - Developing Initial Maintenance Strategies
- Virtual equipment walk-down
- Criticality using simulation and modeling
- Developing baseline condition monitoring programs
- Developing lubrication programs
- 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 & procedures
- Developing failure reporting codes
- Statistical analysis of failures using Weibull
- Developing Root Cause Analysis (RCA) programs
- Triggers for RCA
- Analyzing recommendations
 - Developing maintenance strategies with Condition Monitoring
- Identifying applicable condition monitoring methods
- Using criticality to determine level of condition monitoring application
- Reporting asset health
 - Developing maintenance strategies with RCM
- Identifying systems for analysis and policies
- Analyzing recommendations with simulation and modeling
- Implementing recommendations
- Monitoring Results
 - Understanding the true purpose of Key Performance Indicators
 - Developing appropriate reliability and maintainability KPIs

ABOUT THE COURSE

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

COURSE CONTENT

Criticality Analysis • Availability Simulation and Modeling • Statistical Analysis of Failures using Weibull • Maintenance Strategy Development (Condition Monitoring, Reliability-Centered Maintenance, Essential Care) • Process Reliability Analysis • Root Cause Analysis • Failure Reporting, Analysis, and Corrective Action Systems • Key Performance Indicators • Reliability Definitions

2014-15 Schedule and Tuition / 5 Days

DUBAI, U.A.E.	27 SEP-1 OCT 2015	US\$5,190
HOUSTON, U.S.	11-15 MAY 2015	US\$4,150
LONDON, U.K.	1-5 JUN 2015	US\$4,780+VAT
ORLANDO, U.S.	1-5 DEC 2014	US\$4,110
	30 NOV-4 DEC 2015	US\$4,110

Risk-Based Inspection (REL-61)

INTERMEDIATE

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

- How 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
- How to quantitatively determine probability of failure of pressure equipment, analyse consequences of failure and develop an appropriate inspection plan
- About the fundamental principles of component integrity, application of the API rules, material properties of strength and toughness, and the introduction to stress and fracture mechanics
- How to assess the integrity of equipment and make projections about its remaining useful life
- Assessment of existing static equipment to increase the equipment capacity and to extend service life time. API 579-1/ASME FFS-1 provides calculations that can be used to re-rate the component.
- To apply and use API RP 580 and API RP 581 recommended practices. For pressurized components (e.g. pressure vessels and piping), these assessments can be used to determine optimum inspection intervals through the considered application of ASME section V NDE techniques.

ABOUT THE COURSE

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 scenarios, and understanding of the current and future degradation mechanisms and of the risks involved. Risk-Based Methodologies enable the assessment of the likelihood and potential consequences of equipment failures. RBI (Risk-Based Inspection) 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.

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 • Fires, Vapor Cloud Explosions (VCE) and Boiling Liquid Expanding Vapor Explosions (BLEVE) • API Risk-Based Inspection Methodology • Damage mechanisms affecting pressure equipment in the oil and gas industry • Non-destructive examination techniques (NDE and NDT) • API RP 581 Part 1 – Inspection Planning • API RP 581 Part 2 – Failure Probability Quantification and Reliability Assessments • API RP 581 Part 3 – Consequence Analysis and Mitigation Management • Fitness for Service assessments using API 579-1/ASME FFS-1 • Inspection plan development and implementation • RBI rollout and management

2014-15 Schedule and Tuition / 5 Days

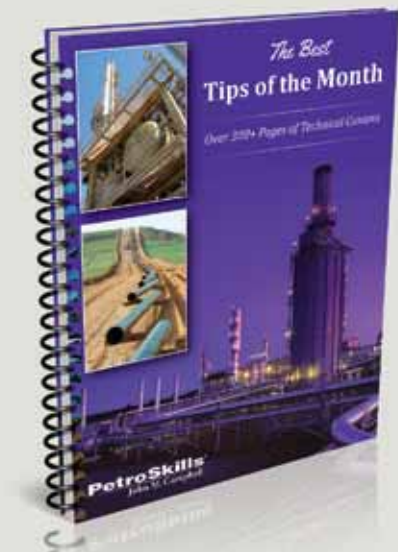
HOUSTON, U.S.	20-24 OCT 2014	US\$4,150
	19-23 OCT 2015	US\$4,150

The Best Tips of the Month

To say THANKS for your interest in PetroSkills | John M. Campbell, we will send you this FREE copy of *Our Best Tips of the Month!*

We're excited to provide you with a complimentary gift to show our appreciation. This 300+ page searchable PDF contains our most popular tips of the month organized into a convenient, digital format. You will enjoy having your own copy of this valuable content to reference for years to come. Just a few of the topics included in the document include:

- Gas Sweetening
- Surge Control Alternatives
- Transportation of Ethane by Pipeline
- Acid Gas-Water Content
- Risk Based Process Safety
- Phase diagrams
- Pressure relief system design pitfalls
- Effect of viscosity on pump performance
- Effect of gas molecular weight on centrifugal compressor performance



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Petroleum Business

Course Progression Matrix

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

The first two courses in this section are Basic Petroleum Economics and the 5-day expanded version, which includes additional material covering finance, accounting, and budgeting. They are key courses for anyone who needs an understanding of economic analysis and profitability of exploration and production projects. Our exciting new business simulation course, **Oil and Gas Business Discovery – OGBD** is on page 42.

The following instructors have been selected and approved by the PetroSkills Curriculum Network to teach one or more of the following Petroleum Business courses:

ROBERT E. BOYD
WILLIAM E. HUGHES
DR. THUIS KOELING

DAVID PATRICK MURPHY
TIM NIEMAN
KENT SAUGIER

JOHN SCHUYLER
JOHN C. SCRUTON-WILSON
DR. RICHARD D. SEBA

RONNIE TUCKER

				Petroleum Business				Petroleum Business & Professional Development	Health, Safety, Environment		
Geology and Geophysics		Reservoir and Petrophysics	Production and Drilling	Surface Facilities	PETROLEUM ECONOMICS	FINANCE AND ACCOUNTING	RISK MANAGEMENT	MANAGEMENT			
SPECIALIZED		NEW OPPORTUNITIES IN OLD FIELDS		ADVANCED DECISION ANALYSIS WITH PORTFOLIO AND PROJECT MODELING STRATEGIC THINKING FUNDAMENTALS OF INTERNATIONAL OIL AND GAS LAW							
						PETROLEUM PROJECT MANAGEMENT INTERNATIONAL PETROLEUM CONTRACTS					
FOUNDATION		FOUNDATIONS OF PETROPHYSICS	COMPLETIONS AND WORKOVERS	ECONOMICS OF WORLDWIDE PETROLEUM PRODUCTION	PETROLEUM FINANCE AND ACCOUNTING PRINCIPLES	PETROLEUM RISK AND DECISION ANALYSIS	COST MANAGEMENT	TEAM LEADERSHIP	APPLIED HSE MANAGEMENT		
		RESERVOIR ENGINEERING FOR OTHER DISCIPLINES	PRODUCTION TECHNOLOGY FOR OTHER DISCIPLINES	OIL & GAS BUSINESS DISCOVERY PETROLEUM BUDGETING AND PERFORMANCE WORKSHOP					APPLIED SAFETY	APPLIED ENVIRONMENT	
BASIC		BASIC GEOPHYSICS	LNG SHORT COURSE: TECHNOLOGY AND THE LNG CHAIN	INTRODUCTION TO PETROLEUM BUSINESS				ESSENTIAL LEADERSHIP SKILLS FOR TECHNICAL PROFESSIONALS	BASICS OF ENVIRONMENT		
		BASIC PETROLEUM GEOLOGY	BASIC RESERVOIR ENGINEERING	BASIC DRILLING TECHNOLOGY	EXPANDED BASIC PETROLEUM ECONOMICS					INTRODUCTION TO DATA MANAGEMENT	BASICS OF HSE MANAGEMENT
					BASIC PETROLEUM ECONOMICS						
		EXPLORATION AND PRODUCTION PROCESS BASICS: UNDERSTANDING THE PETROLEUM VALUE CYCLE (2 WEEKS)									
		BASIC PETROLEUM TECHNOLOGY									

Introduction to Petroleum Business (IPB)

BASIC

DESIGNED FOR

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

YOU WILL LEARN

- The overall objective of business
- 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
- Risk and how it is assessed in economic evaluations

ABOUT THE COURSE

You have recently joined the petroleum industry as a technical expert in engineering, geology or human resource (or have worked in the technical area for a few years) and want to understand the nature of the petroleum business and how you will contribute to the financial success of your company. But what is financial success and how is it measured? What resources are available to the industry and who are the competitors? This course will introduce delegates to key concepts of the petroleum business including its structure, how oil companies are organized and financed and what it takes to be financially successful. Success will be explored through an understanding of the meaning of long-term shareholder value, its measurement at the macro and micro level and the role competitive advantage plays in achieving superior financial goals. Delegates will be introduced to both accounting and economic evaluation as a means to understanding the financial side of the petroleum business. Additionally, delegates will be introduced to risk and its impact on economic evaluation. All common accounting and economic terms and metrics will be reviewed. Delegates will learn through lectures, discussion, and hands on exercises.

One personal computer is provided, at additional cost, for each two participants.

COURSE CONTENT

Understanding corporate business • Importance of creating value for shareholders • Measuring value and the expectations of corporate stakeholders in the financial framework • Introduction to Economic Evaluation (NPV, IRR) • The importance of discounting for capital intensive industries • Cost of Capital and how it is calculated • Valuing businesses at the macro level • Creation of value and competitive advantage • Competitive environment in the petroleum industry • How energy demand is growing • Location and ownership of oil and gas reserves • Capital requirements and risk • Oil and gas pricing and future drivers • Examples of competitive advantage and impact on history • Introduction to accounting • The purpose of accounts • Key financial statements • Demystification of the annual report • Introduction risk • Economic evaluation at the project level • Economic impact of projects on book value, market capitalization, share price • Measuring competitive advantage through net present value • The value of incremental economics

2014-15 Schedule and Tuition / 3 Days

HOUSTON, U.S.	24-26 FEB 2015	US\$2,960*
LONDON, U.K.	29 SEP-1 OCT 2015	US\$3,430+VAT*

*plus computer charge

Cost Management (CM)

FOUNDATION

DESIGNED FOR

Operating managers, field personnel, project managers, technology managers, budget managers, or practically anyone in the company wanting to manage costs in a more efficient and effective manner. A familiarity with finance is helpful but not required.

YOU WILL LEARN HOW TO

- Identify the fundamental types of costs and the cost drivers
- Understand the different cost classifications
- Trace all relevant costs to a single cost object to better manage costs
- Determine and monitor the behavior of costs
- Build your own Activity dictionary
- Use sensitivity analysis of cost behavior
- Design management control system that actually works
- Understand the principles of Activity Based Cost Management (ABCM) and its development and implementation
- Determine the relevant information for decision making
- Analyze capital projects using the proper tools and techniques
- Use and misuse the budget
- Manage and not mismanage costs
- Develop tools to use for managing costs
- Evaluate costs for effectiveness

ABOUT THE COURSE

Few problems threaten the petroleum businesses more than uncontrolled costs. Economic realities have made it necessary for most companies to operate with a "lean and mean" philosophy. Industries previously operating under regulatory rules, which allowed them to pass on all costs to the customer, now face a changed regulatory environment. As the price of our products fluctuates widely, the most vulnerable companies are those that are ineffective in understanding and managing their costs. Historically energy companies have relied on the efficiency of their operations to drive company profitability. 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. The course will cover costs management from the basics to the most recent events and trends, using relevant exercises, timely case studies and role-playing techniques. This seminar is an introduction to Practical Cost Management techniques designed to help the participant better understand the underlying dynamics of cost, which will lead to better decision making concerning products and services, work flows, capital investments, as well as the day-to-day monitoring of the business.

One personal computer is provided, at additional cost, for each two participants.

COURSE CONTENT

Defining costs, classifications and terminology in an oil and gas sense • Classifying the different costs • Determining cost objects, cost drivers and their behaviors • Assigning costs for an E&P company • Analyzing different types of Cost management systems • Measuring activities and their performance • 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 • Tying costs to revenues to more effectively measure profits • Distinguishing between cost effectiveness and cost efficiencies • Using 4 dimensional costs • Developing productivity measurements that work • Operating Cost Management • Using the budgets efficiently and effectively • Using GAP analysis in measuring productivity of costs • Support departments cost allocations • Transfer pricing • Determining the break-even cost and volumes • Using variance analysis budget for monitoring performance • Measuring and controlling productivity • Optimizing the supply chain • Capital Cost Management • Capital investment decision making and the effect on cost management • Developing and analyzing capital investment projects • Replace versus maintain • Life Cycle Costing • Analytical techniques for managing costs • Managing personnel, logistics, purchasing and material costs effectively • Sensitivity Analysis for optimizing costs • Using different scenarios to more effectively manage costs • Performance Measurement • Using capacity management techniques • Incorporating HSSE into the cost management system • Defining preventive and reactive costs • Breaking down the audit of performance management results • Raising your own cost management awareness

2014-15 Schedule and Tuition / 5 Days

BOGOTA, COLOMBIA	24-28 AUG 2015	US\$4,090*
HOUSTON, U.S.	8-12 DEC 2014	US\$4,040*
	20-24 JUL 2015	US\$4,040*
	7-11 DEC 2015	US\$4,040*
LONDON, U.K.	21-25 SEP 2015	US\$4,670+VAT*

*plus computer charge

Economics of Worldwide Petroleum Production (EWP)

FOUNDATION

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, PetroSkills recommends that participants take this course if they have some previous experience in this field, as the course content is more advanced than either Basic Petroleum Economics or 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

ABOUT THE COURSE

In the area of corporate and international petroleum production, do you know how to choose the best investments? Can you properly evaluate investment opportunities? Do you know what investment criteria really mean and which criteria to use for best results? Answers to these questions will greatly improve your ability to make profitable decisions. Techniques for predicting profit, production, operating costs, and cash flow enable the analyst to evaluate decision alternatives for optimum results. Understanding cost of capital, financial structure, risk and uncertainty, present worth, rate of return, and other economic yardsticks enhances the quality and the value of economic analysis. Discover the effects of projects on corporate profits. Probe economic factors inherent in international concessions, contracts, joint ventures, and production sharing agreements. Practice making cash flow analysis of these contractual arrangements. Discussion of real-life examples with participants from many different countries enhances their value. Each participant receives Economics of Worldwide Petroleum Production written specifically for PetroSkills courses.

COURSE CONTENT

Pricing: natural gas, marker crudes, 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 format and inclusion of economic factors in computer spreadsheet analysis • Ethics in economic analyses

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	6-10 JUL 2015	US\$4,040
	2-6 NOV 2015	US\$4,040
LONDON, U.K.	24-28 AUG 2015	US\$4,670+VAT
RIO DE JANEIRO, BRAZIL	8-12 DEC 2014	US\$4,090
	7-11 DEC 2015	US\$4,090

PETROLEUM BUSINESS

Oil and Gas Business Discovery (OGBD)

FOUNDATION

NEW**DESIGNED FOR**

Staff from all disciplines who want to know more about the full value chain and to gain a deeper understanding of the part their role plays in a wider context.

YOU WILL LEARN

- Through a highly interactive 4 day business simulation, which offers attendees an experiential learning program based around a fictional international oil & gas company
- Real-life insights, as well as experience hands on practice in managing this upstream company
- A holistic perspective of the Industry from experienced oil & gas professionals who will provide coaching and guidance throughout

ABOUT THE COURSE

This simulation experience enables delegates to assume the role of senior management who are managing operations spanning the full value chain from license acquisition to exploration, appraisal and production, and oil & gas marketing. The program takes delegates on a simulated, multi-year journey where small teams collaborate, build fundamental capabilities and practice real-world decision making. Participants receive feedback and analysis of their decisions and strategies and form action plans to apply the knowledge and skills back on the job.

COURSE CONTENT

- Strategy development in a competitive environment
- Formulating business plans and managing performance to deliver corporate goals over multiple years
- New country entry and building a portfolio of assets
- Decision making – investment criteria, negotiating transactions and managing risks
- Asset trading
- Value chain management
- Reputation management with governments, shareholders, communities and others
- Joint venture – managing complex partner issues
- Government relations – understanding the regulatory and fiscal environment in which you operate and lobbying for change

2014-15 Schedule and Tuition / 4 Days

HOUSTON, U.S.	27-30 OCT 2014	US\$3,620
	6-9 APR 2015	US\$3,620
	26-29 OCT 2015	US\$3,620
LONDON, U.K.	29 JUN-2 JUL 2015	US\$4,190+VAT
	21-24 SEP 2015	US\$4,190+VAT

Petroleum Finance and Accounting Principles (PFA)

FOUNDATION

DESIGNED FOR

Personnel new to the oil and gas accounting industry, others desiring to understand or refresh their knowledge of basic petroleum accounting concepts, other financial personnel needing to understand unique issues as they relate to the petroleum industry and technical people looking for the basic concepts of accounting and finance. Participants are encouraged to bring their company's financial reports. This course may qualify for up to 34 hours of CPE for US CPAs.

YOU WILL LEARN HOW TO

- 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
- Understand financial reporting requirements for oil and gas companies under IFRS, U.K. and U.S. GAAP
- Apply capitalization rules and depreciation methods
- Recognize accounting treatments of joint ventures such as Production Sharing Agreements
- Evaluate a ceiling-test
- Read and interpret those confusing footnotes
- 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

ABOUT THE COURSE

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. This is achieved through an examination of (a) accounting standards, policies and practices in the oil and gas industry, and (b) the accounting and financial management implications of exploring for and producing oil and gas. An understanding of accounting also allows a company to trace a competitor's actions from its financial statements and to plan accordingly.

COURSE CONTENT

Getting started: Financial terms and definitions, the language of business; Accounting rules, standards and policies

- Constructing the basic financial statements
- Classifying assets and liabilities
- Comparing different accounting elements
- Accounting for joint operations
- Accounting and reporting
- **The latest issues:** The role of International Financial Reporting Standards (IFRS) in today's environment, IFRS 6; COPAS and SORP involvement; intangible drilling costs and their treatment; minority investments, Present Value 10 construction; Standardized Measure of Oil and Gas (SMOG) disclosures (FAS 69 and FRS 3)
- **Comparative Analysis of Financial Statements:** Analyzing the financial statements, common sizing; rate of change; basic ratios; oil and gas industry standards; trends over time

2014-15 Schedule and Tuition / 5 Days

BALI, INDONESIA	20-24 OCT 2014	US\$4,670
HOUSTON, U.S.	10-14 NOV 2014	US\$4,040
	13-17 JUL 2015	US\$4,040
	9-13 NOV 2015	US\$4,040
KUALA LUMPUR, MALAYSIA	28 SEP-2 OCT 2015	US\$4,670
LONDON, U.K.	14-18 SEP 2015	US\$4,670+VAT

Petroleum Risk and Decision Analysis (PRD)

FOUNDATION

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, payoff 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

ABOUT THE COURSE

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. Probability distributions express professional judgments about risks and uncertainties and are carried through the calculations. Decision tree and influence diagrams provide clear communications and the basis for valuing each alternative. The complementary Monte Carlo simulation technique is experienced in detail in a hand-calculation exercise.

Project modeling fundamentals and basic probability concepts provide the foundation for the calculations. The mathematics is straightforward and mostly involves only common algebra. The emphasis is on practical techniques for immediate application. This is a fast-paced course and recommended for those with strong English listening skills. This course is intended as the prerequisite for the Advanced Decision Analysis with Portfolio and Project Modeling course.

COURSE CONTENT

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 problems; 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; calibration and eliciting judgments; choosing distribution types; common misconceptions about probability
- **Expected Value Concept:** foundation for decision policy, features, pitfalls to avoid
- **Implementing Decision Analysis:** problem framing; guidelines for good analysis practice; team analyses; computer tools (discussion and demonstrations); mitigating risks
- **Evaluating a multi-pay prospect** (team exercise)

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	20-24 OCT 2014	US\$4,040
	1-5 DEC 2014	US\$4,040
	9-13 FEB 2015	US\$4,040
	11-15 MAY 2015	US\$4,040
	10-14 AUG 2015	US\$4,040
	21-25 SEP 2015	US\$4,040
	30 NOV-4 DEC 2015	US\$4,040
KUALA LUMPUR, MALAYSIA	24-28 AUG 2015	US\$4,670
LONDON, U.K.	13-17 OCT 2014	US\$4,670+VAT
	20-24 JUL 2015	US\$4,670+VAT
	12-16 OCT 2015	US\$4,670+VAT

Advanced Decision Analysis with Portfolio and Project Modeling (ADA)

SPECIALIZED

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://petroskillsonline.com> to review a course prerequisites list and to take a short self-assessment quiz. You may login using 'participant' (no quotes) as both the user ID and 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 typical 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

ABOUT THE COURSE

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 evaluation concepts and techniques, rather than particular software programs.

One personal computer is provided, at additional cost, for each two participants.

COURSE CONTENT

Decision Modeling: application of DA process for modeling; influence diagrams; free cash flow concept; judgments and biases; sampling error bias; sensitivity analysis; documentation and good modeling practices; real options overview • **Monte Carlo Simulation:** prospect risking (similar to play analysis); calculating probabilities and distributions with simulation; modeling and optimizing investment portfolios; valuing added control and flexibility; stopping rules; ways to model correlation • **Decision Tree Analysis:** value of information review; sensitivity analysis; solving with utility for risk aversion • **Decision Policy:** overview of finance theory related to PV discount rate and risk (CAPM and modern portfolio theory); shareholder value model; portfolio optimization to maximize economic value; efficient frontiers; multi-criteria decisions; risk policy as a utility function; calculating expected utility and certainty equivalent; insurance and hedging; optimizing working interests • **Implementation:** presentation formats; optimizers course in portfolio selection; model-centric enterprise model and balanced scorecard (dashboard) element focusing on shareholder value creation forecast

2014-15 Schedule and Tuition / 5 Days

BOGOTA, COLOMBIA	26-30 OCT 2015	US\$4,290*
HOUSTON, U.S.	8-12 DEC 2014	US\$4,240*
	16-20 FEB 2015	US\$4,240*
	18-22 MAY 2015	US\$4,240*
	7-11 DEC 2015	US\$4,240*
LAS VEGAS, U.S.	6-10 OCT 2014	US\$4,200*
	5-9 OCT 2015	US\$4,200*
LONDON, U.K.	20-24 OCT 2014	US\$4,870+VAT*
	27-31 JUL 2015	US\$4,870+VAT*
	19-23 OCT 2015	US\$4,870+VAT*

*plus computer charge

Fundamentals of International Oil and Gas Law (IOG)

SPECIALIZED

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 soon 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

ABOUT THE COURSE

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

COURSE CONTENT

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

2014-15 Schedule and Tuition / 5 Days

ABU DHABI, U.A.E.	25-29 OCT 2015	US\$5,290
HOUSTON, U.S.	13-17 APR 2015	US\$4,240
LONDON, U.K.	17-21 AUG 2015	US\$4,870+VAT
RIO DE JANEIRO, BRAZIL	17-21 NOV 2014	US\$4,290

Strategic Thinking: A Tool-Based Approach (STT)

SPECIALIZED

DESIGNED FOR

Geologists, Geophysicist, Engineers, Managers, and Executives responsible for defining, assessing and developing business alternatives and strategy in the petroleum industry

YOU WILL LEARN HOW TO

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

ABOUT THE COURSE

This course is a hands-on, case-based course focused on managers responsible for building and sustaining a successful strategic plan. Participants are exposed to a variety of perspectives on, approaches to, and tools for the conduct of strategic management. These tools address strategy from a macro and micro perspective. There is a major emphasis on historical, current, and potential "game changers," especially on how they are now transforming the industry's future. Applied projects 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.

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 • Cafe' Process • SWOT (strengths, weaknesses, opportunities, threats) analysis • Scenario analysis and planning • Six Sigma • Boston Consulting Group (BCG) Growth Share matrix • Personal application of Strategic Thinking

2014-15 Schedule and Tuition / 3 Days

HOUSTON, U.S.	4-6 NOV 2014	US\$3,140
	3-5 NOV 2015	US\$3,140
LONDON, U.K.	2-4 JUN 2015	US\$3,610+VAT

Petroleum Project Management: Principles and Practices (PPM)

INTERMEDIATE

DESIGNED FOR

Exploration, production and management personnel interested in applying project management techniques to their operations (Facilities engineers are referred to Project Management for Engineering and Construction)

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.

ABOUT THE COURSE

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.

One personal computer is provided, at additional cost, for each two participants; or participants are invited to bring their own laptop.

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

2014 Schedule and Tuition / 5 Days

DUBAI, U.A.E	3-7 MAY 2015	US\$5,190*
HOUSTON, U.S.	17-21 NOV 2014	US\$4,140*
	20-24 JUL 2015	US\$4,140*
	9-13 NOV 2015	US\$4,140*
KUALA LUMPUR, MALAYSIA	3-7 NOV 2014	US\$5,460*
	12-16 OCT 2015	US\$5,460*
LONDON, U.K.	22-26 JUN 2015	US\$4,770+VAT*
	14-18 SEP 2015	US\$4,770+VAT*

*plus computer charge

Project Management in Upstream Field Development (FPM2)

FOUNDATION

DESIGNED FOR

This course addresses the special requirements associated with developing oil and gas plays where repetitive projects, such as well flow lines, tank batteries, booster compressors, short pipelines and meter stations, are a part of a larger field development program. It is intended for project managers, project engineers, facility engineers, operations engineers, project controls and purchasing personnel who plan, manage, or participate on multi-discipline field development project teams. Special emphasis will be placed on \$5 MM to \$50 MM projects associated with unconventional field development projects, such as shale oil and coal bed methane, as well as projects associated with conventional plays.

YOU WILL LEARN

- Define the Engineering, Procurement and Construction phases and execute them skillfully
- Develop plans to achieve good project definition maturity (a.k.a front-end loading)
- Identify key constraints and interfaces and develop action plans to address them
- Develop Scopes of Work for both production facility and infrastructure projects
- Prepare Project Execution Plans
- Utilize fit-for-purpose progress measurement and control techniques
- Develop sustainable, repeatable knowledge management for projects

ABOUT THE COURSE

This course addresses field development project management principles and practices as they relate to engineering design; procurement; and construction activities for upstream facilities in the oil and gas industry. The specific training received in schedule and cost management and the proper use of scarce resources (people and materials) will help the project manager make the best decisions possible. Upon completion of this course, the participant will know what the engineering, procurement and construction phases entail and be able to fit-for purpose project management techniques and project control tools to facilitate successful project outcomes. Participants will understand how the project management, drilling and completion, HSE, land, production and transportation disciplines relate to one another and what tools are available for the project manager to use to ensure interfaces among key stakeholders are managed. The course is taught using a combination of instruction, facilitated discussion, and hands-on exercises using "real-world" project examples related to facilities design, procurement, and construction. 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.

THE COURSE DOES NOT ADDRESS:

- Small facility maintenance or replacement type projects which are typically less than \$5 MM.
- Well design, procurement or construction

COURSE CONTENT

• Field Development Programs • The Project Delivery System • Organization and Resources • Engineering • Construction • Project Execution Plan • HSE and Project Risk Management • Procurement and Contracting • Cost Estimating • Planning & Scheduling • Progress Measurement

2014-15 Schedule and Tuition / 3 Days

DENVER, U.S.	13-15 JUL 2015	US\$3,120
DUBAI, U.A.E.	10-12 MAY 2015	US\$3,820
HOUSTON, U.S.	8-10 DEC 2014	US\$3,150
	7-9 DEC 2015	US\$3,150
LONDON, U.K.	24-26 AUG 2015	US\$3,610+VAT
MIDLAND, U.S.	27-29 APR 2015	US\$3,120
ORLANDO, U.S.	6-8 OCT 2014	US\$3,120
	5-7 OCT 2015	US\$3,120

 Available from anywhere via PetroFlex delivery (see pg. 81)

Project Management for Engineering and Construction (FPM22)

FOUNDATION

DESIGNED FOR

Small project managers, project engineers, facility engineers, operations engineers, and purchasing personnel including team leaders and managers who plan, manage, or participate on multi-discipline project teams.

YOU WILL LEARN

- Define project phases and execute them skillfully
- Develop Scopes of Work and Execution Plans
- Utilize control techniques and earned value analysis
- Develop checklists to ensure project deliverables for each phase are addressed
- Apply project management skills to your current projects
- Guide projects through technical reviews and secure management approvals
- Develop sustainable, repeatable knowledge management for projects

ABOUT THE COURSE

This course will provide a comprehensive presentation and discussion of modern project management principles and practices as they relate to project concept selection, development planning, engineering design; procurement; and construction activities for facilities in the oil and gas industry. The specific training received in schedule and cost management, risk management, and the proper use of scarce resources (people and materials) will help the project manager make the best decisions possible. Upon completion of this course, the participant will know what the six project management phases entail and be able to employ key project management knowledge areas and project control tools to facilitate successful project outcomes. Participants will understand how project management process groups relate to one another, how execution plans are used to integrate the work effort, what tools are available for the project manager to use, what information will be generated, and what that information means. The course is taught using a combination of instruction, facilitated discussion, and hands-on exercises using "real-world" project examples related to facilities design, procurement, and construction. The exercises will include both individual and group activities that will provide each participant with a visual application of the principles and practices discussed throughout the course.

COURSE CONTENT

- Introduction to project management systems for the oil & gas industry
- Six phases of a project system
- Key project management knowledge areas: (Leadership, Project Types, Contracting, Execution Planning, HSE Management, Risk Management, Interface Management, Organization & Staffing)
- Project Controls (Work Breakdown Structure, Planning & Scheduling, Progress Measurement, Cost Estimating, Earned Value, Change Management, Reviews & Approvals)

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	13-17 OCT 2014	US\$4,150
	2-6 MAR 2015	US\$4,150
	3-7 AUG 2015	US\$4,150
	19-23 OCT 2015	US\$4,150
KUALA LUMPUR, MALAYSIA	13-17 APR 2015	US\$5,460
LONDON, U.K.	22-26 JUN 2015	US\$4,780+VAT
ORLANDO, U.S.	18-22 MAY 2015	US\$4,110

 Available from anywhere via PetroFlex delivery (see pg. 81)

Project Management for Brownfield Projects (FPM42)

FOUNDATION

DESIGNED FOR

This course is designed for project managers, project engineers, operations staff, and all disciplines that work on integrated project teams for Brownfield or onshore and offshore projects that are installed in existing facilities. Case studies include modification to offshore structures as well as onshore projects.

YOU WILL LEARN

- Methods to effectively plan and deliver a Brownfield project
- About brownfield project challenges and how to effectively manage them
- The unique stage gate elements of a Brownfield project, how to apply them, and why failure to address these items typically leads to poor outcomes
- Methods for conducting facility due diligence and why this is critical to project success
- How to establish a project oversight board to ensure alignment among all stakeholders
- Skills to develop, gain stakeholder alignment, and control a Brownfield scope of work
- How to utilize a Work Breakdown Structure to manage all facets of the projects
- Methods to identify and plan for the unique constructability issues associated with a Brownfield project
- Techniques to develop a contract strategy for a Brownfield project

ABOUT THE COURSE

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.

COURSE CONTENT

- Use a Brownfield project stage gate process to initiate, plan, execute and close out a project
- Use decision making and issue management to keep a project on track
- Communications plan development to facilitate stakeholder management
- The role of quality management in engineering, procurement, and contractor management
- The prominent role of Health, Safety, and Environment discipline in project execution
- Manage issues associated with construction readiness and construction management
- Handover, startup, and closeout best practices for Brownfield projects
- Key Value Improving Practices (VIPs) for Brownfield projects
- Cost and schedule management principles and performance reporting techniques
- Contract types, contractor selection, and contractor management
- Roles and qualities of successful project managers
- Effective risk management

2014-15 Schedule and Tuition / 5 Days

DUBAI, U.A.E.	30 AUG-3 SEP 2015	US\$5,190
HOUSTON, U.S.	10-14 AUG 2015	US\$4,150
KUALA LUMPUR, MALAYSIA	20-24 APR 2015	US\$5,460
LONDON, U.K.	1-5 DEC 2014	US\$4,780+VAT
	30 NOV-4 DEC 2015	US\$4,780+VAT
ORLANDO, U.S.	21-25 SEP 2015	US\$4,110

Risk Management for Upstream Capital Projects (PMRM)

INTERMEDIATE

NEW

DESIGNED FOR

This course is designed for project managers, project engineers, and all disciplines that work on integrated project teams for upstream onshore and offshore developments. Case studies include deep-water projects with complex production components as well as unconventional shale projects that require significant infrastructure investment.

YOU WILL LEARN

- To apply risk management to a capital project throughout the entire life cycle
- How to write a risk management plan and gain alignment with key stakeholders
- How to engage management and project team members in the risk management process
- How to systematically identify risks for your project
- Determine those risks that are owned by the project team and those owned by management
- Use risk assessment to analyze and prioritize risks for treatment
- Develop robust risk mitigation plans
- How to control and monitor risk
- Incorporate risk planning into project cost and schedule
- The role of probabilistic cost and schedule in risk management

ABOUT THE COURSE

This five-day intermediate level course for project managers, project engineers, and integrated project team discipline members addresses the key areas associated with capital project risk management. The course focuses on managing risk throughout the entire project life cycle. This course is very much hands-on with class exercise case studies that focus on participant development of risk management deliverables. The class also addresses the methods that project team leaders can utilize to ensure that project team members and management buy in and are part of the risk management process.

COURSE CONTENT

- Risk management planning
- Roles/responsibilities, governance, and risk ownership
- Identify, analyze, and respond to risk events
- Types of risks: threats vs. opportunities
- Risk analysis and prioritization
- Risk mitigation and contingency planning
- Monitor and control risk
- Risk reporting and communication
- High level overview of probabilistic cost and schedule
- Peer reviews

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	10-14 NOV 2014	US\$4,140
	4-8 MAY 2015	US\$4,140
	9-13 NOV 2015	US\$4,140
LONDON, U.K.	7-11 DEC 2015	US\$4,770+VAT
ORLANDO, U.S.	28 SEP-2 OCT 2015	US\$4,100

Advanced Project Management (FPM62)

SPECIALIZED

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, offshore projects.

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

ABOUT THE COURSE


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.

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

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	18-22 MAY 2015	US\$4,150
	14-18 SEP 2015	US\$4,150
KUALA LUMPUR, MALAYSIA	8-12 JUN 2015	US\$5,460
LONDON, U.K.	15-19 JUN 2015	US\$4,780+VAT
ORLANDO, U.S.	27-31 OCT 2014	US\$4,110
	26-30 OCT 2015	US\$4,110

 Available from anywhere via PetroFlex delivery (see pg. 81)



Advanced Project Management II (FPM63)

SPECIALIZED

NEW**DESIGNED FOR**

This course is 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

ABOUT THE COURSE

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.

COURSE CONTENT

- Why Projects Fail
- Project Management Principles (PMT, scope, cost, schedule, safety and quality)
- Stakeholders Management on International Projects
- Host Country – Business & Culture
- Contracting Strategies & Negotiations
- Global Engineering – from Concept through Detailed Design
- Procurement & Logistics
- Fabrication, Construction & Commissioning
- International Project Risk Management
- Leadership & Strategy

2014-15 Schedule and Tuition / 5 Days

DUBAI, U.A.E.	7-11 JUN 2015	US\$5,190
HOUSTON, U.S.	16-20 FEB 2015	US\$4,150
	31 AUG-4 SEP 2015	US\$4,150
LONDON, U.K.	16-20 NOV 2015	US\$4,780+VAT



Avoid These Common Instrumentation and Control Challenges

- ▶ Incorrect choice and sizing of control valves
- ▶ Incorrect choice and location of measuring sensors
- ▶ Formation of ground loop currents due to incorrect grounding
- ▶ Incorrect tuning of PID control
- ▶ Current process conditions outside that of the instrument range
- ▶ Single-phase flow instrument used in multiphase flow conditions

If these common challenges sound familiar to you, consider attending...

Instrumentation and Controls Fundamentals for Facilities **IC-3**

Course Content Includes:

- Supervisory control and data acquisition (SCADA) systems
- Fundamentals
- Field measurement devices
- Final elements and actuators
- Pressure relief and pressure regulation
- Instrumentation documentation
- Control system basics
- Programmable logic controllers
- Distributed control systems (DCS)
- Safety instrumented system (SIS)
- Hazardous areas and equipment selection

PetroSkills®
John M. Campbell

To enroll, visit petroskills.com/ic3

Contracts and Tenders Fundamentals (SC-41)

FOUNDATION

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. This includes supply chain roles such as contracting and procurement specialists, sourcing specialists, category managers, and logistics managers. The course is also intended for technical roles assigned to project work such as facilities engineers, drilling engineers, project engineers and coordinators, commissioning engineers, contracts engineers, planning engineers, asset managers, and legal trainees.

YOU WILL LEARN

- How to better manage project and legal risks in the contracting process.
- Key similarities and differences of the legal systems in global contracting.
- The key steps to avoid or successfully manage disputes and contract performance issues.
- How to initiate the tendering process and what is required in a tender package.
- How progress payments, currency terms and transportation terms can manage cost risks.
- How to identify the appropriate contracting strategy associated with fixed price and cost reimbursement contracts to minimize financial risks and contract costs
- The variety of pricing models used in supplier proposals and what strategies may be used to achieve fair market pricing outcomes.
- The difference between cost and price analysis and how to use each technique to evaluate a proposal
- How to more effectively use appropriate terms and conditions and some of the most common mistakes made today.

ABOUT THE COURSE

Contracts and Tenders Fundamentals will provide attendees with a more strategic approach to contracting, along with numerous tools to use throughout the contracting process. When you leave this course, you will improve job performance through: 1) better alignment of contract process steps with supply needs; 2) better contracts; 3) fewer disputes and claims; and 4) better contract outcomes. Contracting involves many roles that must work together to achieve desired outcomes. Everyone involved in some element of contracting must understand the entire process, keys to success and what is required of their role. Materials and exercises are built around oil and gas industry issues to be more relevant to the needs of attendees.

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 • Making better use of economic price adjustment clauses in place of lump sum agreements • Bid evaluation and award considerations including price/cost analysis • Key contract terms and conditions for oil and gas industry • Using a formal contract change control process

2014-15 Schedule and Tuition / 3 Days

HOUSTON, U.S.	4-6 NOV 2014	US\$2,730
	14-16 APR 2015	US\$2,730
ORLANDO, U.S.	3-5 NOV 2015	US\$2,730
	14-16 OCT 2014	US\$2,700
	13-15 OCT 2015	US\$2,700

Effective Materials Management (SC-42)

FOUNDATION

DESIGNED FOR

Professional and management personnel who have responsibility for, materials, spare parts and supplies needed to support any refinery, gas plant, onshore/offshore production or other industry operations. Buyers, procurement specialists, stock analysts, and logistics, warehouse, distribution or operations supervisors will benefit from this course by learning the techniques and principles for providing better service to their operations, reducing stock outs and surplus materials and maximizing the return on investment for inventory.

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
- The most useful inventory classifications, stocking levels and safety stock calculations
- How the decision to stock can be made more effectively to avoid surplus materials
- How to use supplier stocking programs, consigned 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 establish improvement goals for fewer stock outs, higher inventory turnover and reduced obsolescence
- 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.

ABOUT THE COURSE

This 3-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 as three inter-related modules for inventory management, warehousing and investment recovery.

COURSE CONTENT

- Setting comprehensive inventory goals & 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
- Setting up an investment recovery program
- Preventing and reducing surplus materials
- Understanding Investment recovery techniques
- Using the disposition value chain for investment recovery

2014-15 Schedule and Tuition / 3 Days

DUBAI, U.A.E.	3-5 AUG 2015	US\$3,400
	19-21 MAY 2015	US\$2,730
HOUSTON, U.S.	29 SEP-1 OCT 2015	US\$2,730

Inside Procurement in Oil & Gas (SC-61)

INTERMEDIATE

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 & 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. This course has been designed in collaboration with major oil companies to increase procurement competencies that are most relevant to the industry today.

YOU WILL LEARN

- How the industry is structured including host country and strategic relationships
- Business drivers and interface issues to be supported by procurement in an environment of increasing joint operations and shifting relationship models around the globe.
- The role of industry economics in dictating procurement good practices in cost management.
- Industry global compliance needs and how procurement can add value in meeting them.
- 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 (TCO) concepts as it relates to the oil and gas industry.
- 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 including global sourcing, local content requirements, and the growth of eCommerce.

ABOUT THE COURSE

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 to any business unit of the organization. Course registration includes an online, interactive forum with the instructor and pre-read materials designed to familiarize course attendees with relevant issues prior to the learning that will occur in the classroom. Attendees will leave better prepared to create and support procurement strategies that meet stakeholder needs whether for projects or operations support.

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 • The E&P asset management cycle and total cost of ownership (TCO) • Economics of oil and gas that drive procurement value creation • Industry regulatory and contractor safety compliance issues that impact procurement • Industry market intelligence practices in procurement • Industry spend analysis characteristics and needed strategies • Creating industry category management (sector) strategies • Key procurement and supplier performance metrics • Trends in global sourcing and local content requirements • Oil and gas law and global contracting risks • The influence of eCommerce and eProcurement initiatives in oil and gas

2014-15 Schedule and Tuition / 3 Days

HOUSTON, U.S.	25-27 AUG 2015	US\$2,730
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Strategic Procurement & Supply Mgmt in the O&G Industry (SC-62)

INTERMEDIATE

DESIGNED FOR

Managers and professionals in supply management, procurement, purchasing, contracts, and capital projects that are interested in expanding supply management best practices to their E&P projects and supply sources for equipment, goods, and services in the oil and gas industry.

YOU WILL LEARN

- 4 Stages to World Class Supply Management
- Many increased skill sets in supply management
- 3 categories for organizing the Spend Profile
- Greater abilities in leading continuous improvement programs
- Ways in dealing with economic uncertainties
- 10 questions for internal surveys to enhance purchasing performance
- How to develop a "Purchasing Coding System"
- 6 steps in the development of a Composite Purchase Price Index
- How to get more time to work on strategic issues
- 12 critical steps in negotiation planning and strategies
- To understand the elements of cost that make up a supplier's price
- 30 categories that should be included in a Purchased Materials/Services Strategic Plan Outline

ABOUT THE COURSE

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

COURSE CONTENT

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

2014-15 Schedule and Tuition / 3 Days

DUBAI, U.A.E.	16-18 NOV 2015	US\$3,400
HOUSTON, U.S.	13-15 OCT 2014	US\$2,730
	12-14 OCT 2015	US\$2,730

Supplier Relationship Mgmt (SC-63)

INTERMEDIATE

DESIGNED FOR

Managers and professionals involved in purchasing, E&P projects, service contracts, and any supply management role, that exposes them to dealings with suppliers for goods, equipment, and services in the oil and gas industry and who want to improve the supplier relationship for the benefit of both enterprises.

YOU WILL LEARN

- 6 elements in the Supplier Relationship Management Maturity Model
- The importance of SRM in continuous improvement
- 7 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
- 4 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

ABOUT THE COURSE

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.

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 • The 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 is a must • Detailed mapping of processes • Be on the Look Out List • Transforming the supplier relationship • Developing the skills required for good relationships • Defining the organization's mission in building supplier relationship • Communication, trust, and credibility as key elements • 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 • Supplier's expectations • What exactly is "Supply Risk" • Trends leading to greater risk • Typical risk management process

2014-15 Schedule and Tuition / 2 Days

HOUSTON, U.S.	16-17 OCT 2014	US\$2,090
	15-16 OCT 2015	US\$2,090

Cost/Price Analysis and Total Cost Concepts in Supply Mgmt (SC-64)

INTERMEDIATE

DESIGNED FOR

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

YOU WILL LEARN

- The importance of price/cost analysis in continuous improvement programs
- Types of continuous improvement programs
- The difference between price and cost analysis
- Criteria for selecting the analysis type
- Methods of price analysis
- Knowledge of supplier strategic alliances
- Analytical tools for cost drivers
- Methods of cost analysis
- Development of "Should Cost"
- Types of TCO models

ABOUT THE COURSE

Managing and reducing cost continues to be one of the primary focal points of business and governments 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 which 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 of Cost/Price/ Value Analysis and Total Cost of Ownership 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.

COURSE CONTENT

• Use of Price Indexes • Negotiation • Terms & Conditions • Cost/Price Analysis • Resisting price Increases • Supplier qualification • Currency and progress payments • Total Cost of Ownership • Tenders • Purchasing savings impact on the bottom line • Developing the Spend Profile • How to perform the ABC analysis • Examples of using pivot tables in Excel for data mining • Continuous improvement skill sets • Supplier pricing models • 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 • Determining cost drivers • Requesting supplier cost info • Sources of cost information • What and how important are supplier overheads • Developing "Should Costs" • How much profit should the supplier make • Reviewing the weighed guidelines • Economic price adjustment clauses • Industry analysis • Global industrial labor rates • Working with currency exchange rates • Total Costs Of Ownership models • Cost Volume Profit Analysis • Defining value analysis? • The Test For Value List • The Supplier Value Check List • What is Activity Based Costing • Defining strategic alliances • Characteristics of successful alliances • Strategic supplier continuous improvement focus • Early supplier involvement • Reducing waste in the supply chain

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	20-24 OCT 2014	US\$4,150
	19-23 OCT 2015	US\$4,150

Petroleum Professional Development Course Progression

The Course Progression Matrix below shows how the Petroleum Professional Development courses in this section are structured within each topic, from Basic to Specialized. For more details on Track One for Managers and Leaders, and Track Two for Technical Professionals, see page 50.

The following instructors have been selected and approved by the PetroSkills Curriculum Network to teach one or more of the following Petroleum Professional Development courses:

JAMES HANER	MIKE NOEL-SMITH	DR. DAVID PELTON
PERRY LOVELACE	RONNIE NORVELL	STANFORD A. SIEMENS

Petroleum Professional Development

COMMUNICATION

TEAM BUILDING

MANAGEMENT

SPECIALIZED

ESSENTIAL SKILLS FOR RESOLVING CONFLICT AMONG COWORKERS

BASIC CONFLICT MANAGEMENT SKILLS FOR MANAGERS AND LEADERS

INTERMEDIATE

MAKING CHANGE HAPPEN: PEOPLE AND PROCESS

TEAM BUILDING FOR INTACT TEAMS

MEETING MANAGEMENT AND FACILITATION FOR THE PETROLEUM INDUSTRY

FOUNDATION

PRESENTATION SKILLS FOR THE PETROLEUM INDUSTRY

TEAM LEADERSHIP

MANAGING AND LEADING OTHERS

BASIC

NEGOTIATING SKILLS FOR PETROLEUM INDUSTRY

ESSENTIAL TECHNICAL WRITING SKILLS

ESSENTIAL LEADERSHIP SKILLS FOR TECHNICAL PROFESSIONALS

EXPLORATION AND PRODUCTION PROCESS BASICS: UNDERSTANDING THE PETROLEUM VALUE CYCLE (2 WEEKS)

BASIC PETROLEUM TECHNOLOGY

Essential Leadership Skills for Technical Professionals (OM23)

BASIC

DESIGNED FOR

Supervisors, Team Leads, Managers and others interested in becoming a better leader and 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

- More effective leadership by overcoming the "tyranny of the urgent" with better time management and by becoming the leader you want to work for
- Better decision making by assessing when to make what kind of decisions and developing more options from which to choose
- How to help others develop themselves by creating better individual development plans and unleashing their career motivation
- More effective communication with technical and non-technical teams by learning to respond rather than react and developing the patience to let the team do its work
- Conflict recognition and resolution by early detection of conflicts when they're simpler and have less impact, and developing skillful techniques for win-win outcomes
- How to lead an empowered team of technical professionals by knowing how to guide the team rather than force the team and through more effective delegation
- Personal stress level reduction by recognizing how your stress affects others and your decisions, and doing something about it
- Assessment techniques for yourself and others through learning the differences between skill and competency
- Raising the competency levels of yourself and your team
- How to get buy-in for your ideas and vision
- Leadership by example

ABOUT THE COURSE

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

COURSE CONTENT

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

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	9-13 MAR 2015	US\$3,860
LONDON, U.K.	22-26 JUN 2015	US\$4,450+VAT
ORLANDO, U.S.	8-12 DEC 2014	US\$3,820
	7-11 DEC 2015	US\$3,820

PROFESSIONAL DEVELOPMENT

Build Your Leadership Skills

Two NEW Tracks for Petroleum Professionals interested in building your leadership skills

Build Your Skills in:

- Leadership
- Technical Writing
- Negotiation
- Resolving Conflict
- Team Building
- Managing Change
- Presentation
- Meeting Facilitation

Track One: For Managers and Leaders

Targeted to those that lead, supervise, provide direction or manage the work of others

- Managing and Leading Others - MLO
- Team Leadership - TLS
- Presentation Skills for the Petroleum Industry - PSP1
- Making Change Happen: People and Process - MCPP
- Meeting Management and Facilitation for the Petroleum Industry - MMF
- Basic Conflict Management Skills for Managers and Leaders - RCP3

Track Two: For Technical Professionals

Targeted to technical professionals

- Essential Leadership Skills for Technical Professionals - OM23
- Essential Technical Writing Skills - ETWS
- Negotiating Skills for the Petroleum Industry - NSPI
- Essential Skills for Resolving Workplace Conflict Among Coworkers - RCP2
- Team Building for Intact Teams - TB
- Presentation Skills for the Petroleum Industry - PSP1

See petroskills.com/ppd for locations and dates for each track

PetroSkills®

Essential Technical Writing Skills: A Reader-Centered Approach (ETWS)

BASIC

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

ABOUT THE COURSE

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.

COURSE CONTENT

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

2014-15 Schedule and Tuition / 3 Days

DUBAI, U.A.E.	13-15 OCT 2014	US\$3,760
	11-15 OCT 2015	US\$4,990
HOUSTON, U.S.	16-18 FEB 2015	US\$2,960
	18-20 MAY 2015	US\$2,960
	24-26 AUG 2015	US\$2,960
LONDON, U.K.	1-3 JUN 2015	US\$3,430+VAT
	16-18 NOV 2015	US\$3,430+VAT
ORLANDO, U.S.	19-21 OCT 2015	US\$2,930

Negotiation Skills for the Petroleum Industry (NSPI)

BASIC

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
- 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

ABOUT THE COURSE

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.

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), 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 • Apply what you've learned to plan a negotiation back on the job

2014-15 Schedule and Tuition / 3 Days

HOUSTON, U.S.	9-11 FEB 2015	US\$2,960
	17-19 AUG 2015	US\$2,960
KUJALA LUMPUR, MALAYSIA	14-16 DEC 2015	US\$3,430
	15-17 DEC 2014	US\$3,430+VAT
LONDON, U.K.	9-11 NOV 2015	US\$3,430+VAT
	13-15 OCT 2014	US\$2,930
ORLANDO, U.S.	13-15 APR 2015	US\$2,930
	12-14 OCT 2015	US\$2,930

Team Building for Intact Teams (TB)

FOUNDATION

YOU WILL LEARN

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

ABOUT THE COURSE

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 a variety of learning techniques. This course has been constructed to maximize opportunity for intact teams to strengthen team performance and team productivity.

COURSE CONTENT

Purpose of teams • Characteristics of a high performance team • Gaining clarity of goal and worthiness • Developing a team charter • Gaining commitment • Team collaboration and trust • Establishing group operational norms • Working through the stages of team development • Effective team roles and relationships • Dealing with system influences • Conditions for effective team building • Individual and team assessments • Team communications • Group dynamics • Problem solving in teams • Developing personal plans to improve team effectiveness • Taking the Lead • Effective team meetings • Monitoring team progress

2014-15 Schedule and Tuition / 2 Days

DENVER, U.S.	31 AUG-1 SEP 2015	US\$2,380
HOUSTON, U.S.	11-12 MAY 2015	US\$2,400
	12-13 OCT 2015	US\$2,400
KUALA LUMPUR, MALAYSIA	9-10 NOV 2015	US\$2,780

Team Leadership (TLS)

FOUNDATION

YOU WILL LEARN

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 relationship • Understand system influences • Promote conditions for effective team building • Conduct individual and team assessments • Improve team communications • Improve group dynamics • Develop personal plans to improve team effectiveness • Foster team leadership • Monitor team progress

ABOUT THE COURSE

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

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

2014-15 Schedule and Tuition / 2 Days

ABERDEEN, U.K.	29-30 JAN 2015	US\$2,780+VAT
DENVER, U.S.	27-28 AUG 2015	US\$2,380
HOUSTON, U.S.	7-8 MAY 2015	US\$2,400
	8-9 OCT 2015	US\$2,400
KUALA LUMPUR, MALAYSIA	6-7 NOV 2014	US\$2,780
	5-6 NOV 2015	US\$2,780

Presentation Skills for Petroleum Industry (PSP)

FOUNDATION

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

ABOUT THE COURSE

Technical personnel often find it difficult to clearly express thoughts and ideas to others, especially when asked to report findings to - or request project expenditure authorization from - senior management. As well, technical and non-technical personnel are often ineffective presenters when asked to explain company policy to - or share company goals and objectives with - boards of directors, government committees, fund approving agencies, or other public entities. Some people are naturally gifted presenters, but anyone can learn to make a convincing and persuasive presentation and to do so in a confident, assured, comfortable, and relaxed manner. This course is for individuals who are required, as part of their jobs, to make presentations in-house or in public, and who need, therefore, to perfect the fundamentals of dynamic presentation-making. Participants will have several private coachings in addition to a full array of "hands-on" class experiences to improve presentation-making skills, vocal techniques, social interaction skills, visual aid preparation, etc. Attendees will be asked to speak in class and will be videotaped to measure improvement. Participants' progress will also be charted to quantifiably show areas in which actual improvement has taken place.

COURSE CONTENT

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

2014-15 Schedule and Tuition / 3 Days

HOUSTON, U.S.	27-29 OCT 2014	US\$3,020
	9-11 MAR 2015	US\$3,020
	26-28 OCT 2015	US\$3,020
LONDON, U.K.	3-5 AUG 2015	US\$3,490+VAT
PITTSBURGH, U.S.	8-10 JUN 2015	US\$2,990

Making Change Happen: People and Process (MCP)

FOUNDATION

DESIGNED FOR

Dealing with change and, more importantly, the impact of change is a high priority for all organizations. This course is suitable for all managers, team leaders, supervisors and individuals responsible for ensuring change is implemented successfully.

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

ABOUT THE COURSE

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.

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

2014-15 Schedule and Tuition / 2 Days

HOUSTON, U.S.	20-21 NOV 2014	US\$2,400
	12-13 FEB 2015	US\$2,400
	21-22 MAY 2015	US\$2,400
	20-21 AUG 2015	US\$2,400
KUALA LUMPUR, MALAYSIA	17-18 DEC 2015	US\$2,780
LONDON, U.K.	12-13 NOV 2015	US\$2,780+VAT
ORLANDO, U.S.	15-16 OCT 2015	US\$2,380

Meeting Management and Facilitation for the Petroleum Industry (MMF)

FOUNDATION

DESIGNED FOR

Petroleum industry professionals who plan, conduct, and manage meetings

YOU WILL LEARN HOW TO

- How to run efficient face-to-face and/or on-line meetings
- How to prepare and implement meeting agendas
- About meeting facilitation techniques and tools
- An understanding of meeting roles and responsibilities
- How-and when-to use meeting facilitation tools
- How to master meeting management skills, i.e., use time wisely, avoid topic confusion
- How to handle personal attack, avoid "traffic" problems, deal with individual and group communication, maintain topic (agenda) focus
- How to recognize and understand the various roles that a facilitator plays during the course of a meeting
- How to speak in front of others

ABOUT THE COURSE

Meetings remain a boon or curse to corporate communication. 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 accomplish little. They become virtual breeding grounds for confusion, tension, frustration, boredom and negativity. This course is for petroleum industry professionals who plan and conduct meetings. During this interactive 2 day 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. Participants will be given ample opportunity to practice what they're learning in class and to receive feedback about those areas of meeting management and facilitation they do well and those areas that they'll need to improve.

COURSE CONTENT

- Speaking skills
- Time management in meetings
- Agenda creation
- Conflict management
- Meeting facilitation aids

2014-15 Schedule and Tuition / 2 Days

HOUSTON, U.S.	30-31 OCT 2014	US\$2,400
	12-13 MAR 2015	US\$2,400
	29-30 OCT 2015	US\$2,400
LONDON, U.K.	6-7 AUG 2015	US\$2,780+VAT
PITTSBURGH, U.S.	11-12 JUN 2015	US\$2,380

Managing and Leading Others (MLO)

FOUNDATION

DESIGNED FOR

Anyone responsible for leading others in the daily performance of a work, including soon 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

ABOUT THE COURSE

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 "lucky chance" 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 and the productivity of a work group 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 course provides techniques enabling leaders to efficiently use one of the greatest resources a company has, its people. This highly interactive learning program will assist you in expanding your options for leading others. You will explore different concepts of management and leadership and how to apply your new skills in real world applications.

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

2014-15 Schedule and Tuition / 3 Days

ABERDEEN, U.K.	26-28 JAN 2015	US\$3,490+VAT
DENVER, U.S.	24-26 AUG 2015	US\$2,990
HOUSTON, U.S.	4-6 MAY 2015	US\$3,020
	5-7 OCT 2015	US\$3,020
KUALA LUMPUR, MALAYSIA	10-12 NOV 2014	US\$3,490
	2-4 NOV 2015	US\$3,490

Essential Skills for Resolving Workplace Conflict among Coworkers (RCP2)

SPECIALIZED

DESIGNED FOR

This course is designed for any employee who may be exposed to internal or external conflict in their work environment and who can become more effective by managing this conflict.

YOU WILL LEARN

The causes of conflict and how individuals respond to conflict • How to recognize conflict and decide how to respond • The basic mediation process and how it can be applied • How to manage conflict between yourself and another • Skills and processes for preventing conflict

ABOUT THE COURSE

This course is uniquely designed for the petroleum industry and provides a basic understanding of conflict, how to respond positively to conflict, how to manage your personal conflict situations, how to use a basic mediation process and how to prevent conflict. The course relies heavily on petroleum industry specific case studies and role play activities. It includes scenarios from major projects, well teams, multidisciplinary teams, petroleum operations and other petroleum industry organizations. (Compare to RCP3 which teaches additional topics of cost of conflict and more detailed mediation processes. RCP3 is designed more for supervisors and managers than this course.)

COURSE CONTENT

Basic concepts about conflict • Personal conflict styles • Recognizing conflict tactics • Strategies for resolving conflict • Listening, expression and emotions skills • The basic mediation process • Skills and processes for resolving conflict between yourself and another • Skills and processes for preventing conflict

2014-15 Schedule and Tuition / 2 Days

DENVER, U.S.	16-17 APR 2015	US\$2,460
DUBAI, U.A.E.	16-20 NOV 2014	US\$5,290
HOUSTON, U.S.	18-19 JUN 2015	US\$2,480
LONDON, U.K.	29-30 OCT 2015	US\$2,860+VAT

Basic Conflict Management Skills for Managers and Leaders (RCP3)

SPECIALIZED

DESIGNED FOR

Supervisors, managers, team leaders, project managers, project engineers, project services managers, organizational specialists, facilitators, trainers, negotiators, procurement personnel and all individuals who are exposed to internal or external conflict in their work environment.

YOU WILL LEARN

The causes of conflict and how individuals respond to conflict • How to recognize conflict, estimate its cost, and decide how to respond • Practical processes and skills for resolving conflict in your organization and how to apply these processes and skills • How to manage conflict between yourself and another • Skills and processes for preventing conflict

ABOUT THE COURSE

This course is uniquely designed for the petroleum industry and teaches practical processes and skills for resolving interpersonal conflict in major projects, well teams, multidisciplinary teams, petroleum operations and other petroleum industry organizations. The course relies heavily on petroleum industry specific case studies and role play activities.

COURSE CONTENT

Basic concepts about conflict • Personal conflict styles • Recognizing conflict tactics • Strategies for resolving conflict • Estimating the cost of conflict • Mediation processes for resolving conflict between your employees • Mediation processes for team leaders • Mediating as a third party • Listening, expression and emotions skills • Skills and processes for resolving conflict between yourself and another • Skills and processes for preventing conflict

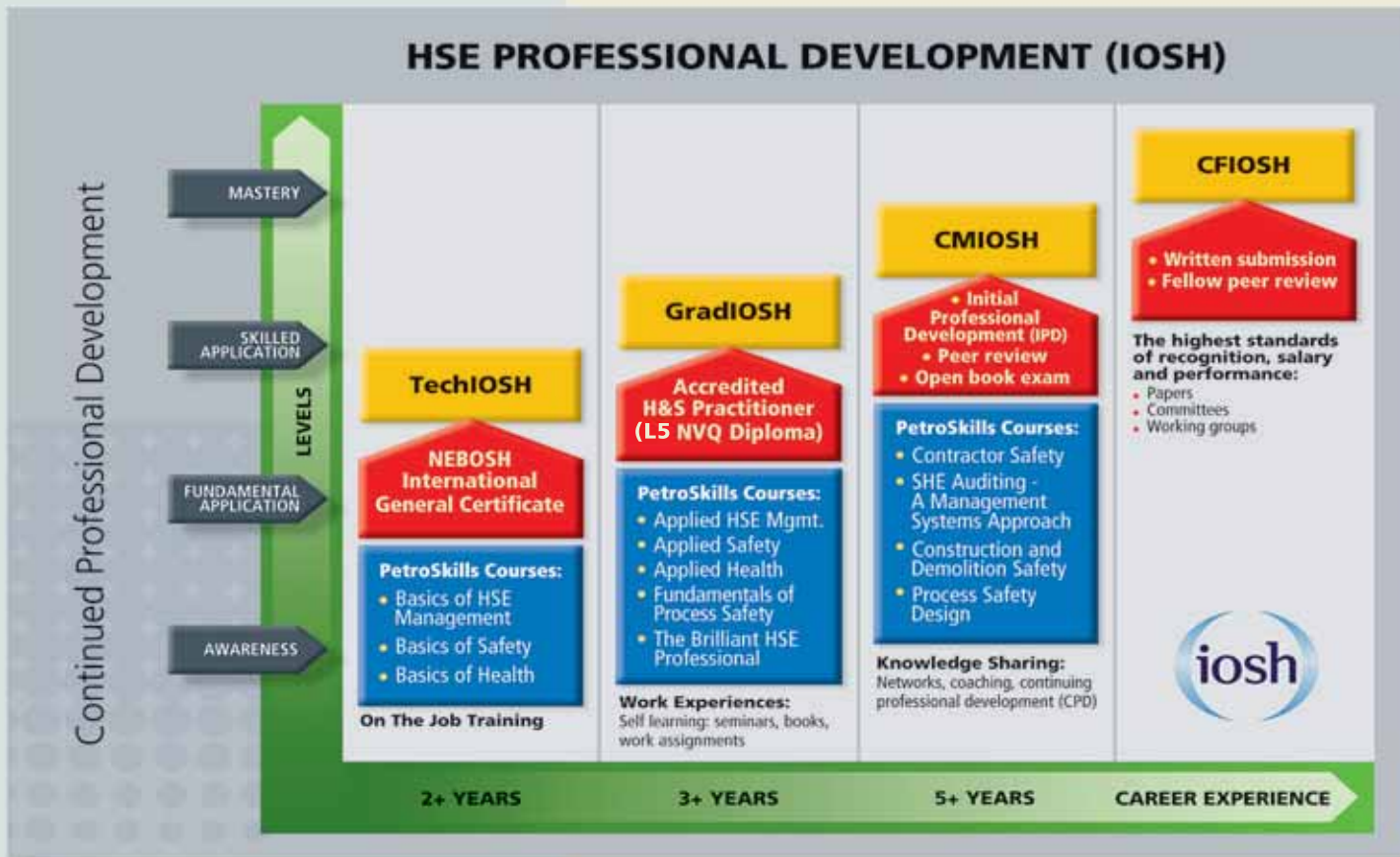
RCP3 is a more in-depth course than RCP2; so it is not advisable for a participant to enroll in both courses.

2014-15 Schedule and Tuition / 3 Days

DENVER, U.S.	13-15 APR 2015	US\$3,110
HOUSTON, U.S.	15-17 JUN 2015	US\$3,140
LONDON, U.K.	26-28 OCT 2015	US\$3,610+VAT

PetroSkills HSE

PETROSKILLS INCLUDES HEALTH, SAFETY, ENVIRONMENT AND HSE MANAGEMENT IN ITS UNIQUE COMPETENCY TRAINING PROGRAM.



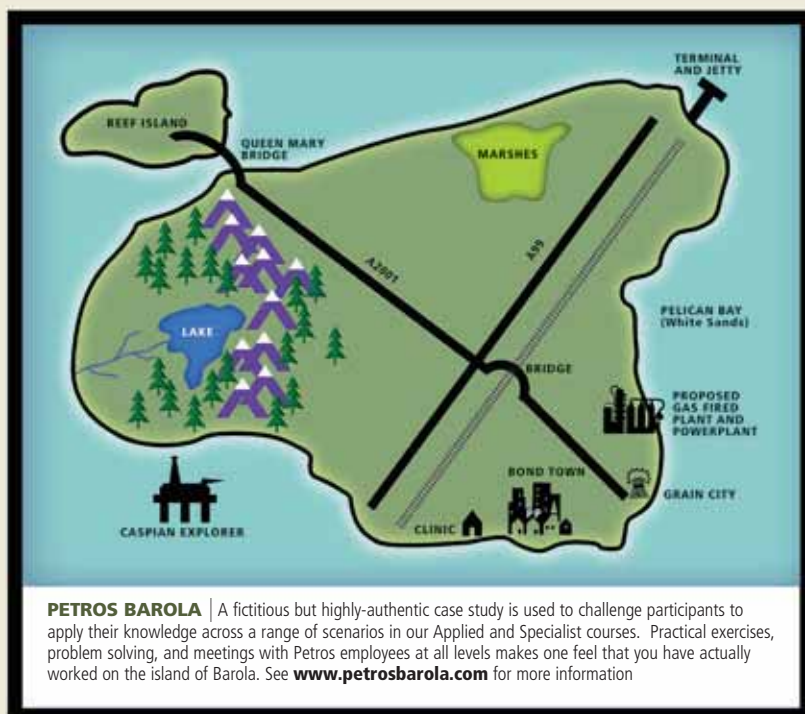
HSE PROFESSIONAL DEVELOPMENT 'LADDERS'

Programs that support HSE professional development, shown here for the Institution of Occupational Safety and Health (IOSH) – the world’s largest health and safety organization. A similar ladder is available upon request for environmental professional development through IEMA – the Institute of Environmental Management & Assessment. www.iosh.co.uk / www.iema.net

PROFESSIONAL DEVELOPMENT BY APPLIED LEARNING

ACCREDITED HEALTH & SAFETY PRACTITIONER:
LEVEL 5 NVQ DIPLOMA (TO CMIOSH) – HS70
ACCREDITED ENVIRONMENTAL PRACTITIONER:
IEMA FULL MEMBER BY APPLIED LEARNING – HS71

- For practicing HS&E professionals
- Mentored and perfectly blended to balance one-to-one learning with work-based evidence
- Supports professional development to CMIOSH & MIEMA (with reciprocity agreements with other HSE bodies)
- Duration is typically 12-15 months for health and safety program and 8-12 months for environmental program
- Flexible – you can start these programs any time



Health, Safety, Environment

Course Progression Matrix

The Course Progression Matrix below shows how the HSE courses in this section are structured within each topic, from Basic to Specialized. On the right-hand side of the HSE section, you will see courses in associated disciplines for cross-training. These matrices are ideal for building training plans for early-career staff or finding the right course to build upon existing knowledge and experience. Our programs include those externally accredited by NEBOSH, IEMA, CITB, and City and Guilds

The following instructors have been selected and approved by the PetroSkills Curriculum Network to teach one or more of the following Health, Safety, Environment courses:

STEPHEN ASBURY
RICHARD BALL
STEWART CLARKE

PHILLIP DUCKETT
CHRIS DOUGHERTY
KERRY EDWARDS

KEIRON FINNEY
ANDREW NEWBOROUGH
CLYDE W. YOUNG

NAOMI WARR

Health, Safety, Environment

Exploration and Production

Surface Facilities

HSE MANAGEMENT

SAFETY

HEALTH

ENVIRONMENT

SPECIALIZED

ACCREDITED HEALTH & SAFETY PRACTITIONER [CMIOSH]

ACCREDITED ENVIRONMENTAL PRACTITIONER [MIEMA]

INTERMEDIATE

SHE AUDITING – A MANAGEMENT SYSTEMS APPROACH

FOUNDATION

NEBOSH INTERNATIONAL GENERAL CERTIFICATE

FUNDAMENTALS OF PROCESS SAFETY

ENVIRONMENTAL MANAGEMENT SYSTEMS: A DEVELOPMENT WORKSHOP

CONTRACTOR SAFETY MANAGEMENT

RISK BASED PROCESS SAFETY MANAGEMENT

APPLIED HSE MANAGEMENT

APPLIED SAFETY

APPLIED HEALTH

APPLIED ENVIRONMENT

BASIC PETROLEUM ECONOMICS

BASIC

BASICS OF HSE MANAGEMENT

BASICS OF ENVIRONMENT

BASIC DRILLING, COMPLETION AND WORKOVER OPERATIONS

EXPLORATION AND PRODUCTION PROCESS BASICS (2 WEEKS)

OVERVIEW OF OFFSHORE SYSTEMS

BASIC PETROLEUM TECHNOLOGY

OVERVIEW OF GAS PROCESSING (NON-TECHNICAL)

Basics of Environment (HS13)

BASIC

DESIGNED FOR

Staff in oil, gas and petrochemicals industries who require the basics of environmental management and pollution control, including operational staff, engineers, supervisors, project managers and entry level HSE professionals. It is a core course for any person who can influence environmental impact within their organisation; it is also an ideal program for anyone new to the industry with no prior environmental knowledge. The NEBOSH Environmental Management Certificate is a first step on a career ladder towards a role within the environmental disciplines and is awarded to those who pass the exam and practical exercise.

YOU WILL LEARN

- Environmental management, and what this means for your organisation
- Ethical, legal and financial reasons for maintaining and promoting environmental management
- The importance of sustainability
- The principles and sources of environmental information
- The purpose and importance of setting environmental policy
- Key features and appropriate content of an effective environmental management system (EMS) such as ISO 14001:2004 / 2015 (draft)
- Active and reactive monitoring, including inspections, tours, and investigations of environmental incidents
- The meaning of the term 'environmental audit' and describe the preparations needed prior to an audit and the information that may be needed during, and procedures for reporting the results afterwards
- To explain environmental impact assessments (EIA)
- Main types of emissions to atmosphere and the control measures available to reduce these
- Main sources of water pollution and methods to reduce contamination of water sources.
- The importance of, and techniques for, minimising waste
- Risks associated with contaminated land
- To explain energy efficiency
- Potential sources and consequence of environmental noise
- Why emergency preparedness and response

ABOUT THE COURSE

Our program starts in advance of the taught course, as participants undertake a review of their own site's environmental performance using documentation supplied to them. This sets the context for this intensive five-day class, which comprises a blended learning approach with tutorials, workshops, problem-solving and practical activities.

At the end of the course, there is an examination and project; successful completion of which gives participants a formal qualification - the National Environmental Management Certificate awarded by 'NEBOSH'. The course fee includes the cost of the exam. [N.B. No refund is available for participants who wish to opt-out of the NEBOSH exam.]

COURSE CONTENT

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



To arrange an in-house session of this course, visit www.petroskills.com/inhouse.

Basics of HSE Management (HS18)

BASIC

DESIGNED FOR

For all staff in the oil & gas and petrochemicals industries requiring a basic awareness of health, safety and environmental (HSE) management systems including; Operations, Engineers, Supervisors, Project managers and aspiring HSE professionals. It is a core ('101') course for any persons who can influence HSE Management within the organisation and is also ideal for anyone new to the industry with no prior HSE management knowledge.

YOU WILL LEARN

- The principle elements of a health and safety management system, and how these interact to promote continual improvement in HSE management
- About ISO 14001, OHSAS 18001, ILO OSH-2001, HSG65, the new (draft) ISO 45001 and other commonly used HSE management systems
- Key tools associated with risk assessment, risk control and active/reactive monitoring
- The roles and responsibilities of individuals within the management system and how they can effect the safety culture of the organisation

ABOUT THE COURSE

Recognition and proper management of health, safety and environmental risks is fundamental to all management and professional roles in the industry. This course aims to equip participants with the underpinning knowledge relating to the concepts of an effective HSE management system and the key elements required for successful implementation.

The course is based upon a common HSE management system model and the programme explains the basic elements and their interaction. A variety of exercises and case studies based on the fictitious 'Petros Caspian Explorer' platform, as well as readings and videos will be used to understand and practice the leadership, communication, implementation, monitoring, corrective action, audit and review tools generally used in HSE management systems.

COURSE CONTENT

Leadership & Commitment • Policy & Strategic Objectives • Legislation & Regulation • Organization, Responsibilities & Resources • Professional Training & Behaviors • Risk Assessment & Management • Planning & Procedures • Contractor Controls • Security • Emergency Response • Performance Management • Incident Reporting & Investigation • Audit • Management Review

2014-15 Schedule and Tuition / 5 Days
LONDON, U.K. 21-25 SEP 2015 US\$4,570+VAT

Applied Environment (HS23)

FOUNDATION

DESIGNED FOR

Environmental professionals, health and safety professionals wishing to broaden their skills, operational managers, engineers, supervisors, project managers and other staff who have delegated responsibilities for implementing environmental management in the organisation. This is the ideal follow-on class from the Basics of Environment class HS13.

YOU WILL LEARN HOW TO

- Apply Environmental Management Systems (EMS) and environmental controls which bring enhanced legal, financial and reputational improvements to an organisation
- Communicate effectively with management and staff at all levels within the organisation on environmental improvement
- Implement an EMS into strategic plans, operational activities, products and services
- Identify environmental aspects and assess the environmental impacts of processes, products and services in normal, abnormal and emergency situations
- Identify the different methods available for evaluating environmental aspects for significance considering qualitative and quantitative data
- Use an EMS to ensure legal compliance
- Plan for continual improvement in environmental performance
- Develop monitoring procedures and environmental performance indicators
- Detail how prior preparation and provision of training and resources can mitigate environmental impacts
- Develop and implement an environmental audit program
- Identify the sources of information for use during the audit process including interviews, observation and document review
- Engage in environmental reporting, using recognized methods and formats for both internal and external reports

ABOUT THE COURSE

This course provides opportunities to work as a member of a team of environmental specialists to develop and improve the Environmental Management System and environmental performance of 'Petros', a fictitious but highly realistic case study based on an integrated exploration and distribution company located on the Caribbean island of Barola. Application of the techniques is practiced at the upstream 'Caspian Explorer' platform and the downstream 'Orkney Depot'. A well-blended variety of exercises, problems and case study scenarios are used to practise the application of learning in highly-authentic situations. The course is designed to introduce participants to a range of environmental challenges, including policy development, conducting environmental reviews, tackling environmental issues including waste management, energy efficiency, pollution control and emergency planning, environmental monitoring and becoming an 'agent for change' in their own organisations. Every participant works as a member of a team through each stage of environmental implementation, with live face-to-face interviews and a variety of corporate documents and test results to simulate real day-to-day challenges faced by Environmental Practitioners. The culmination is a presentation to the senior management of the company. The course is also ideal for those developing their careers in environmental management and/or planning to progress towards membership of the Institute of Environmental Management and Assessment (IEMA) using the PetroSkills mentored learning program 'Accredited Environmental Practitioner' (HS71, p. 58).

COURSE CONTENT

Effective application of Environmental Management Systems • Assessing environmental impact • Environmental risk management • Developing environmental improvement programs • Pollution control • Emergency preparedness and response • Environmental communication • Environmental performance monitoring • Environmental auditing • Environmental reporting • Management review

2014-15 Schedule and Tuition / 5 Days
HOUSTON, U.S. 13-17 OCT 2014 US\$4,040
12-16 OCT 2015 US\$4,040

HEALTH, SAFETY, ENVIRONMENT



Applied Health (HS24)

FOUNDATION

DESIGNED FOR

For all staff who have the responsibility for designing, implementing and/or supporting health and industrial hygiene programs in the workplace in conjunction with professional health practitioners including: HSE professionals, managers, engineers, supervisors, project managers. Some prior knowledge of health related topics is desirable but not essential.

YOU WILL LEARN HOW TO

- Describe the reasons for and explain how to effectively embed health risk assessment (HRA) into business management systems
- Outline the reasons for and explain the method for embedding health impact assessment (HIA) into business management systems and understand the importance of engaging internal and external stakeholders
- Outline the procedures to embed the Human Factors Engineering process into the project management systems of a typical location or organization
- Explain and interpret adverse ergonomic health effects to workers
- Identify the potential medical emergencies in work areas and develop medical emergency response (MER) plans for a typical location.
- Evaluate and debate Fitness for Duty (FFD) practice & strategy, specifically on the key concepts (including alcohol & drug policy) and identify the responsibilities of line managers
- Identify and explain the possible causes for ill health during the food handling cycle and origins of water borne health hazards, and prepare corrective actions
- Implement procedures to prevent and respond to hazards from thermal extremes
- Describe the procedures and monitoring required for occupational hygiene, in particular, noise and vibration, chemical agents, ionising and non-ionising radiation and biological agent
- Develop and implement procedures to identify and reduce risk of psycho/social agents.

ABOUT THE COURSE

This course builds on practical experience and learning on health and industrial hygiene, and intends to build skills to allow participants to be able to apply these techniques within their respective roles. The course is set in a fictitious, but highly realistic, case study based on the Caribbean island of Barola, where management needs assistance to develop a health management system for the construction of a solar array and a new gas-fired power plant (and decommissioning of the 58-year-old coal-fired plant), involving 480 non-native and 120 local workers residing in temporary camps for three years. Application of other essential issues and how they relate to the oil and gas industry is also covered - ergonomics, human factors engineering, food and water hygiene, and thermal extremes. Other important issues which are covered include health and emergency response facilities, psychological and social impact and fitness for duty. A new topic included is occupational hygiene & medical surveillance requirements.

A rich variety of exercises, readings, videos and case studies are used to practice application of the learning in realistic situations. The course may be taken either independently or in conjunction with the Applied Safety, Applied HSE Management, and/or Applied Environment courses and serves as a foundation for the PetroSkills mentored Accredited Health & Safety Practitioner program (to CMIOSH).

COURSE CONTENT

Health Risk Assessment • Health Impact Assessment • Human Factors Engineering • Ergonomics • Health & Medical Emergency Facilities • Fitness for Duty • Food and Water Hygiene • Thermal Extremes • Medical Surveillance/Industrial Hygiene • Psychological and Social Agents

To arrange an in-house session of this course, visit www.petroskills.com/inhouse.

Applied HSE Management (HS28)

FOUNDATION

DESIGNED FOR

HSE Professionals, Operations, Engineers, Supervisors and Project managers and all staff who have the responsibility for designing, implementing, or supporting HSE management. This is a core course for persons in a supervisory role in an operational environment. 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 ISO 14001 and OHSAS 18001
- Understand Annex SL and the new (draft) ISO 45001
- Explain how people in organisations each have responsibilities for HSE management, and the characteristics of a successful management style
- Explain and use the key tools associated with risk assessment and monitoring, such as risk assessments, safety cases and HSE monitoring tools such as accident investigation
- Shape and improve the safety culture of the organisation

ABOUT THE COURSE

This course is about practising and applying HSE management for the oil & gas and petrochemicals industries. A rich variety of exercises, readings, videos and case studies are used to support the learning in realistic situations. These come together to 'challenge' participants in the real life scenario of a fictional facility, Petros Barola (visit www.petrosbarola.com). The 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 the Applied Safety, Applied Health, and/or Applied Environment courses. The course also provides essential and practical learning for those participants seeking accreditation through the PetroSkills mentored Accredited Health & Safety Practitioner program (to CMIOSH, p. 53).

COURSE CONTENT

Leadership & Commitment • Policy & Strategic Objectives • Legislation & Regulation • Organisation, Responsibilities & Resources • Professional Training & Behaviours • Risk Assessment & Management • Planning & Procedures – Contractor Controls • Security • Emergency Response • Performance Management • Incident Reporting & Investigation • Audit • Management Review

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	16-20 MAR 2015	US\$4,040
LONDON, U.K.	12-16 OCT 2015	US\$4,670+VAT

Applied Safety (HS20)

FOUNDATION

DESIGNED FOR

HSE Professionals, Operations, Engineers, Supervisors and Project managers and all staff who have the responsibility for designing, implementing or supporting safety tools, techniques and management in their respective positions. This is a core course for persons in a supervisory role in an operational environment. Some prior knowledge of safety related topics is desirable but not essential.

YOU WILL LEARN HOW TO

- Design and implement the principles and practice of safety technology
- Apply factors relating to people, equipment, materials and the working environment to the establishment of safe working environments
- Identify common hazards and design and implement systems to control and monitor them

ABOUT THE COURSE

This course is about practising and applying safety tools, techniques and management for the oil & gas and petrochemicals industries. A rich variety of exercises, readings, videos and case studies are used to support the learning in realistic situations. These come together to 'challenge' participants in the real life scenario of a fictional facility, Petros Barola (visit www.petrosbarola.com), and concludes with the participants defending to the regulator why the company should maintain its operating licence.

The 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 other Foundation level courses - Applied HSE Management, Applied Health, and/or Applied Environment.

This course serves as a foundation for participants seeking accreditation through the PetroSkills mentored Accredited Health & Safety Practitioner program (to CMIOSH) (HS-70, p. 53).

COURSE CONTENT

Safety techniques for hazard and effect management • Safety Culture • Work Environment • Chemical Handling / HAZCOM / Product Stewardship • Fire Safety • Electrical Safety • Confined Space • Lockout/Tagout • Logistics • Process

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	3-7 NOV 2014	US\$4,040
	2-6 NOV 2015	US\$4,040
LONDON, U.K.	10-14 AUG 2015	US\$4,670+VAT

Environmental Management Systems: A Development Workshop (HS37)

SPECIALIZED

DESIGNED FOR

Environmental managers, advisers and co-ordinators; Procurement and Supply Chain Managers, HSE Managers; HSE Auditors; Engineers and other managers and supervisors from large and small organisations who require the skills and support to develop a recognised environmental management system (EMS) for their organisation.

YOU WILL BE SUPPORTED

- Develop understanding of the major areas of operations' interaction with the environment
- Become familiar with corporate and legal requirements for environmental compliance
- Develop a good understanding of EMS and ISO 14001
- Demonstrate the skills to plan and develop a documented EMS through the following:
 - Planning for EMS (allocating resources and developing an EMS schedule)
 - Identifying and prioritizing the environmental aspects and impacts of operations
 - Developing planning matrices for significant aspects by setting objectives, targets, management programs and KPIs
 - Applying EMS to sample processes in various operational modes (normal, abnormal (start-up, shutdown) and emergency using process flow diagrams
 - Modify emergency response system to accommodate EMS
- Become familiar with other EMS requirements
 - Document control
 - Internal auditing
 - Achieving continual improvement
- Write up a draft EMS manual based on template documents

ABOUT THE COURSE

Since its launch in 1996, over 250,000 organisations around the world have become externally certified to ISO 14001, which has become the leading international standard and specification for environmental management systems (EMS).

This five day course provides the learning and comprehensive pre-built templates for developing and implementing an ISO 14001-based EMS for participants' own facilities. You should bring a site plan, and process flowcharts, which will be used in a series of hands-on exercises throughout the class. You will leave the class with a developed, draft EMS manual.

The course includes all the documentation and materials necessary for preparing an EMS. Arranging an external third party audit by a certification body is left to the choice, convenience and timing of the participant's organisation, and no guarantee of achieving such approval is given.

COURSE CONTENT

The course covers the following eight modules:

1. Risk and the environment
2. Management systems, Annex SL and ISO 14001
3. Environmental policy and strategic vision
4. EMS planning – aspects, impacts, legal and other requirements
5. Resources and training
6. Communication, documentation and document control
7. Monitoring and measurement
8. EMS auditing and continual improvement

2014-15 Schedule and Tuition / 5 Days
LONDON, U.K. 20-24 JUL 2015 US\$4,670+VAT

Contractor Safety Management (HS46)

FOUNDATION

DESIGNED FOR

Project Managers, Procurement and Supply Chain Managers, HSE Managers, HSE Auditors, Engineers, and Supervisors who require an understanding of how to manage contractors.

YOU WILL LEARN HOW TO

- Implement a contracting supply chain strategy based on an understanding of the risks and benefits of outsourcing low risk, high risk and specialist activities
- Develop a contracting strategy based on a pre-qualification programme
- Prepare a programme to initiate the use of competent contractors based on bid documents covering HSE and other relevant standards
- Communicate effectively with contractors, including reporting requirements for incidents and accidents and emergency procedures
- Identify the barriers that could prevent successful implementation of a contractor safety program, and how to overcome them
- Develop a programme of supply chain performance monitoring
- Perform an effective interview, including describing the benefits and disadvantages of various questioning techniques
- Provide feedback (the '3 As') likely to initiate continual improvements in contractor performance
- Use sector management systems such as OGP, API standard 2220, and HSG65 as methodologies for initiating and maintaining continual improvements in contractor performance

ABOUT THE COURSE

An effective relationship between clients and contractors at all stages of the procurement / supply chain is essential for competently managing health and safety in a hydrocarbon (or any) facility.

This five day course provides the practical processes for developing and managing a contractor safety management system covering all stages of the contracting cycle based around recognised management systems, such as API Recommended Practice 2220 'Improving Owner and Contractor Safety Performance' and OGP guidance 'Managing in a Contracting Environment'. The course includes advanced interviewing skills, which are taught and then used in a simulated but realistic extensive contractor selection case study exercise.

COURSE CONTENT

The course covers the following six modules:

1. Supply chain strategy
2. Management systems, RP 2220, OGP guidance
3. Pre-qualification, Approved Contractor status
4. Bidding, evaluation criteria, appointment
5. Communication
6. Supply chain performance monitoring, interviewing skills, auditing

The taught modules are followed by a detailed case study which has been developed to allow participants to demonstrate the application of the skills they have learned.

2014-15 Schedule and Tuition / 5 Days
ABU DHABI, U.A.E. 8-12 NOV 2015 US\$5,090
HOUSTON, U.S. 27 APR-1 MAY 2015 US\$4,040
LONDON, U.K. 1-5 JUN 2015 US\$4,670+VAT

Risk Based Process Safety Management (HS45)

FOUNDATION

DESIGNED FOR

HSE professionals, engineers, supervisors and project managers requiring a basic foundation in developing and managing process safety. The more detailed aspects of engineering process design are covered in a separate course.

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
- Apply the appropriate key requirements of national and international engineering codes and best practices to Process / Technical Safety in his/her own operations
- Effectively utilize Process/Technical Safety problem-solving

ABOUT THE COURSE

This course introduces the concepts of 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. Process safety is vital to the oil and gas industry. A comprehensive process safety management system involves almost every function of a company: management, research, development, engineering, facility and process construction, operations, maintenance, human resources, information technology and the contractors used in the industry. In this course the participant will learn to use tools and techniques for managing process safety.

The Center for Chemical Process Safety's (CCPS) newly published 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. Building upon the original process safety management ideas published in the early 1990s, this new framework for thinking about process safety integrates industry lessons learned over the intervening years, utilizes applicable "total quality" principles (i.e., plan, do, check, act), and organizes it in a way that will be useful to all organizations. 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 provide guidance in applying the information from the course to the workplace.

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

2014-15 Schedule and Tuition / 5 Days
ABU DHABI, U.A.E. 7-11 DEC 2014 US\$5,090
DUBAI, U.A.E. 13-17 SEP 2015 US\$5,090
HOUSTON, U.S. 20-24 APR 2015 US\$4,040
LONDON, U.K. 13-17 JUL 2015 US\$4,670+VAT



HEALTH, SAFETY, ENVIRONMENT

SHE Auditing – A Management Systems Approach (HS47)

INTERMEDIATE

DESIGNED FOR

The course is designed to introduce new and experienced auditors to a dynamic risk-based approach for assessing the effectiveness of any HSE-MS, including those based upon ISO 14001, OHSAS 18001, and the new (draft) ISO 45001. It has also proven extremely beneficial for preparing technically competent line managers and supervisors prior to secondment to a team auditing an HSE-MS in any environment.

YOU WILL LEARN HOW TO

- Participate effectively in an audit or review team in line with the standards of the auditing profession
- Relate audit to the essential principles of Corporate Governance, Risk Management, Business Control and Management Systems
- Add value for senior management from the auditing process
- Demonstrate the skills necessary to conduct an effective audit, including:
 - familiarising with the auditee's business environment and objectives
 - developing a risk-based work plan
 - effective interviewing, reviewing and testing techniques
 - recording, analysing and assessing audit findings
- Evaluating the auditee's HSE MS
- Summarising, presenting and reporting at high level the audit results to management

ABOUT THE COURSE

Our auditor training course is the only externally approved integrated management systems auditing class based on both ISO 14001 and OHSAS 18001 and is suitable for external accreditation of Auditors and Lead Auditors (after suitable practical experience). Participants work as a member of a team of internal auditors to appraise the Health, Safety and Environmental Management System (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 Caribbean island of Barola. The programme 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 case study scenario has been successfully used by participants from many disciplines working in the upstream, midstream and downstream business sectors and key support functions because it enables them to focus on the structure and execution of the audit rather than being distracted by their specialist knowledge of their own sector of the industry. The intensive five-day course programme consists of a blend of tutorials, workshops and hands-on activities within the audit case study. Participants work in small teams, each led by an experienced Lead Auditor. Every participant works within the team through each stage of an audit with live face-to-face interviews and a variety of corporate documents and test results to simulate the execution of an actual audit. The culmination is a presentation to the senior management of the company. A copy of the best-selling course book 'HSEQ Audits - A Risk-based Approach' by Asbury & Ashwell ISBN 978-0-750-68026-4 is included for participants on the course. Candidates who successfully complete the course work, and pass the moderated examination are issued with certificates by IOSH.

COURSE CONTENT

Learning and Development: Risk management and business control • HSE-MS Auditing • Planning the audit • Review and Test processes • Effective interviewing for information • Legal aspects relevant to auditing • Findings and recommendations • Audit conclusion

Participation in the comprehensive and detailed Petros Barola case study: Opening meeting • Audit interviews • Gathering objective evidence • Preparing the audit report • Audit team meetings • Closing meeting • Audit report and follow-up



2014-15 Schedule and Tuition / 5 Days
LONDON, U.K. 7-11 SEP 2015 US\$4,770+VAT

Accredited Health & Safety Practitioner: (NVQ Level 5 Diploma in Occupational Health and Safety Practice) to CMIOSH by Applied Learning (HS70)

SPECIALIZED

DESIGNED FOR

Experienced health and safety managers / advisors / officers seeking Chartered Membership (CMIOSH) of the Institution of Occupational Safety and Health (IOSH), the world's largest health and safety organization. Ideally, the participant will be an active practitioner with at least two years experience in a health and safety role.

YOU WILL BE SUPPORTED

- By a personal mentor to build a structured portfolio of evidence, demonstrating skilled application of health and safety management tools and techniques, which collectively meet the requirements of City & Guilds of London for the Level 5 NVQ Diploma in Occupational Health and Safety Practice
- To write the required reports using templates provided
- To close any knowledge gaps through directed reading
- Through assessment and internal verification of submitted materials
- By being registered with City & Guilds of London
- Through a written reference for your IOSH membership application

ABOUT THE COURSE

This is a mentored program with each participant having his/ This is a mentored program with each participant having their own personal mentor and advisor. It works very well as a distance learning programme, and our assistance is tailored to meet participants' individual needs as a busy practitioner. Communication is usually through e-mail and telephone as well as other forums. The start date is flexible with the work best spread out over a 12-15 month period through to completion. More details are available on request. This qualification is accepted by IOSH (upon successful application, and after completion of an open book examination) for Chartered Membership of the Institution, which is the leading designation for occupational health and safety practitioners in Europe and the Middle East, with reciprocity agreements with other national bodies, including: ASSE and CSSE in the US and Canada respectively.

COURSE CONTENT

Ten mandatory units requiring a range of evidence to demonstrate competence. The units are:

- Develop and implement effective communication systems
- Promote a positive health and safety culture
- Develop and maintain individual and organisational competence
- Identify, assess and control health and safety risks
- Develop and implement proactive monitoring systems
- Develop and implement reactive monitoring systems
- Develop and implement ER systems
- Develop and implement review systems
- Maintain knowledge of improvements to influence practice
- Develop and implement the health and safety policy

City & Guilds

Start date for the program is fully flexible. The program fee is \$3,925 (excl. VAT) including registration with City & Guilds. There will be no refund issued after registration is confirmed. To register or for more information, please email mentoring@petroskills.com, call +1 918 828 2500 or toll free +1 800 821 5933 (North America only) or contact Adrian Hearle, Managing Director, PetroSkills HSE, at ahearle@petroskills.com.

Accredited Environmental Practitioner (IEMA Full Member by Applied Learning) (HS71)

SPECIALIZED

DESIGNED FOR

Experienced environmental managers and advisors who seek an Full Membership of the Institute of Environmental Management and Assessment (IEMA), the leading professional membership body for environmental practitioners. The participant will have responsibility for managing one or more environmental impacts within his/her work.

YOU WILL BE SUPPORTED

- By a personally appointed mentor to build a structured portfolio of evidence, demonstrating skilled application of environmental management tools and techniques, which collectively meet the requirements of IEMA.
- To write the required reports.
- To close any knowledge gaps through directed reading.
- Through assessment and internal verification of submitted materials.
- By being registered with IEMA.

ABOUT THE COURSE

This is a two-part program. Part 1 made up of six compulsory units each requiring a range of evidence to demonstrate competence in each unit and leads to the IEMA Associate Certificate in Environmental Management (AIEMA). In Part 2, the participant is comprehensively supported through his/her development program to become a full qualified environmental professional. The participant is guided through the application and assessment process to become a Full Member of IEMA (MIEMA). It is a mentored program with each participant having his/her own personal mentor and advisor who will work on a one-to-one basis. The assistance is tailored to meet the individual needs of each participant. Communication is usually through e-mail and telephone as well as other forums. The start date is flexible with the work for Part 1 best spread out over an 8-12 month period. Completion of Part 2 does require the participant to have 3 years full time experience gained before or after achieving Associate Membership.

COURSE CONTENT

Part 1 – Six mandatory units requiring a range of evidence to demonstrate competence: 1) Global Environmental Issues 2) Environmental Law, 3) Environmental Techniques, 4) Environmental Management Systems, 5) Environmental Communications, 6) Sustainability
Part 2 – Guidance and support through the application and assessment process: 7) Full Membership Mentoring

LEARNING OBJECTIVES

- On completion of this course the participant will:
- Have an underpinning knowledge of the earth's natural systems and how human activity interacts and impacts on these systems.
 - Understand the main sources of Environmental Law and key legislation affecting international businesses.
 - Have demonstrated a competence in the principle tools used by the environmental professional, including Life Cycle Assessment, Environmental Impact Assessment and Environmental Risk Assessment.
 - Have demonstrated an understanding of the benefits of implementing an environmental management system.
 - Understand the importance of Environmental communication both internally and externally to the organisation.
 - Understand the issues, science and philosophy that underpin environmental sustainability.
 - Have demonstrated a practical understanding of how an organisation can reduce its impacts.

iema
INSTITUTE OF ENVIRONMENTAL
MANAGEMENT & ASSESSMENT

Start date for the program is fully flexible. The program fee is \$4,575 (excl. VAT) including registration with City & Guilds. There will be no refund issued after registration is confirmed. To register or for more information, please email mentoring@petroskills.com, call +1 918 828 2500 or toll free +1 800 821 5933 (North America only) or contact Adrian Hearle, Managing Director, PetroSkills HSE, at ahearle@petroskills.com.

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Operations & Maintenance



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- Technicians
- Operators Joining New Crews
- Seasoned Operators
- Supervisors

Training designed to help your team perform safely & efficiently

Important Features:

- Customized courses based on YOUR PFDs
- Improve the technical communication between operators and engineers
- Develop in-depth understanding of process operations
- Flexible course topics from a bank of course content
- Flexible Course Lengths (3/5/10 day courses available)
- Flexible and adaptable to shift schedules
- Non-mathematical courses available
- Advanced level courses available

Operations & Maintenance Courses Get Your Team Up to Speed Quickly

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Fundamentals of Process Safety (PS-2)

FOUNDATION

DESIGNED FOR

All staff associated with the operation, maintenance and governance of high hazard installations in the upstream and downstream oil, gas and petrochemical industry. The content is relevant to all roles, including senior management, project and engineering support teams, HSE support, supervisors and operator and maintenance technicians.

Course will benefit anyone who wants to understand the design basis and essentials of safe operating envelopes without addressing the more detailed calculation aspects covered in Process Safety Engineering PS-4. The use of a case study is designed to identify how different disciplines and roles impact safe and reliable operations and maintenance.

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

ABOUT THE COURSE

The course is designed to cover the fundamentals of Process Safety for all staff levels in a high hazard installation. This course will benefit anyone who requires to understand the essentials of process safety including managers, supervisors, technical, engineering, HSE, maintenance and operational staff who are associated with the design, construction, operation, maintenance and governance of high hazard installations in the upstream and downstream oil, gas and petrochemical industry.

To explore the multiple roles involved in Process Safety and allow participants from different backgrounds to relate to this subject there is a rolling case study, Project COLEX throughout the course. Project COLEX 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. The Project COLEX exercise will identify how different disciplines and roles can have an impact on safety performance.

COURSE CONTENT

- Business context for Process Safety
- Learning from previous incidents and near misses
- Risk Assessment [Hazard Identification, Hazard Scenarios, Consequence & Likelihood Analysis, Risk Analysis and Tools & Techniques]
- Risk Reduction Measures (Barriers) [Types and Hierarchy of Risk Reduction Measures (Barriers)]
- Design basis of plant facilities
- Management of Process Safety in Operations [Operating Procedures, Design and Operating Limits, Human Factors, Inspection and Maintenance, Emergency Response]
- Management of Change
- Incident and Near Miss Investigation
- Self-Verification and Measurement
- Process Safety Key Performance Indicators
- Management Review and Auditing
- Process Safety Leadership
- Governance and Culture

2014-15 Schedule and Tuition / 5 Days

DENVER, U.S.	11-15 MAY 2015	US\$4,110
DUBAI, U.A.E.	12-16 APR 2015	US\$5,190
HOUSTON, U.S.	15-19 JUN 2015	US\$4,150
	19-23 OCT 2015	US\$4,150
KUALA LUMPUR, MALAYSIA	17-21 AUG 2015	US\$5,460
LONDON, U.K.	7-11 DEC 2015	US\$4,780+VAT

Oil & Gas Processing Facilities for Operations & Maintenance (OT-1)

BASIC

DESIGNED FOR

Production and processing operations and maintenance technicians, supervisors and managers, as well as other non-engineering personnel requiring a broad introduction to production and processing facilities, including the separation, conditioning and disposition of produced oil, gas and water; including the common operational difficulties that may arise, as well as the operational tactics used to resolve them.

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
- How to determine the water vapor content of produced natural gas
- How to recognize problems and dangers of hydrate formation
- About methods and issues in hydrate prevention/inhibition

ABOUT THE COURSE

This course will provide the basic knowledge required for understanding processes and operating issues common to all locations. See below for customized content per location.

COURSE CONTENT

- Produced Hydrocarbon Fluids
- Process Drawings
- Production Facility Operations
- Basic Physical Principles
- Oil and Condensate Processing
- Produced Water Treating
- Gas Conditioning and Processing
- Auxiliary Systems (Gas Lift, Sea Water Treating)
- **STAVANGER / ABERDEEN** – Typical North Sea oil and gas producing operations, produced water treating, seawater treating, other offshore topics of general interest
- **BRISBANE** – Gas processing, introduction to Liquefied Natural Gas (LNG) processes
- **MIDLAND** – Gas conditioning and processing, sour gas treating, sulfur recovery
- **PITTSBURGH** – Mechanical refrigeration principles and equipment, NGL fractionation and cryogenic NGL recovery

2014-15 Schedule and Tuition / 5 Days

ABERDEEN, U.K.	13-17 APR 2015	US\$4,760+VAT
BRISBANE, AUSTRALIA	27-31 JUL 2015	US\$4,760+GST
CALGARY, CANADA	5-9 OCT 2015	US\$3,840+GST
DENVER, U.S.	18-22 MAY 2015	US\$3,840
HOUSTON, U.S.	22-26 JUN 2015	US\$3,880
MIDLAND, U.S.	10-14 NOV 2014	US\$3,840
	9-13 NOV 2015	US\$3,840
OKLAHOMA CITY, U.S.	31 AUG-4 SEP 2015	US\$3,840
PITTSBURGH, U.S.	27 APR-1 MAY 2015	US\$3,840

Gas Production / Processing for Operations & Maintenance (OT-3)

FOUNDATION

DESIGNED FOR

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

YOU WILL LEARN

- Advanced level physical principles, hydrocarbon properties and hydrocarbon phase-behavior
- Practical thermodynamics, including mass and energy balances
- Principles of fluid dynamics and application to pumps, compressors and turboexpanders
- To understand process equipment, including heat exchangers, fired heaters, separators, piping and towers with trays or packing
- To understand process unit operations, including gas conditioning and processing, gas dehydration, NGL extraction processes, stabilization/fractionation, and sulfur recovery

ABOUT THE COURSE

This course will provide a more detailed examination of the processes found in gas production facilities, including the important theoretical aspects that must be mastered before operators can truly understand their processes and become proficient at avoiding problems and troubleshooting the technical problems that do arise. This course prepares operations personnel to communicate better and work more closely with professional engineering staff. A problem set consisting of practical calculations that will be useful to operators beyond the classroom will be administered during the course. A high-quality scientific calculator is issued to all participants of the OT-3 course. *See below for customized content per location.*

COURSE CONTENT

- Hydrocarbons basic principles
- Units of measurement
- Process drawings
- Overview of oil and gas processing
- Important properties of hydrocarbons
- Phase behavior fundamentals
- Practical thermodynamics: mass and energy balances
- Heat transfer and fired heaters
- Mechanical refrigeration
- Introduction to process control
- Basic principles of fluid flow
- Centrifugal pumps
- Centrifugal compressors
- Reciprocating compressors
- Introduction to gas turbines
- Production separators and oil dehydration
- Water treating
- Corrosion and corrosion monitoring
- Amine gas sweetening
- Sulfur recovery
- Mass transfer operations
- Water-hydrocarbon behavior
- TEG gas dehydration
- Mole sieve dehydration
- Gas expansion NGL recovery (valve & turboexpander)
- Crude oil, condensate, and NGL stabilization
- NGL fractionation
- Process troubleshooting

This course is also available in non-mathematical, Basic version of 5 days duration.

To arrange an in-house session of this course, visit www.petroskills.com/inhouse.

Gas Dehydration and Amine Sweetening for Operations & Maintenance (OT-41)

FOUNDATION

DESIGNED FOR

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

YOU WILL LEARN

- Basic principles of gas processing
- The physical properties of natural gas and NGL components
- Practical application of the principles of hydrocarbon phase behavior
- Types of dehydration processes: absorption, adsorption and condensation
- To determine the water content of produced natural gas
- The problems and dangers of hydrate formation
- Effective methods of hydrate inhibition
- Principles and operational elements of TEG gas dehydration
- Principles and operational elements of Mole Sieve gas dehydration
- Effects of acid gasses
- Principles and operational elements of Amine Sweetening

ABOUT THE COURSE

This course will provide the basic knowledge required for understanding operating issues in natural gas amine sweetening and dehydration units. *This course is customizable to client needs.*

COURSE CONTENT

- Properties of Hydrocarbons
- Phase Behavior Fundamentals
- Mass transfer operations: absorption and stripping, trays vs. packing
- Water/hydrocarbon behavior
- TEG equipment
- TEG system operating procedures and problems
- Care of the TEG solution
- Mole sieve gas dehydration
- Operation and adsorbent life
- Mole Sieve operating problems and troubleshooting
- Amine Gas Sweetening
- Amine system operating procedures and problems

To arrange an in-house session of this course, visit www.petroskills.com/inhouse.

NGL Fractionation & Cryogenic NGL Recovery for Operations & Maintenance (OT-42)

FOUNDATION

DESIGNED FOR

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

YOU WILL LEARN

- To use hydrocarbon system language
- Basic principles of gas processing
- The physical properties of natural gas and NGL components
- Practical application of the principles of hydrocarbon phase behavior
- Principles, operation, and troubleshooting of mechanical refrigeration systems
- Operating principles and issues in gas expansion NGL recovery (Turboexpander and J-T Valve) processes
- Operating principles and techniques for NGL stabilization and fractionation

ABOUT THE COURSE

This course will provide the basic knowledge required for understanding operating issues in cryogenic NGL (Natural Gas Liquids) extraction and stabilization/fractionation. *Course content is non-mathematical and customizable to client needs.*

COURSE CONTENT

- Hydrocarbon systems: reservoir fluids
- Hydrocarbon series: paraffins
- Physical properties of hydrocarbons
- Fluid properties: VLE, vapor pressure, boiling point, etc.
- Pressure-temperature phase diagrams (phase envelopes)
- Application of phase envelopes: hydrocarbon dew point control, equilibrium stage concepts, flash separators and fractionators
- Mechanical refrigeration: principles and equipment
- Tray-type towers; packed towers
- Components of turboexpander NGL recovery plants
- Turboexpander-compressor and utilities
- Principles of gas expansion NGL recovery and process variations
- Stabilizers, fractionators, and fractionation trains
- The basic fractionator and operator control techniques
- Troubleshooting

To arrange an in-house session of this course, visit www.petroskills.com/inhouse.



LNG Facilities for Operations & Maintenance (OT-43)

FOUNDATION

DESIGNED FOR

LNG plant and utility operations and maintenance technicians, supervisors and managers.

YOU WILL LEARN

- Fundamentals of gas processing and conditioning for the LNG industry
- Important specifications for gas, LNG, NGLs and condensate
- Phase behavior fundamentals
- Practical thermodynamics: Mass and Energy Balances
- Important topics of H₂S and CO₂ removal before liquefaction
- Processes used to dehydrate natural gas and remove heavy components
- Mechanical Refrigeration
- Other contaminants in LNG feed-gas
- NGL Stabilization and Fractionation
- Introduction to APCI LNG processes
- LNG storage and loading

ABOUT THE COURSE

This is a five-day LNG-industry version of our popular OT-3 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 APCI process in LNG liquefaction 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

- Hydrocarbons & Hydrocarbon System Language
- Properties of Hydrocarbons – LNG focus
- Introduction to LNG Processes
- Phase Behavior Fundamentals
- Thermodynamics of LNG processes
- Mass Transfer Operations
- NGL Stabilization and Fractionation
- LNG Mixed Refrigerant Processes
- LNG Storage and Loading

2014-15 Schedule and Tuition / 5 Days

BRISBANE, AUSTRALIA	18-22 MAY 2015	US\$4,760+GST
HOUSTON, U.S.	10-14 NOV 2014	US\$3,880
	9-13 NOV 2015	US\$3,880

Fractional Distillation for Operations & Maintenance (OT-44)

FOUNDATION

NEW

DESIGNED FOR

Refinery, process unit operations and maintenance technicians, supervisors and managers, as well as other non-engineering personnel requiring a fundamental focus on refinery processing facilities.

YOU WILL LEARN

- Fractional Distillation as applied in refinery crude unit operations
- Advanced level physical principles, hydrocarbon properties and hydrocarbon phase-behavior
- Principles of fluid dynamics and application to pumps
- Practical thermodynamics: Mass and Energy Balances
- Physical principles to understand distillation and splitting towers
- Distillation process, equipment, and controls troubleshooting techniques

ABOUT THE COURSE

This foundational course shows how crude oil is converted by fractional distillation to premium quality gasoline, diesel, kerosene, jet fuel, lubes, and subsequent chemical / refinery unit feedstocks. The course is excellent for experienced operators who want to understand the 'why' as well as the 'how' of separation, fractional distillation, and splitting processes. The course introduces operators to basic troubleshooting techniques for the process, equipment, and critical controls.

COURSE CONTENT

- Overview of refinery processes
- Crude stabilization
- Fractional distillation
- Produced hydrocarbon fluids and their properties
- Physical principles
- Oil and condensate processing
- Practical thermodynamics: mass and energy balances
- Mass transfer operations
- Introduction to hydrotreating and hydrocracking
- Systems and equipment troubleshooting
- Process unit walkthroughs (as permissible)

To arrange an in-house session of this course, visit www.petroskills.com/inhouse.

Applied Maintenance Management (OM-21)

BASIC

DESIGNED FOR

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

YOU WILL LEARN

- Why unplanned jobs are 5 times more likely to result in an accident
- World class maintenance standards and how to apply them
- What it takes to progress from Reactive to Preventive to Predictive to Proactive
- How to develop consistent, reliable, timely and accessible asset work information
- Key Performance Indicators for your dashboard
- Essential elements of work planning & scheduling
- How to understand and use backlogs effectively
- Optimization of Preventive and Predictive maintenance
- How to focus your resources on critical equipment
- How to work with contractors more effectively
- How to develop organizational competence

ABOUT THE COURSE

Safety is the number one reason to take this course! We will focus on how to reduce your accident rate through better control of the maintenance work. Data shows that maintenance workers are 5 times more likely to suffer an injury if their job is reactive rather than planned and scheduled. The skills of Applied Maintenance Management are a necessary foundation for successful reliability-centered maintenance efforts. This course provides essential knowledge required for achieving excellence in maintenance management. Work control, planning, and scheduling will be covered. 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 be covered. 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. This course is one of our most popular and has been delivered worldwide for many diverse facilities such as drilling, wells, pipeline systems, oil and gas conditioning, refining, and shipping as well as a broad range of other types of industrial environments.

COURSE CONTENT

- Safe behavior and near-misses
- World class standards
- Maintenance strategies
- Planning and scheduling
- Optimizing Preventative and Predictive maintenance
- Identifying critical equipment
- Utilizing your CMMS
- Supplier certification
- Developing organizational competence
- Presenting your action plan

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	2-6 MAR 2015	US\$3,860
ORLANDO, U.S.	15-19 DEC 2014	US\$3,820
	14-18 DEC 2015	US\$3,820

Maintenance Planning & Work Control (OM-41)

FOUNDATION

DESIGNED FOR

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

YOU WILL LEARN

- Why work control is essential to every safety program
- How to install world class planning and work control
- Employ business process analysis techniques in work control
- How to use a gap analysis on your work management system
- Step-by-step work control from identification by using work history
- Optimization of preventive and condition-monitoring activities
- Techniques of critical equipment analysis, critical spares control and emergency response work
- To make an action plan for taking your work control processes to a new level

ABOUT THE COURSE

Safety is the reason we must plan and schedule our maintenance activities! Efficiency and reliability are very good side effects. Participants will be able to assess their current state of control of work and determine the most effective and sustainable improvement efforts. New work control standards such as PAS-55, ISO 50001, and OSHA 1910 are being enforced with greater intensity and this course will provide a substantial insight into what these standards mean. This working seminar is designed to build competency in Work Control as a primary skill set in the Competency Map for Facilities Maintenance Management. We will focus on the six phases of work management: work identification, planning, prioritization, scheduling, execution and history capture. Mastering these essential skills are the key components of integrity management, behavioral safety, resource control, and reliable operation. A pre- and post-course self-assessment will be used to measure competency improvement. Each participant will develop an action plan to help their organizations become more efficient and safe and be ready to present it to their corporate teams.

COURSE CONTENT

- Key elements in work information control
- How other companies have achieved excellence in work management
- Best ways to integrate with your CMMS
- The importance of correct work identification and approval
- Planning roles, responsibilities and capacity
- How prioritization drives scheduling
- Scheduling work so that everyone can follow
- Skillful use of backlog information to plan work
- Precision execution and capturing "as found, as left"
- Creating useful history records and using them for better performance
- Optimizing preventive maintenance to track what is 'prevented'
- Using predictive maintenance technologies as a basis for risk-based decisions
- How to utilize resources to focus on critical equipment
- How to differentiate emergency response from 'urgent' need for maintenance
- How to develop loyal and supportive maintenance customers

2014-15 Schedule and Tuition / 5 Days

HOUSTON, U.S.	20-24 APR 2015	US\$3,860
ORLANDO, U.S.	14-18 SEP 2015	US\$3,820

Fundamentals of Refining Technology (RF-31)

BASIC

DESIGNED FOR

Personnel in the petroleum refining business and related activities.

YOU WILL LEARN

- Sources of refinery feedstocks, crude or synthetic
- Composition of the feeds, their characterization, desirable properties, and selection
- How a refinery matches crude composition (assay) to product market demand by selection of process units
- Fundamentals of individual refinery processes, engineering, materials, and construction challenges
- Operational challenges
- How to improve profitability by debottlenecking, yield improvement, and blending
- How to evaluate alternative processing schemes and what makes a regional 'Pacesetter' refinery

ABOUT THE COURSE

This basic course shows how any crude oil is converted to products based upon the demand for premium quality gasoline, diesel, lubes, and chemical feedstock. It is useful for those new to the refining business such as new hires of any discipline, transferees from other sectors of the petroleum, upstream, mid-stream, and chemical sectors. This course is excellent for experienced operators who want to understand the 'why' as much as the 'how' of refining. Basics of refining and its technology are stressed. Details of chemistry, process conditions, and materials are described where necessary to support the basics. The backbone of the course is to develop a refinery processing scheme through a series of simple, linked student-worked problems. This will show how a processing scheme to meet product qualities and volumes is developed.

COURSE CONTENT

- Refining industry climate, background and driving forces
- Crude oil distillation processes: atmospheric and vacuum
- Straight-run naphtha processing, treating, isomerisation and reforming for gasoline production
- Distillate desulfurization for diesel and heating oil production
- Light-ends recovery and treating of liquefied petroleum gas (LPG) for gasoline blending and sales
- Vacuum gas oil conversion, catalytic feed hydrotreater (CFHT), fluidized catalytic cracking (FCC) and hydrocracking
- Light olefin streams recovery, treating and alkylation for gasoline
- Residue processing, residue fluidized catalytic cracking (RFCC), ARVDS, VRDS, residue hydrocracking, delayed and continuous coking
- Lube oil production
- Aromatics recovery and re-arrangement to make benzene, toluene, ethyl-benzene and xylene (BTEX)
- Product blending to make gasoline, diesel, heating oil, and fuel oil
- Refining economics

To arrange an in-house session of this course, visit www.petroskills.com/inhouse.

Refinery Gas Treating, Sour Water, Sulfur and Tail Gas (RF-61)

INTERMEDIATE

DESIGNED FOR

Personnel in the gas treating, sulfur recovery and environmental conservation areas of the petroleum refining business including managers, process engineers, and operators.

YOU WILL LEARN

- Safety concerns with handling H₂S and H₂S rich streams
- Composition of typical refinery sour gas and acid gas feeds and their characterization
- The different types of amines: advantages and disadvantages
- How to select an amine from the various types available and calculate amine circulation rates required
- How to select a sour water processing scheme
- How to select sulfur recovery unit configuration
- About the economics of tail gas treatment plant selection to meet legislation
- Individual processes, engineering, materials, and construction challenges
- How to handle the operation of units, interaction and challenges encountered
- How to maximize reliability
- How to increase sulfur removal and recovery by debottlenecking, changing solvents, and sulfur plant oxygen injection

ABOUT THE COURSE

This is an intermediate, five-day course with an established, successful format that has been delivered worldwide to refinery and natural gas process engineers and managers. Practical acid gas removal, sour water stripping, and sulfur recovery processes are stressed. Details of chemistry, process conditions and materials are described as required to assure a real understanding of the processes and their materials, construction, and operational issues. To ensure that participants return to their workplace with enhanced ability and understanding, a large portion of the course includes participant discussions and problem solving.

COURSE CONTENT

- Source and compositions of refinery sour gas and sour water streams
- Types of sulfur compounds and ammonia and their affects on treating, stripping, and sulfur recovery
- Gas treating with amines – Acid Gas Removal Unit (ARU)
- Sour water stripping (SWS)
- Elemental sulfur recovery – Sulfur Recovery Unit (SRU)
- Tail gas treating – Tail Gas Unit/Tail Gas Clean-Up (TGU/TGCU)
- Incineration

To arrange an in-house session of this course, visit www.petroskills.com/inhouse.





In addition to the courses in this training guide, PetroSkills offers a full collection of unique competency-based training programs for the Subsurface sector of the industry. Courses in the following disciplines are offered publicly and on an in-house basis for 2014-2015.

Subsurface

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

For full descriptions, schedules, and pricing for all courses in these disciplines, as well as the courses listed on the following pages, visit our website at www.petroskills.com or contact us at training@petroskills.com, **+1.918.828.2500** or **1 (800) 821.5933** (toll free in the U.S. and Canada)

Basic Petroleum Technology (BPT)

BASIC

DESIGNED FOR

Secretarial, administrative, management, field support, accounting, purchasing, economics, legal, finance, human resources, drafting, land and data processing personnel, as well as investors and royalty owners. Participants involved at the technical level of the industry, particularly engineers, technicians or others with mathematics background through basic calculus, should register for the Basic Petroleum Engineering Practices course.

YOU WILL LEARN

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

ABOUT THE COURSE

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

COURSE CONTENT

Reservoir fluid properties • Petroleum geology • The petroleum reservoir • Unconventional gas ("tight shale" gas) • Exploration technology • Drilling technology • Well completion and workover • Production operations • Recovery • Surface processing • Offshore operations

2014-15 Schedule / 5 Days

ABERDEEN, U.K.	16-20 MAR 2015		
DENVER, U.S.	8-12 JUN 2015	KUALA LUMPUR, MALAYSIA	1-5 DEC 2014
DUBAI, U.A.E.	26-30 JUL 2015		16-20 NOV 2015
HOUSTON, U.S.	20-24 OCT 2014	LONDON, U.K.	24-28 NOV 2014
	9-13 FEB 2015		18-22 MAY 2015
	27 APR-1 MAY 2015		17-21 AUG 2015
	13-17 JUL 2015		2-6 NOV 2015
	19-23 OCT 2015	PITTSBURGH, U.S.	10-14 AUG 2015

 Available from anywhere via PetroFlex delivery (see pg.81)
See website for tuition.

Basic Petroleum Engineering Practices (BE)

BASIC

DESIGNED FOR

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

YOU WILL LEARN

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

ABOUT THE COURSE

This course is far more than an introduction to petroleum engineering and certainly is not a superficial presentation of the technology of the industry. Its purpose is to develop an understanding of the technology and its applications at an engineer's level, and the confidence and professional enthusiasm which comes with that understanding. The course has had a revolutionary effect on training programs for many major oil and service companies by making specialized training that follows far more effective. Participants enter those specialized programs with a depth of understanding of that particular technology and relation to other classic and new technologies of the industry. The course focuses on the field and application approach, and includes classroom exercises, fundamental engineering problems, and basic field exercises.

Basic Petroleum Engineering Practices will set the foundation for technical professionals with regards to technology and its engineering applications. The course starts out with a brief introduction of the history and current state of the oil and gas industry. Next, reservoir fluids, petroleum geology, and petroleum reservoirs are discussed. Then, various facets of exploration technology, drilling engineering and operations, well completion technology, and production technology are covered before finishing with surface processing of produced fluids.

COURSE CONTENT

- Reservoir fluid properties
- Petroleum geology
- Reservoir properties and evaluation
- Unconventional gas ("tight shale" gas)
- Exploration technology
- Drilling engineering
- Well completion, stimulation and workover
- Well testing and formation damage
- Production operations
- Recovery methods
- Surface processing

2014-15 Schedule / 5 Days

ABERDEEN, U.K.	13-17 JUL 2015		
DENVER, U.S.	3-7 AUG 2015	HOUSTON, U.S.	16-20 NOV 2015
DUBAI, U.A.E.	17-21 MAY 2015		14-18 DEC 2015
HOUSTON, U.S.	17-21 NOV 2014	KUALA LUMPUR, MALAYSIA	24-28 AUG 2015
	15-19 DEC 2014	LONDON, U.K.	1-5 DEC 2014
	2-6 FEB 2015		16-20 FEB 2015
	20-24 APR 2015		21-25 SEP 2015
	6-10 JUL 2015		30 NOV-4 DEC 2015
	31 AUG-4 SEP 2015	OKLAHOMA CITY, U.S.	23-27 MAR 2015

 Available from anywhere via PetroFlex delivery (see pg.81)
See website for tuition.

Surface Production Operations (PO3)

BASIC

DESIGNED FOR

Technical, 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. This course delivers an understanding of all the fundamental field treating facilities: What they are - Why they are needed - How they work.

YOU WILL LEARN

- The physical properties and phase 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
- An introduction to the wide range of equipment used to process, treat, transport, and store oilfield produced fluids
- The basics of oilfield corrosion prevention, detection and treatment
- How to determine and minimize pressure drop in pipelines, valves and pressured vessels
- Internal workings of separators, pumps, compressors, valves and other treating equipment
- An overview of the processes and equipment used to handle acid gases
- A basic understanding of a wide range of produced fluid volume measurement and metering devices
- A description of treating equipment whether located on the surface, offshore platform or sea floor

ABOUT THE COURSE

The purpose of this course is to present an overview and basic understanding of the wide range of oilfield production handling and treatment equipment. The participant should learn not only "what" but "how" field fluid treating equipment works. The fundamental principles of fluid behavior are first introduced, then applied to all of the various equipment and systems comprising production operations. Emphasis is on understanding the internal workings inside the piping, valves and treating vessels. A major goal of this course is to improve communication among the technical disciplines, field and office in order to 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 discussions and problem solving.

COURSE CONTENT

• **Properties of produced fluids:** Impact of pressure, temperature and fluid on key hydrocarbon parameters and fluid behavior • **Valves:** API valves, chokes, regulators, and flow control devices; principle of operation and effect on fluid condition • **Safety systems:** surface safety control systems; relief valves; pressure ratings; API recommended practices • **Flowlines, manifolds and gathering systems:** material selection, pressure drop considerations, line sizing, corrosion, noise and erosion concerns, full wellstream production, two and three phase fluid flow, pigging, slugs, foam and emulsions • **Mechanical equipment:** Pumps, compressors, heaters, sour and acid gas treating, pressured vessels, storage facilities and other surface treating/fluid handling equipment • **Gas separation / treating:** two and three phase separation, free water removal, treatment of emulsions, hydrate prevention and treatment, vapor recovery, gas conditioning for sales, injection or field usage • **Oil / water separation and treatment:** two and three phase separation, emulsion breaking, asphaltene, solids control, removal of residual oil-in-water and water-in-oil to meet pipeline specifications or injection / disposal requirements, hydrocyclones and new water / oil treating equipment • **Fluid measurement and instrumentation:** Liquid and gas metering using positive displacement meters, orifices, sonic meters, mass measurement meters, three phase flow measurement and new metering devices • **Acid gas treatment:** field handling and treatment of sour and acid gases, safety considerations, API standards • **Corrosion:** fundamental principles: detection, prevention and treatment • **Treating facility innovations:** up-to-date description of new equipment for handling high pressure/temperature, three phase flow from subsea and remote locations

2014-15 Schedule / 5 Days

BAKERSFIELD, U.S.	23-27 MAR 2015	HOUSTON, U.S.	31 AUG-4 SEP 2015
CALGARY, CANADA	27 APR-1 MAY 2015		14-18 DEC 2015
DALLAS, U.S.	6-10 OCT 2014	KUALA LUMPUR, MALAYSIA	25-29 MAY 2015
	5-9 OCT 2015	LONDON, U.K.	10-14 AUG 2015
DUBAI, U.A.E.	23-27 NOV 2014	MIDLAND, U.S.	3-7 NOV 2014
	8-12 NOV 2015		16-20 NOV 2015
HOUSTON, U.S.	15-19 DEC 2014	OKLAHOMA CITY, U.S.	6-10 APR 2015
	18-22 MAY 2015	PERTH, AUSTRALIA	3-7 AUG 2015

See website for tuition.

Basic Drilling, Completion and Workover Operations (BDC)

BASIC

DESIGNED FOR

Technical, field, service, support and supervisory personnel desiring to gain an introductory overview of these topics and how they interrelate. Excellent for cross-training of other technical disciplines such as reservoir and surface facility engineers plus geoscientists, and anyone who interacts with drilling, completion or workover design engineers such as technical supervisors and technical service personnel.

This is not a fundamental course for training engineers seeking a career in drilling or workovers (for these, PO1 is recommended).

YOU WILL LEARN

- How drilling, completing and reworking a well affects its ability to produce
- What can be done within open-hole and cased wells, as a part of reservoir management
- How drilling practices can damage or stimulate producing wells

ABOUT THE COURSE

This course gives a technical overview of the science and art of drilling operations, completion practices and post-completion wellbore enhancement or remedial workover techniques (well intervention). It develops an understanding of the WHAT, WHY, and HOW of each of these areas of engineering practice. Reservoir Engineers will learn what can be done within open-hole and cased wells as they execute reservoir management. Drilling and completion personnel will learn how the producing reservoir can be damaged or stimulated by what they do. The participants learn to visualize what is happening "downhole", discover what can be accomplished and gain an appreciation for wellbore risks and the possibility of damage to the formation; and how drilling and completion practices can alter reservoir interpretation and performance. The participant will become conversant with specific technical terminology and aware of practical applications, which should enhance communication and interaction between disciplines.

COURSE CONTENT

Overview of workover techniques:

- Stimulation application: surfactants, solvents, acidizing, fracturing & deep perforating
- Formation & sand control: screens, chemical consolidation, gravel packing, frac-pack, new & novel techniques
- Scale & corrosion
- Paraffin & asphaltene
- Recompletions
- Reworks
- Sidetracking
- Deepening
- Coiled tubing

Overview of the completion process:

- Zonal isolation
- Tubing, packers & completion equipment
- Safety & flow control devices
- Open hole completions
- Basic completion types
- Perforating

- Open & cased hole logging
- Formation damage & treatment
- Completion fluids
- Multiple completions

Overview of the drilling process:

- Overall drilling practices
- Language of drilling
- Reservoir rock and fluid properties
- Rigs & rig equipment
- Drilling string components & design
- Bits
- Drilling fluids & hydraulics
- Rig operation
- MWD
- Well control
- Hole problems & stuck pipe
- Drilling risks
- Cores and coring
- Casing design & installation
- Primary cementing
- Directional, horizontal, multilateral & under-balanced drilling
- Wellhead & trees

2014-15 Schedule / 5 Days

ABERDEEN, U.K.	9-13 FEB 2015	HOUSTON, U.S.	23-27 MAR 2015
BAKERSFIELD, U.S.	20-24 OCT 2014		1-5 JUN 2015
	26-30 OCT 2015		10-14 AUG 2015
CALGARY, CANADA	20-24 APR 2015		2-6 NOV 2015
	14-18 SEP 2015		7-11 DEC 2015
DALLAS, U.S.	6-10 JUL 2015	KUALA LUMPUR, MALAYSIA	24-28 NOV 2014
DENVER, U.S.	11-15 MAY 2015		23-27 NOV 2015
HOUSTON, U.S.	3-7 NOV 2014	LONDON, U.K.	17-21 AUG 2015
	8-12 DEC 2014	MIDLAND, U.S.	27 APR-1 MAY 2015

See website for tuition.

Production Operations 1 (PO1)

FOUNDATION

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 wanting a firm foundation in production engineering.

YOU WILL LEARN HOW TO

- Gain insight into typical geological models including unconventional heavy oil, shale gas, and shale oil
- Design and properly select well completion mechanical equipment
- Evaluate the flow capacity of a well
- Achieve successful well casing primary cementing and remedial casing cement repair techniques
- Select equipment and engineer alternate methods for perforating operations in varied down hole well environments including underbalanced procedures
- Utilize alternate well intervention techniques of applied wireline operations and coiled tubing methods
- Recognize harsh well producing environments leading to potential corrosion and erosion failure, scale formation, and related downhole deposits
- Choose proper wellbore completion and workover fluids, fluid solids control, and fluids filtration standards and best practice methods
- Distinguish the characteristics and types of mechanical artificial lift systems
- Ascertain why and how formations become damaged and how to interpret, prevent, and correct reservoir damage
- Collect data to categorize options to choose an optimum well stimulation plan
- Understand the causes of and the best approach to managing sand production
- Understand how to properly acidize a carbonate or a sandstone reservoir
- Understand the proper use and effects of surfactants and their presence in the oilfield in order to benefit from their use and avoid problems mis-application
- Manage organic paraffin and asphaltene field deposits in tubing and surface facilities
- Understand modern fracture stimulation and productivity improvement including 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
- Choose proven technology for cased hole production logging tools and interpretation methods
- Select mechanical and / or permeability altering chemical methods to attempt downhole water shut off
- Recognize, prevent, and manage corrosive conditions and typical common soluble and insoluble scales
- Apply technologies including: expandable tubulars and screens, intelligent well completions, wellbore fiber optic data gathering and transmission, interval control valves, multi-lateral completions, and elastomer swellable tubulars

ABOUT THE COURSE

The Production Operations 1 course represents the core foundation of PetroSkills' production engineering course curriculum and is the foundation for future studies in the discipline. The participant will become familiar with past proven, and, newer technologies, procedures, and techniques to improve and increase oil, gas, and condensate production. The entire course structure applies a proven methodology, least cost, integrated methods approach that allows engineers to make careful and prudent business decisions. The PO1 course is one of PetroSkills' most popular.

COURSE CONTENT

Importance of the geological model • Reservoir engineering fundamentals in production operations • Well testing methods applicable to production operations • Understanding inflow and outflow and applied system analysis • Primary and remedial cementing operations • Well completion design and equipment • Completion and workover well fluids • Perforating design and applications • Production logging • Artificial lift completions • Problem wells • Formation damage • Acidizing • Corrosion control • Scale deposition, removal, and prevention • Surfactants • Paraffin and asphaltenes • Sand control • Hydraulic fracturing • Unconventional Resources - Shale Gas and Oil, Heavy Oil and Bitumen

2014-15 Schedule / 10 Days

ABERDEEN, U.K.	13-24 APR 2015	HOUSTON, U.S.	8-19 DEC 2014
BAKERSFIELD, U.S.	10-21 NOV 2014		16-27 MAR 2015
	9-20 NOV 2015		1-12 JUN 2015
BOGOTA, COLOMBIA	24 AUG-4 SEP 2015		14-25 SEP 2015
CALGARY, CANADA	2-13 FEB 2015		19-30 OCT 2015
	13-24 APR 2015		7-18 DEC 2015
	24 AUG-4 SEP 2015	KUALA LUMPUR, MALAYSIA	30 NOV-11 DEC 2015
COVINGTON, U.S.	3-14 AUG 2015	LONDON, U.K.	3-14 NOV 2014
DENVER, U.S.	2-13 MAR 2015		15-26 JUN 2015
DUBAI, U.A.E.	7-18 DEC 2014		2-13 NOV 2015
	15-26 NOV 2015	MIDLAND, U.S.	11-22 MAY 2015
HOUSTON, U.S.	20-31 OCT 2014	PERTH, AUSTRALIA	7-18 SEP 2015

See website for tuition.

Basic Reservoir Engineering (BR)

BASIC

DESIGNED FOR

Geologists, geophysicists, engineers, engineering trainees, technical managers, technical assistants, technicians, chemists, physicists, technical supervisors, service company personnel, sales representatives, data processing personnel, and support staff working with reservoir definition, development and production.

YOU WILL LEARN

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

ABOUT THE COURSE

The intent of *Basic Reservoir Engineering* is development of a more complete "understanding" of the characteristics of oil and gas reservoirs, from fluid and rock characteristics through reservoir definition, delineation, classification, development plan, and production. Data collection, integration and application directed toward maximizing recovery are stressed. Basic reservoir engineering equations are introduced with emphasis directed to parameter significance and an understanding of the results. For nearly 30 years this has been one of our most popular and successful courses.

The first day of the course includes an discussions on reservoir geology, an overview of drilling and production, reservoir properties, and PVT. The next two days cover rock properties, original oil in place, relative permeability, reservoir and drive mechanisms, well testing, and fluid flow in radial systems. The fourth day goes over inflow/outflow performance, pressure maintenance and recovery efficiency, optimizing reservoir performance, waterflooding and enhanced oil recovery, material balance, and decline curves. The course wraps up on the last day with gas reservoirs and reservoir development planning.

As part of the Basic Reservoir Engineering course, there are class exercises designed to be solved by hand with a calculator. For those that prefer to use spreadsheets to do the calculations, participants are welcome to bring their own laptop computer.

COURSE CONTENT

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

2014-15 Schedule / 5 Days

ABERDEEN, U.K.	8-12 DEC 2014	HOUSTON, U.S.	2-6 FEB 2015
	7-11 DEC 2015		16-20 MAR 2015
ABU DHABI, U.A.E.	17-21 MAY 2015		4-8 MAY 2015
BAKERSFIELD, U.S.	10-14 NOV 2014		13-17 JUL 2015
	9-13 NOV 2015		14-18 SEP 2015
BOGOTA, COLOMBIA	5-9 OCT 2015		26-30 OCT 2015
CALGARY, CANADA	3-7 NOV 2014		30 NOV-4 DEC 2015
	8-12 DEC 2014	KUALA LUMPUR, MALAYSIA	17-21 AUG 2015
	9-13 MAR 2015	LONDON, U.K.	20-24 OCT 2014
	2-6 NOV 2015		23-27 MAR 2015
	7-11 DEC 2015		27-31 JUL 2015
COVINGTON, U.S.	10-14 AUG 2015		19-23 OCT 2015
DALLAS, U.S.	13-17 APR 2015	MIDLAND, U.S.	13-17 OCT 2014
DENVER, U.S.	1-5 JUN 2015		12-16 OCT 2015
HOUSTON, U.S.	6-10 OCT 2014	ORLANDO, U.S.	24-28 AUG 2015
	1-5 DEC 2014	PERTH, AUSTRALIA	26-30 JAN 2015

See website for tuition.



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In-house courses allow participants to receive comprehensive training and individualized attention from top instructors. They are an excellent solution to training needs when travel budgets are reduced. Using our resources, we can develop customized and relevant training programs on virtually any petroleum-related subject while incorporating your company's data into the curriculum. These courses are limited to your internal employees and can be held anywhere you need training.

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– go to www.petroskills.com/5mistakes

Competency Development and Assurance Solutions

Developing the skills of a growing workforce is becoming increasingly important and challenging. Ensuring the competency of individuals and groups, 'building' specialists, assuring workplace competence and workforce planning is mission-critical. How does your organization handle these and other challenges?



PetroSkills has the processes, tools and experience to help companies address the challenges in Competency Development and Assurance.

- **Competency Framework** – Industry-standard competency frameworks, customized to company Job Positions – relevant, usable, effective.
- **Learning and Development Content** – Industry approved course material through instructor-led training, remote delivery and other e-learning modules. On- the-job training including coaching and mentoring.
- **Competency-Focused Technology** – Easy-to-use software for management and reporting for Competency, Compliance and Assurance.
- **People and Process** – PetroSkills consultants ensure rapid and effective implementation and sustainability.

PetroSkills is the industry leader in Competency Development and Assurance Solutions.

To learn more about our Competency Development and Assurance Solutions, email: compass@petroskills.com, or visit: petroskills.com/compasscatalog and view a presentation on *The 5 Myths of Workforce Development* today!



Jeff Zinkham brings a wealth of experience to his new role as Director, Competency Consulting and Solutions at PetroSkills.

PetroSkills®

Come Visit Us At These Conferences & Conventions



URTeC Unconventional Resources Technology Conference

25-27 AUGUST 2014; DENVER, COLORADO, USA
Visit us in Booth #901!

SPE Annual Technical Conference & Exhibition

27-29 OCTOBER 2014; AMSTERDAM, THE NETHERLANDS
Visit us in Booth #1433!

PETEX

18-20 NOVEMBER 2014; LONDON, UNITED KINGDOM
Visit us in Booth #E33!

IPTC International Petroleum Technology Conference

10-12 DECEMBER 2014; KUA LA LUMPUR, MALAYSIA
Visit us in Booth #A402!

LRGCC Laurance Reid Gas Conditioning Conference

22-25 FEBRUARY 2015; NORMAN, OKLAHOMA, USA

IADC/SPE Drilling Conference & Exhibition

17-19 MARCH 2015; EXCEL LONDON, UNITED KINGDOM

GPA Gas Processors Association Annual Convention

12-15 APRIL 2015; SAN ANTONIO, TEXAS, USA

EAGE European Assoc. of Geoscientists & Engineers Conference & Exhibition

18-22 JULY 2015; LONG BEACH, CALIFORNIA USA

SPWLA Society of Petrophysicists and Well Log Analysts Intl. Symposium

18-22 JULY 2015; LONG BEACH, CALIFORNIA USA

AAPG American Association of Petroleum Geologists Convention & Exhibition

13-16 SEPTEMBER 2015; MELBOURNE, AUSTRALIA

Gastech

27-30 OCTOBER 2015; SINGAPORE

For a full list of our 2014-15 Conference Attendance, go to our website at www.petroskills.com.



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Received October 2013

COURSES TAKEN:

- Gas Conditioning and Processing - G-4 / Orlando
- Gas Treating and Sulfur Recovery - G-6 / Houston
- Piping Systems: Mechanical Design and Specification - ME-41 / Denver
- Fundamentals of Pump and Compressor Systems -ME-44 / Houston

PetroSkills Advanced Certificate™ Program Details

STEP 1

Go to petroskills.com/advanced and request more information on the PetroSkills Advanced Certificate™ Program.

STEP 2

Successfully complete four of the eligible courses within a 36 month window (eligible courses vary by discipline).

STEP 3

You will then be awarded with your PetroSkills Advanced Certificate™! This unique certificate recognizes your commitment to decreasing your time to competency and dedication to increasing your knowledge and skills.

Note: Courses from the progression previously taken will count toward your PetroSkills Advanced Certificate.

PetroSkills®
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Full details can be found at petroskills.com/advanced

Our Instructors

FRANK ASHFORD

DR. FRANK ASHFORD has 40 years experience in oil and gas producing facilities. Dr. Ashford joined with John M. Campbell & Co. in 1988; he provides instruction fluently in either Spanish or English. Previous to joining John M. Campbell & Co., Dr. Ashford was a Professor at Central University of Venezuela, Caracas, Venezuela, where he taught various courses in Natural Gas Engineering Technology. He has authored technical articles published in World Oil, JPT, SPE, Intevp Pub., PDVSA, Pacific Oil World, AAPG, SPELAC, and GPA. He holds a B.S., a M.S. and a PhD in Petroleum Engineering from the University of Oklahoma.

JOHN BARR

MR. JOHN BARR has over 30 years experience of working in the pipeline and storage industries, holding senior project engineering positions with responsibilities for multi-disciplined design projects as a senior consultant and project manager. In addition to conceptual studies, FEED and detailed design projects for pipelines, project activities have also included, oil and gas field development, pipeline and installation rehabilitation, on-line inspection, materials procurement and construction activities, for both proposed and operational pipeline systems. John has been involved with international projects, including Algeria, Azerbaijan, Egypt, Georgia, Norway, Poland, Syria, Tanzania, Tunisia, Turkmenistan, Russia (FSU), UAE, UK and Yemen. He is based in the UK and is a Chartered Member of the Institute of Gas Engineers and Managers.

JAMES BEASLEY

MR. JAMES BEASLEY has over 40 years of experience in project management, engineering, and construction management of pipeline systems and military facilities. Mr. Beasley joined Butler Associates, Inc., the predecessor company of Willbros Engineers (U.S.), LLC, in 1973 as a Project Manager. He was named Vice President and Manager of Projects in 1981. In 1984, Mr. Beasley became Executive Vice President and Chief Operating Officer, and in 1986 was promoted to President and Chief Operating Officer, a position he held until August 2003. In 2001, Mr. Beasley was given additional responsibilities as Senior Vice President of Willbros USA, Inc., the parent company of Willbros Engineers (U.S.), LLC. Mr. Beasley is a member of Tau Beta Pi and Chi Epsilon and a former member of the American Society of Civil Engineers and Project Management Institute. He received M.S. and B.S. degrees in Civil Engineering from the University of Missouri.

DON BEESLEY

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

ROBI BENDORF

ROBI BENDORF, CPSM, MCIPS, C.P.M., M.ED, has over 35 years of purchasing and sales experience, involving domestic and international activities, for a broad range of manufacturing and service businesses. He has extensive experience in consulting and training in purchasing, contracts, reengineering the supply management process, the management of procurement functions, global sourcing of materials and components, reducing cost of purchased materials and services, and negotiation of complex transactions and contracts. He has held purchasing and contracts management positions in high volume manufacturing, subcontract, job shop, and service operations, involving gas turbine manufacturing, power generation, nuclear and fossil power plants, electrical distribution and control, air conditioning equipment and global sourcing services. Prior to becoming a full-time consultant in 1994, he served as Manager of Customer and Supplier Development for the Westinghouse Trading Company. He has given presentations on numerous purchasing and contract management topics to the Institute for Supply Management (ISM/NAPM), major universities, and numerous in-house seminars for industrial and services clients in the US and over 170 public seminars internationally. He was selected to present seminars at the last 17 Institute for Supply Management International Conferences and is the contributor of numerous articles published in Purchasing Today and Inside Supply Management. Robi was selected as ISM's National Person of the Year in both Global Resources and in Education/Learning. Robi is a lifetime C.P.M., and has received ISM's new certification, the CPSM, and also holds the MCIPS Certification as awarded by CIPS. He has an undergraduate degree from the University of Texas, and a Masters Degree from Penn State University. His energetic and enthusiastic style, combined with extensive functional experience, makes him an excellent consultant, trainer, and facilitator of change.

GARY BLACKBURN

MR. GARY BLACKBURN is President of John M. Campbell Consulting. He has over 40 years of experience in engineering and management of oil and gas developments. During his 27 years with Shell Oil Company, he managed drilling, production and construction engineering and operations in the Gulf of Mexico, Texas, Oklahoma, Kansas and Alaska. While working in ABB's Floating Production System's Division, Gary led engineering teams designing deepwater systems, naval architecture, structural, topside facilities, drilling systems and floating system hulls. After an assignment as the ABB's Project Manager for ExxonMobil's Kizomba A TLP, he was assigned as ABB's Vice President - Project Execution. In this role, he was responsible for oversight of ongoing projects and development of new processes for EPC project execution. After leaving ABB, Gary provided consulting services for drilling systems selection and producing operations management to several major operators.

JAN BLUM

MR. JAN BLUM is a seasoned Asset Management professional with 33 years experience in the oil and gas and downstream business sectors. At the moment he is based in Suriname working as Technical Service Manager for a national oil refinery. He worked 30 years with Shell and fulfilled roles as Inspection, Shutdown, and Asset Manager and for 10 years was Training

Director for the group Asset Management. He has developed and delivered training all over the world and has broad consultancy experience. Mr. Blum is a Chartered Mechanical Engineer and post graduate in inspection and welding. He has worked and lived in several countries including Saudi Arabia, New Zealand and Suriname.

ROBERT BOMBARDIERI

MR. ROBERT BOMBARDIERI has almost 30 years' in the oil and gas industry. His expertise is the use of process engineering to optimize operating facilities economics via addressing availability, product recovery and bottleneck issues. As such, Mr. Bombardieri has tested, identified, designed, project managed and led implementation of 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. Bombardieri co-authored a paper on molecular sieve dehydration that was selected 'Best Paper Award' at the 2008 Gas Processor's Association annual convention and was published in the Oil and Gas Journal. He has a B.Sc. in Chemical Engineering from the University of Alberta and an M.B.A. from Tulane University.

MARK BOTHAMLEY

MR. MARK BOTHAMLEY is Chief Engineer with John M. Campbell & Co. His experience covers the areas of design, operation, troubleshooting and optimization of offshore and onshore oil and gas production and treating facilities. Prior to joining JMC he was with BP/Amoco for 24 years, in several locations around the world. Mr. Bothamley is a past chairman of the SPE Facilities Subcommittee and a former member of the GPSA Data Book Editorial Review Board. Mr. Bothamley holds a B.S. in Chemical Engineering from Lakehead University in Thunder Bay, Ontario, Canada, and a Diploma in Natural Gas and Petroleum Technology from the British Columbia Institute of Technology in Vancouver, B.C. Canada.

JOHN C. BOURDON

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

LUIS BRITO-PINO

MR. LUIS BRITO-PINO has more than 19 years of experience working for the Oil Refining, Gas & Petrochemical Industries, and also for the Engineering & Design firms for those same sectors. During that time, he has held several technical engineering and mid-level management positions, including Optimization & Planning Superintendent for one of the Venezuelan Orinoco Belt Extra Heavy Oil Upgraders (SINCOR). Mr. Brito has lived and worked in Caracas, Maracaibo,

Puerto La Cruz (Venezuela), Puebla (Mexico), Madrid (Spain) and recently in Adelaide (Australia). He is currently based in Whyalla (South Australia, Australia), where he works for an Australian company within the Oil & Gas sector. Mr. Brito earned a Master of Science degree in Oil Refining, Gas & Petrochemical from the Institute Francois du Petrol (IFP) and a BS in Chemical Engineering from Simon Bolivar University in Caracas, Venezuela.

PAUL A. CARMODY

MR. PAUL A. CARMODY has more than 34 years of experience in the petroleum industry. During his 32 years with Hess Corporation and its predecessor, Amerada Hess Corporation, Mr. Carmody has been involved in nearly all aspects of oil and gas engineering from the reservoir sand face through the outlet of gas plants. He is a registered Professional Engineer in North Dakota where his experience includes Bakken oil development, production engineering, pipelines, and compressor station installations. West Texas experience includes CO2 EOR flood gas gathering, CO2 pipelines, and gas plant engineering. His gas plant experience includes three expansions of a CO2 Gas plant, cryogenic gas plants, and lean oil plant processes where he has supplies process and design engineering services. He has served as a board member of the CO2 Conference in Midland. He recently retired in order to devote himself to providing technical instruction through J.M. Campbell and Company and advancing upstream facilities technology through J.M. Campbell Consulting. Mr. Carmody graduated from the University of Connecticut with a degree in Mechanical Engineering.

RALPH CHADEESINGH

DR. RALPH CHADEESINGH holds a PhD (Chemical Engineering) from the University of Cambridge, UK, and is currently Project Engineering Manager with one of the world's leading Engineering, Procurement, Construction and Commissioning companies. With over 15 years of experience in the Petroleum Industry, he is also a Petroleum Engineer, Physicist and Chemist and has held technical and managerial positions ranging from Senior Technology Advisor (BP) to Technical Manager for an Environmental Company based in Alberta, Canada. Ralph has also done academic teaching at various universities including the University of Cambridge, in subjects which include Thermodynamics, Process Calculations, Industrial Chemistry and Energy Studies. He has also been the PhD supervisor for several student candidates and is a judge for the PhD Student paper contest for the Society of Petroleum Engineers, SPE, (Latin American region). He holds professional memberships and chartered status with the Institution of Chemical Engineers (IChemE), Institute of Physics (IOP) and the Royal Society of Chemistry (RSC). He has published in various international journals and also peer-reviews technical papers for conferences and has co-authored a book in Biofuels. Ralph is a Technical Program Committee member for the SPE (Latin America & Caribbean) and chairs sessions in Gas Technologies, Water and CO2 production and management, Flow Assurance and Production Chemistry, and Health Safety and the Environment.

AJEY CHANDRA

MR. AJEY CHANDRA has 25 years experience in the energy industry, primarily in gas processing, transportation and market analysis. During his time

in the industry he has served in a variety of roles in operations management and consulting activities. Mr. Chandra was a Senior Principal in the consulting firm of Purvin & Gertz, Inc. He has worked on a variety of assignments in the areas of market analysis, forecasting, gas processing and transportation costs. He has served in managerial roles for multiple gas processing facilities in multiple regions around the world and holds a B.S. in Chemical Engineering from Texas A&M University, and an M.B.A from the University of Houston.

JIMMY CLARY

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 North and South America. He is currently based in Houston where he also worked for Petroleum Testing Services and NPR services in Special Core Analysis, Fluid Analysis and Amine reclamation areas. Mr. Clary earned a B.A. in Mathematics and a B.S. in Physics from the University of Oklahoma.

MICK CRABTREE

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

PIERRE CREVIER

MR. PIERRE P. CREVIER worked in operations, design and business development functions across Canada prior to joining Saudi Aramco in 1992. As a member of the Upstream Process Engineering Division in Dhahran he provides process consultancy to the company's gas plants and refineries. Over the last 15 years he has led the company's efforts in addressing chronic Claus catalyst deactivation caused by aromatic contaminants. Mr. Crevier earned B.Sc. and M.Sc. degrees in Chemical Engineering from the University of Waterloo in 1980 and 1987 respectively.

JOHN R. CURRY

MR. JOHN R. CURRY is a recognized authority on the ASME Boiler and Pressure Vessel Code, pressure vessel design, fabrication and metallurgy. He founded and was President of Gulfex, Inc. for more than 37 years. This firm is a major producer of pressure vessels for the

refining, natural gas, oil production and petrochemical industries. Since 2003, he has been a lecturer on Section VIII, Div.1 of the Code teaching engineers worldwide on pressure vessels. He consults in the field of upgrading and rerating existing pressure vessels for new service. He continues to be a volunteer for the Boy Scouts of America promoting high adventure programs for older scouts. He has been teaching Biblical History for over 25 years. After completing his mechanical engineering training, he completed an MBA from the University of Texas at Austin. He spent two years in night school studying metallurgy at Rice University.

KRIS DIGRE

MR. KRIS A. DIGRE has over 36 years of experience working in locations around the world. He has designed or been involved with the design of offshore structures located off the coast of West Africa, Alaska, Australia, Brazil, Borneo, California, China, Egypt, the Gulf of Mexico and the North Sea. He has been involved in the technical specification development and/or installation of all of deepwater Tension Leg Platforms (TLP) and a Floating Production System (FPS) in the Gulf of Mexico and an FPSO offshore Nigeria. Mr. Digre remains active in retirement providing advice to E&P project groups on various Nigeria FPSO projects. Mr. Digre is a graduate (BSCE) of Illinois Institute of Technology and a Licensed Professional Engineer in New Jersey, Louisiana, Texas and California.

BILL DOKIANOS

MR. WILLIAM (BILL) DOKIANOS has over 35 years' experience, primarily in Mechanical and Process Engineering. His experience includes assignments in operations, project execution, technical support and engineering management; both onshore and offshore. Mr. Dokianos has been involved in analyzing and solving poor platform up time for both shallow water and deep water platforms. Activities included process control changes due to stacked separator vessels, revising safe charts, operating settings and reconfiguration of pipeline export pumps. He managed a subsea tieback project in which the platform modifications included high pressure vessel redesign, dehydrator expansion, adding vapor recovery units, restaging high pressure and intermediate gas compressors and modifying bulk oil process design. His pipeline experiences include responsibility for DOT compliance activities and reporting, the development and implementation of federal risk programs and smart pigging, pipeline construction and control center management. Mr. Dokianos holds a B.Sc. in Electrical Engineering, Wayne State University, Detroit, MI. He is a Professional Engineer in Louisiana and New Mexico and holds a General and Commercial Contractor License in New Mexico.

ROBERT FANNING

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

Our Instructors

WOLFGANG FOERG

MR. WOLFGANG FOERG has over 20 years' experience in plant system design, control system design and selection, procurement, engineering management, and installation and commissioning of vendor proprietary equipment. His experience includes assignments as project engineer, rotating equipment specialist, lead engineer for major EPC contractors, as well as experience in construction, module design, commissioning and startup of plants. The types of plants include air separation plants, gas plants, gas storage facilities, power generation, MTBE plants, refinery wastewater treatment facilities, phenol plants, polypropylene plants, crude oil treating facilities and crude oil pipelines, LNG/NGL liquefaction plants, and LNG receiving terminals. Specific equipment experience includes gas turbines, steam turbines, cryogenic expanders, centrifugal compressors, reciprocating compressors, centrifugal pumps, positive displacement pumps, polymer extruders, refrigeration systems, diesel engines, motors, generators, dryers, chemical injection systems, cooling towers, boilers, and loading arms. Mr. Foerg holds a M.S., Mechanical Engineering from Stevens Institute of Technology and a B.S., Mechanical Engineering from Cornell University. He is a Registered Professional Engineer in Wyoming, Colorado, Alberta, and Texas and is a CCHESST Safety Trained Supervisor (STS).

WILLIAM E. FORSTHOFFER

MR. WILLIAM (BILL) E. FORSTHOFFER is a graduate of Bellarmine College, Louisville, Kentucky, where he received his Bachelor of Arts degree in Mathematics. Bill continued his studies at the University of Detroit, Michigan, where he received a Bachelor of Science degree in Mechanical Engineering. Bill spent six years at the Delaval Turbine Company, where he designed and tested centrifugal pumps and compressors, gears, steam turbines and rotary (screw) pumps. Prior to leaving Delaval, Bill held the position of Manager of Compressor Projector Engineering responsible for the aerodynamic and mechanical design of centrifugal compressors, lube and seal systems and auxiliaries. Bill joined Mobil Research and Development Corporation (MRDC) in Princeton, New Jersey in 1974, where he was directly involved with rotating equipment selection, design, testing and start-up of fluid cat cracker units, reformers, hot gas expanders and low density polyethylene plants. From 1980 to 1985, Bill directed the application, selection, design, testing, site pre-commissioning and start-up of the Yanbu Petrochemical Complex in Yanbu, Saudi Arabia. Following his overseas assignment, Bill returned to MRDC where he established a Technical Service Program for Mobil affiliates to provide application, trouble-shooting and training services for rotating equipment. Bill left Mobil in January of 1990 to found his own company. Since then, Forsthoffer Associates, Inc. (FAI) has provided quality training, critical equipment selection and trouble-shooting services to the refining, petrochemical, utility and gas transmission industries on a worldwide basis. In 2011, FAI joined with John M. Campbell & Co. to provide two new public courses, namely, ME-47 Rotating Machinery Best Practices (see page 35) and REL-41 Rotating Equipment Reliability Optimization (see page 36).

ALAN FOSTER

MR. ALAN FOSTER spent 25 years with Petrolite Corporation and Baker Petrolite involved in oilfield and refinery operational problems and their resolution by

chemical treatment programs. Mr. Foster has developed and taught courses on oilfield water treatment and oilfield corrosion control since 1978. Other courses included oil demulsification, paraffin and asphaltene, oilfield microbiology (and MIC) and refinery technology. He was also qualified by the original training company in its field to teach their project management course. He has been a Chartered Chemist and Member of the Royal Society of Chemistry for over 25 years and was also a Fellow of the Chartered Institute of Personnel and Development. Mr. Foster received his B.S. in Applied Chemistry from Portsmouth Polytechnic (UK) and his MBA from Leeds University. He is based in the United Kingdom.

TED FRANKIEWICZ

DR. TED FRANKIEWICZ has over 30 years of experience in the oil industry with Occidental Petroleum, Unocal Corp., Natco Group (now Cameron), and currently, SPEC Services, Inc. He has a Ph.D. in Physical Chemistry from the University of Chicago, holds 15 patents, and has authored over 25 professional publications. At Unocal, he was responsible for developing the water treatment 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 flotation vessel design and used CFD to diagnose problems with existing water treatment equipment as well as to design 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 Series on Water Treatment. His field/operational experience in oilfield chemistry, design of process equipment, and the development of process systems has provided him with unique insights into the issues that challenge operators as their water production and water treatment complexity and cost escalates over time.

RONALD FREND

MR. RON FREND has almost forty years of engineering, consulting and management experience starting his career with Shell Tankers (UK) as an engineer officer cadet through to chief engineer, then taking up a maintenance engineering position in Oman rising to a senior management position in Shell International (Middle East) before opening an engineering consultancy in 1989. His entire career has been concerned with practical applications of maintenance, operations and engineering. Ron is experienced in a variety of engineering and maintenance analytical techniques as well as possessing management skills suitable to an engineering consultancy and a large multi-national corporation. Highlights of Ron's career include centrifugal compressor optimization of surge control systems, introduction of enveloped demodulation vibration analysis techniques and development of a methodology to calculate U and R values based on infrared thermal imaging measurements. Ron is currently based in Blackpool, England where he is managing director of his own consultancy. He is a registered engineer with a M.Sc. from Huddersfield University in England as well as being a certified Chief Engineer Officer (marine).

RICHARD GENTGES

MR. RICHARD J. 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 (2010-2012), he served as Senior Project Manager for Cook Inlet Natural Gas Storage Alaska, LLC, and was responsible for overall construction of the first commercial underground gas storage facility in Alaska. From 1982-2010 he worked for ANR Pipeline Company where he held various technical and managerial positions involving gas storage assets. His technical experience includes performing and analyzing well tests, reservoir performance analysis, reservoir simulation, and overall storage facility optimization. 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 included the drilling and completion of vertical and horizontal wells, upgrades to gathering systems, new compression, and gas processing equipment. Mr. Gentges is a past Chairman of the Underground Gas Storage Committee of the American Gas Association (1994). He also served as Chairman of the Underground Gas Storage Research Committee for the Pipeline Research Council International (1998-2003), and served on the National Petroleum Council Gas Storage Team (2003-2004). Mr. Gentges holds a B.Sc. in Chemical Engineering from the University of Michigan (1981).

JOSH GILAD

MR. Y. (JOSH) GILAD, P.E., has forty years of domestic and international experience in the engineering, analysis, inspection, troubleshooting, forensic investigation and expert witness for marine liquid bulk terminals for oil (crude, products) and gas (LNG, LPG), cargo handling and storage facilities, prime movers, piping and pipelines. His experience includes pipeline flow and hydraulic transient analysis, pipe stress analysis, pipeline on-bottom stability, pipeline integrity & fitness for service assessment. Throughout his years with Brown & Root (now KBR), Han-Padron Associates (now CH2M-Hill), and as an independent consultant, Mr. Gilad has been involved in the design and installation of numerous single point mooring (SPM) systems and other offshore petroleum terminals, fixed-berth and offshore cargo transfer systems, oil and gas pipelines, Pipeline End Manifolds (PLEMs), pig launching/receiving and oil storage facilities. Mr. Gilad holds a BS and MS in mechanical engineering from the Technion, Haifa and is a registered Professional Engineer in the States of TX, NY and CA. He is one of the original authors of the California State MOTEMS, and presently a member of PIANC working group, WG153, that is developing recommendations for the design of marine oil terminals.

GERALD GUIDROZ

MR. GERALD GUIDROZ started out as a vibration test engineer for the space shuttle main engines. He then moved into the oil and gas industry on the North Slope on the production side of the business. He worked as a rotating equipment engineer for several years as well as getting involved with projects involving well pads, pipelines, waterflood, and gas injection before moving over to the pipeline side of the business. He was able to transfer some of his vibration experience into solving complex piping and equipment problems. Mr. Guidroz worked with the Trans-Alaska pipeline on pipeline and tank corrosion monitoring and repairs and worked as a construction engineer at the Valdez Marine terminal. He then transferred to the refinery

side of the business working for multiple clients as an engineering consultant. He has been involved with major refinery upgrades, multiple turnarounds and greenfield projects. He has acted as owners 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 FELI/Conceptual Design to Detailed Design on through construction. His areas of expertise are in piping specification and design, welding, pressure vessels, heat exchangers, fired heaters, pumps, compressors, drivers, valves, pipelines, and stress analysis. Mr. Guidroz has a broad knowledge base from over twenty eight years of experience in the oil and gas business.

ROGER HADDAD

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

GERARD HAGEMAN

MR. GERARD J. HAGEMAN is based in The Hague (The Netherlands), where he settled recently after 33 years in the downstream oil and gas business (including LNG). He started his career with the Gulf Oil refinery in The Netherlands as a process engineer, after which he joined Shell for 29 years. During his career 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, Operation, Start-up, Process Safety (Integrity), Interface management, Change processes, Competency assurance and Training. He holds a Masters Degree in Chemical Engineering from Twente University in The Netherlands.

DAVID HAIRSTON

MR. DAVID HAIRSTON has over 40 years of experience in project management, engineering and design, material logistics, and construction management for oil and gas facilities. Project experience includes pipeline transportation and production facilities, both onshore and offshore. Worldwide project and construction management experience at all levels includes grass-roots gathering, processing, and pipeline systems with a capital cost of over USD\$ 2.5 billions. Specialized technical expertise includes river and special obstacle crossings using open-cut, bridging and directional drilling methods; offshore construction and logistics planning. Mr. Hairston has been published in ASCE Magazine, Proceedings of Marine Technology, Proceedings of several industry Pipeline Conferences,

and the Oil and Gas Journal. He holds a B.S. in Aerospace Engineering from Texas A&M University and an M.S. in Civil Engineering for the University of Houston and is a Registered Professional Engineer in several U.S. states.

BOB HLOZEK

MR. BOB HLOZEK, P.E., has over 40 years of technical experience in the Oil & Gas, Refining, Petrochemicals, and Specialty Chemicals industries. Mr. Hlozek has a varied work background that includes process engineering, design and equipment sizing, research, product development, plant startups, economic evaluations, technical management, operations, sales and marketing support, and business development. He holds a Bachelor of Science in Chemical Engineering from Texas A&M and completed some graduate studies toward an MBA at the University of Delaware. Mr. Hlozek has authored 10 technical articles, is a member of AICHE, Houston Chapter AICHE, Houston GPA, Texas Professional Engineering Society, Texas A&M Clubs and has served as Chairman and Officer for several local technical and university chapters.

FRANK HOPF

DR. FRANK HOPF brings 35 years of experience in engineering, operations, and management of pipeline and terminal facilities for crude oil, refined products, petrochemicals, CO2 and LNG. During his 31 years with Shell Oil Company and affiliated companies in the Gulf of Mexico, Texas, Wyoming, Montana, California, New Mexico, Mississippi, Louisiana and Washington. He also served on the board of directors of several major joint interest pipeline systems. He concluded his career with Shell in the implementation of SAP based supply chain management system for the pipeline organization. He accepted a graduate assistantship to pursue a Ph.D. in geomorphology, completing his dissertation on the risk of levee failures in the Sacramento-San Joaquin River Delta and the impacts of the assessment of risk on public policy formation. He also studied engineering geomorphology, fluvial and coastal geomorphology, and GIS/remote sensing applications to the pipeline industry. Mr. Hopf is a registered Civil Engineer in Texas. He was awarded his Ph.D. in December of 2011 and has served as a lecturer in the Geology and Geophysics Department at Texas A&M University since 2012.

ROBERT HUBBARD

MR. ROBERT A. HUBBARD is based in Norman, Oklahoma with over 40 years of experience in oil and gas facilities, worldwide. Mr. Hubbard is president of John M. Campbell & Co., a position he has held since 2010. In 2009 he retired from the University of Oklahoma where he taught courses and directed a master's program in Natural Gas Engineering and Management in the Petroleum and Geological Engineering Dept. From 1980-2002 he worked for John M. Campbell & Company where he held various management positions and provided training and consulting services to several international oil and gas companies. He also worked for Texaco from 1972-1980, where he held engineering and management positions. Mr. Hubbard is a member of SPE and GPSA, he has chaired the SPE Facility Engineering Committee and is program chair of the Oklahoma City SPE Section. He is currently a member of the SPE Project, Facilities and Construction Advisory Committee. He has published

several papers in the area of gas processing and facilities design. He holds a B.S. in Chemical Engineering from Kansas State University (1971), and an MBA from Tulane University (1978).

SELMA A. (SALLY) JABALEY

SELMA A. (SALLY) JABALEY is a Senior Engineering Manager with expertise in management of engineering departments. She specializes in engineering, procurement and construction of oil and gas facilities projects, evaluation and due diligence of oil and gas projects for participation and implementation, and optimization of mature oil and gas fields. She is currently the Owner and Principal of Jabaley Consulting LLC, a company that does consultant work for Shell, as well as companies in Africa, the Middle East, and other locations around the globe. She is an SPE Gulf Coast Section, Projects, Facilities, and Construction study group member and past Chairman, and was awarded their Distinguished Contributions to Projects, Facilities, and Construction award in 2008. She has earned a Bachelor of Civil Engineering from Georgia Institute of Technology. In 2008, Ms. Jabaley was inducted into the Georgia Tech Academy of Distinguished Engineering Alumni, and now serves as an advisory board member for the Georgia Tech Civil and Environmental Engineering department.

FRANK JARRETT

MR. FRANK JARRETT has over 34 years of experience in the natural gas processing industry. His background covers design and optimization of natural gas liquids recovery, LNG processing, nitrogen rejection and recovery of helium from natural gas, acid gas removal, product distillation, dehydration, relief system design and evaluation, and plant utilities systems. He specializes in process modeling using HYSYS. He is a registered professional Engineer in the state of Colorado and has served on the Board of Directors of the Rocky Mountain Chapter of the Gas Processors Association. Mr. Jarrett received a B.S. in Chemical and Petroleum Refining Engineering from the Colorado School of Mines.

ROBIN JENTZ

MR. ROBIN JENTZ has 38 years of oil and gas processing experience. His work has included most process areas of oil and gas production, including design and testing of low dewpoint glycol dehydration units, analysis of flare and relief systems using dynamic simulation programs, retrofitting gas/liquid separators to increase capacity and eliminate entrainment, and upgrading oil dehydrators. Mr. Jentz has worked for both operating and engineering contracting companies. He is a Registered Professional Engineer in Alaska and Washington. Mr. Jentz received his B.S. in Chemical Engineering from California State University Long Beach in 1974.

BILL KEETER

MR. BILL KEETER joined Allied Reliability in 2006 after serving as President of BK Reliability Engineers, Inc. where he provided training and facilitation services to help facilities improve asset performance using Weibull Analysis, Reliability Centered Maintenance, Availability Simulation, and Life-cycle Cost Analysis. Bill has over 30 years of experience in Maintenance Engineering and Management. He has successfully implemented maintenance improvement programs in

Our Instructors

a variety of manufacturing and process facilities. Bill's experience includes maintenance leadership positions in the US Military, the nuclear industry, chemicals, paper converting, and plastic film manufacturing. He has provided training and reliability consulting services to petroleum, process, mining, and defense industries in the United States, Mid-East, and Europe. Bill has developed competency maps for Reliability, Availability, and Maintainability Engineering for the Petroleum Industry's PetroSkills® program. Bill has published articles in a variety of internationally recognized maintenance publications, and has presented papers on the practical application of Weibull Analysis at several internationally attended Maintenance and Reliability Conferences. Bill is a Certified Maintenance and Reliability Professional with the Society for Maintenance and Reliability Professionals Certifying Organization. He also holds degrees in Business Administration and Electrical Engineering.

DALE KRAUS

MR. DALE KRAUS has twenty-eight years of progressive responsibility from staff to management positions within the Upstream Oil and Gas Industry. Mr. Kraus has obtained sound basis in Facility/Processing Engineering and Field Operations in Oil and Gas Production. He is also the President of D. Kraus Oil & Gas Consulting Corp. Mr. Kraus is a member of A.P.P.E.G.A and the Canadian Gas Processors Association. He holds a Bachelor's degree in Chemical Engineering from the University of Saskatchewan.

JAMES LANGER

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 4 years. He is retired from Shell having worked 28 years as a Senior Staff Process Engineer, and Principal Technical Expert for Shell / 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 Shell's smallest, most expensive gas plant. The project took 8 years and is located on Pacific Coast Highway in Huntington Beach California.

PERRY LOVELACE

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&O, his participative leadership seminars have provided team-building skills to hundreds of supervisors and team leaders. He has dedicated his career to providing high quality learning experiences, keeping in tune with the changing economic and technological environment, especially as applied to long-term facilities management and organizational development. He has assisted many

organizations through on-site consultation and training. Clients include industrial and utility organizations of different types and sizes in the United States, Kingdom of Saudi Arabia, United Arab Emirates, Qatar, Nigeria, Angola, Canada, New Zealand, Australia, Thailand, Malaysia, Singapore, Trinidad/Tobago, Austria, Romania, UK, Ecuador, Bolivia and Mexico. An engaging and popular speaker/facilitator, Mr. Lovelace continually receives high marks from participants. 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 B.S. in Science Education and an M.S. in Botany from the University of Oklahoma, with pre-doctoral studies in Plant Ecology at the University of California.

PETE LUAN

MR. PETE LUAN has over 25 years of international upstream project management experience. He has also consulted for the past 10 years helping energy companies improve their management of capital projects. He has an extensive track record of helping E&P companies improve their capital project performance. He has been particularly successful with those clients who are faced with large capital projects and require a step-change in organizational capabilities. Pete is a facilitator and advisor to top management, many of whom continue to seek his advice even after the development of their project organizations has been completed. He has worked with numerous clients on major projects including contracting strategy, project execution plan development, risk management, Lessons Learned, stakeholder alignment, etc. Pete worked for Amoco Production Co. managing major capital projects in Azerbaijan, the Middle East, and Latin America. He holds BS and Masters degrees in Mechanical Engineering with higher honors from Rice University, and has completed management training at Harvard Business School. He is PMP certified.

KEN LUNSFORD

MR. KEN LUNSFORD has more than 34 years experience in engineering and management of oil, gas, chemicals and plastics developments. During his 32 years with ConocoPhillips he has led development teams on projects in the United States, Norway, Qatar, and United Arab Emirates. His diverse engineering and project management background includes liquefied natural gas projects, sour gas plants, oil, gas and petrochemical pipelines, engineered plastics processes and materials handling, batch sulphur chemical processes, and pilot plants. Additionally, he was corporate project controls manager for Phillips Petroleum with responsibility for developing business processes and training for asset development, value improving practices, project controls, contracting strategy, risk management, reviews & assists and joint venture non-operated project assurance. He received his B.S. and M.S. degrees in Mechanical Engineering from the University of Missouri-Columbia. He is a registered professional engineer in the State of Texas.

HARVEY MALINO

MR. HARVEY M. MALINO has more than 40 years of experience in the Chemical and Hydrocarbon Processing Industries. During his 28 years with Union Carbide Corporation/UOP, he held both technical and commercial positions including World Wide Sales

Manager for the Gas Processing Business Group. Mr. Malino has lived and worked in New Hampshire, Maine, New York, Singapore and Chicago. He is currently based in Charleston, South Carolina where he runs his own consulting business, Exact Differentials LLC and provides technical, marketing and licensing expertise to the natural gas and oil industry. Mr. Malino is a registered Professional Engineer in the State of New Hampshire. He is a Senior Member of the Advisory Board of the Laurance Reid Gas Conditioning Conference in Norman, OK. Mr. Malino earned an M.B.A from Pace University in New York, a B.S. in Chemical Engineering from the City College of New York; and, is an alumnus of Brooklyn Technical High School.

ANDREA MANGIAVACCHI

DR. ANDREA MANGIAVACCHI 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 25 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 systems. Andrea has extensive experience in conceptual field development projects, structural analysis and design, hydrodynamics, naval architecture, Computer Aided Engineering and Design. Andrea holds a M.Sc. in Nuclear Engineering and a Ph.D. in Aerospace Engineering, both from the University of Rome. He has authored or co-authored over 30 technical papers, and holds two patents.

YUV MEHRA

MR. YUV MEHRA has 40+ years of invaluable, practical process engineering experience related to the processing of hydrocarbons (natural gas, refining and petrochemicals) from the standpoints of major owner/operating, as well as E&C companies. He is an inventor (28 U.S. Patents) and a licensed professional engineer (California & Texas). He retired from Saudi Aramco in December 2011 as Gas and Light-ends Process Engineering Consultant in the Process & Control Systems Department. From 2003-2004, Mr. Mehra contributed to Saudi Aramco as General Supervisor for the Upstream Process Engineering Division. He is an Alumnus of the Saudi Aramco Leadership Forum. He chaired the development of Section 14 - Refrigeration for the GPSA Engineering Data Book. Mr. Mehra holds a B.E. from IIT Roorkee and an M.S. from UCLA, both in Chemical Engineering. He focuses on identifying value-oriented opportunities, effectively communicating and following through assignments to conclusion. He has demonstrated his vast process engineering knowledge of the entire hydrocarbon value chain: oil & gas production - processing - refining - petrochemicals. His results-oriented effectiveness in process optimization, front-end engineering, project evaluations, troubleshooting, development of engineering standards, expert witnessing, assessment of intellectual property including marketability, development and offering topical courses, and integration of refining & petrochemicals is recognized industry wide.

JOHN MORGAN

MR. D. JOHN MORGAN is based in Denver, Colorado, and is Executive Vice President of John M. Campbell & Co. with over 40 years experience in the design, startup and troubleshooting of oil and gas facilities. He has published extensively on sour gas treating, sulfur recovery, CO₂ treating, materials of construction, LNG training, and cryogenic gas processing. He consults for both North American and international clients in the gas processing industry. He performs training in LNG facilities, oil and gas process facilities, and gas plants around the world. He is very active in industry activities including membership of the Editorial Review Board of the Gas Processors Supplier's Association, the Program Advisory Committee of the Laurence Reid Gas Conditioning Conference, and had served as Adjunct Professor of Petroleum Engineering at Colorado School of Mines. Mr. Morgan has many years of experience training non-native English speakers. He holds a B.Sc. (Honors) in Chemical Engineering from London University; and an M.E. in Chemical & Refinery Engineering from Colorado School of Mines, USA.

MAHMOOD MOSHFEGHIAN

DR. MAHMOOD MOSHFEGHIAN is a Senior Research Engineer and is the author of most Campbell Tips of the Month and develops technical software for JMC. He has 35 years teaching experience in universities (Oklahoma State University, University of Shiraz, University of Sydney and University of Qatar) as well as for oil and gas industries. Dr. Moshfeghian joined JMC in 1990 as a part time consultant and then as full time instructor/consultant in 2005. Previous to joining JMC, Dr. Moshfeghian was a Senior Research Scientist at Kuwait Institute for Scientific Research and Professor of Chemical Engineering at Shiraz University. Dr. Moshfeghian is a senior member of AIChE and has published more than 120 technical papers on thermodynamic properties and Process Engineering. Dr. Moshfeghian has presented invited papers in international conferences. He is a member of the Editorial Board for the International Journal of Oil, Gas, and Coal Technology. He holds a B.S. (74), an M.S. (75) and a Ph.D. (78) in Chemical Engineering, all from Oklahoma State University.

DENNIS PERRY

MR. DENNIS PERRY has been working in the automation, electrical and instrumentation design business for many years. His work experience includes working in the aerospace industry as an analog circuit designer, working in the electronic instrument manufacturing business as production engineering manager, and working for a major oil and gas company as a division automation supervisor and later as a staff engineer in the central, Upstream Technology group. He has also worked for an instrument manufacturer as service manager and for an engineering construction company as an instrument/electrical engineer. Mr. Perry published a paper on Multiphase measurement fall 1998 SPE, co-authored a paper for ASME/ETCE 2000 on value of well test accuracy, presented at the Acadiana Flow measurement workshop, and co-authored a paper on heavy oil multiphase measurement with Intevep of Venezuela. Mr. Perry graduated from Louisiana Tech with a BS degree in Electrical Engineering.

JASON PINGENOT

MR. JASON PINGENOT has over 18 years of experience in planning, design, engineering, management, and commissioning for a wide range of natural gas installations; including wellhead controls, gathering systems, compressor stations, processing plants, metering facilities, and truck loading stations for projects around the globe. In the course of his career he has served the industry as a drafting instructor, engineering consultant, and led an EI&C technical team at Encana Oil & Gas (USA) to execute capital projects and develop technical and safety standards. Currently, Mr. Pingenot is the Vice President of Engineering and EI&C Manager at GWD Design & Engineering based in Denver, Colorado, with a field services office in North Dakota. Mr. Pingenot is a registered professional engineer in the state of Colorado with a bachelor's degree in Electrical Engineering from the University of Colorado.

GERARD PRENDERGAST

MR. GERARD A. PRENDERGAST, B.SC. (HONS), F.INST.L.M., DIPSYSPRAC (OPEN), is the Founder and Managing Director of Abacus Learning Systems Ltd. He is currently an Instructor Developer and Learning Advisor to John M Campbell & Company. Mr. Prendergast is a Fellow of the Institute of Leadership and Management in the UK. He concentrates on the open and flexible learning aspects of education and training, especially the delivery of training using Computer Mediated Communication - CMC - and Computer Supported Cooperative Learning - CSCL. He has trained Educators and Instructors from many Universities, and from industry and commerce worldwide in online Computer Supported Collaborative Learning Techniques. He has been visiting tutor on the 'Online Education and Training' Course run by the Institute of Education, London University, and for the British Open University's 'Teaching & Learning On-Line' course, for a number of years. In 2002, Mr. Prendergast was a contributor to an Online Trainers course run by the Northern Illinois University, USA. He has been an Advisor to The Management Institute, University of Ulster on Online Learning, and has carried out consultancy for the British Inland Revenue service in ways to deliver training by Computer Mediated Communication. He has undertaken various workshops on e-Learning throughout Germany and also at The Croatian Academic and Research Network.

JAY RAJANI

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 Research Laboratories in Amsterdam 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 1987 to 2005, he worked in the Gas/Liquid Treating and Sulphur Processes department as Principal Technologist with special responsibilities as a Group Leader in the Adsorption and Catalytic Conversion Section. His last position 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 mtpy LNG trains. Jay is now an independent consultant on Gas

Technology with SBM Offshore in the Netherlands. He holds B.Sc. and Ph.D. degrees from University of London and Diploma in Management Studies from University of Coventry.

JOHN RIGGS

MR. JOHN A. RIGGS is based in England where he served 30 years in the Police Service retiring in 2005 as a Chief Inspector. In the latter part of his career he became the head of training for England and Wales specialising in the training of trainers. Graduating from the University of Hull with a Masters Degree in Education (MEd -Training and Evaluation) he has a passion for the development of Trainers and Instructors. A Member of the Chartered Institute of Personnel and Development (CIPD) and a qualified coach he has recently been appointed as a 'Progression Mentor' for the Prince's Trust. He has represented the British High Commission and the British Council training trainers and Instructors in South Africa, Uganda and The Gambia. The skills he learnt during this period of his career have proved invaluable in his role as a Regional Director for 'Africa and Asia Venture' helping young adults to volunteer in schools and communities abroad. He is currently a governor at a large school in his hometown in Harrogate where he is responsible for school and community communication. During the London 2012 Olympics and Paralympics he was delighted to be part of the 'Games Maker Team' as a team leader in the Olympic Park. In March 2012 he joined the Instructor development team and is excited by his role of coaching and developing staff in their role as John M Campbell Instructors.

GEORGE RODENBUSCH

DR. GEORGE RODENBUSCH has more than 32 years of experience in the engineering and management of deepwater offshore oil and gas developments. He started his career working in R&D where he developed tools for the estimation of loads on offshore platforms induced by wind, wave and current during severe storms. He then joined a Marine Systems Engineering group, which was formed to develop concepts 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 410m to 870m. In addition to design activities, he spent several years working on 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 deepwater offshore fields. He spent several years as an Engineering Manager supervising a group responsible for the design of floating systems, risers, mooring systems and foundations for deepwater development systems worldwide. He was active in the API Offshore Structures subcommittee, which established and maintained key standards for offshore engineering, chairing that group for several years. He was appointed as a Global Technical Expert in Offshore Structure Engineering in recognition of technical expertise and global contribution and was later named the Global Discipline Head for Offshore Engineering. He holds a BS and MME in Mechanical Engineering from Rice University and a PhD in Oceanographic Engineering from Massachusetts Institute of Technology & Woods Hole Oceanographic Institution. He is a Licensed Professional Engineer in the State of Texas and is a member of ASME.

Our Instructors

ALAN ROYER

MR. ALAN P. ROYER has more than 27 years of experience in the Oil and Gas industry working in the upstream and midstream sectors. During the past 27 years Mr. Royer has held operational, technical and managerial positions. During the first 12 years of his career he worked as an operator for Chevron Canada Resources in their gas processing facilities, and oil/gas gathering systems, located in Northern Alberta. In mid 1990 Mr. Royer left Chevron to attend the University of Alberta where he earned a B.Sc. degree in Petroleum Engineering. Later in his career, Mr. Royer spent over 12 years in the Middle East. Initially he worked in Yemen with Canadian Nexen Ltd. where he was responsible for the engineering design of various facilities, including all commissioning and start-up activities. He spent his last 8 years in the Middle East working in Qatar where he held a number of operational and engineering roles supporting the construction and start-up of the LNG Mega Trains, which have a combined production capacity of 77 million tonnes per annum. Mr. Royer is currently based in Calgary, Alberta, where he runs his own consulting business providing Facilities Engineering services to local industry. Mr. Royer is a registered Professional Engineer in the Province of Alberta, along with being an active member of Project Management Institute since 2005.

JOHN SHEFFIELD

MR. JOHN A. SHEFFIELD was a Senior Manager with M W Kellogg Ltd. a major UK E&C Company for more than 18 years during which time he managed the Process Engineering Department, Project Manager for development of LNG projects for export and import terminals and Commercial Vice President with responsibilities for key clients and projects. He helped develop projects for LNG facilities in the UK, China, Norway, Egypt, Germany and Australia and the development of LNG offshore technology for the Azure Project an EU funded project. With John M Campbell & Co. John is an Instructor/Consultant presenting short courses on the LNG business and technologies around the world. He also practices as a consultant, assisting companies with development of both LNG export and reception terminals and is currently active on several LNG projects in Europe and Far East Asia. Mr. Sheffield graduated from UC London with a degree in Chemical Engineering. He has served on the Management Committee of the European GPA for more than 16 years and chairs the GPA Europe LNG working party. He has presented papers at Gastech, GPA Europe and at the SMI LNG conferences dealing with LNG terminals, floating LNG developments and small scale LNG facilities.

KINDRA SNOW-MCGREGOR

MRS. KINDRA SNOW-MCGREGOR has a master's degree in Chemical Engineering and Petroleum Refining from the Colorado School of Mines, and over 15 years of experience in the Oil and Gas Industry. Particular areas of expertise include: gas treating (amine and dehydration), gas processing, LPG / condensate recovery from gas, NGL fractionation and storage, process optimization, sulfur handling, and process safety. Prior to joining John M Campbell & Company in 2008, she has served in management and lead process engineering roles in the oil and gas engineering, procurement and construction business. She has managed and served on significant projects in the industry for clients such as BP, ExxonMobil, ConocoPhillips, Occidental, QatarGas and

XTO. She has been actively involved in industry groups for many years, such as the Gas Processors Association, and the Rocky Mountain Gas Processors Association (RMGPA). Currently she is on the GPA Technical Research Committee, Sub-Group 2. She has published seven technical papers at international conferences, and is a co-inventor on two technology patents in the gas processing industry.

KEN SOURISSEAU

MR. KEN SOURISSEAU has 34 years of experience with Shell. Assignments have been in front end development, process design, project engineering, operations technical support, and operations management primarily in the areas of sour gas and insitu heavy oil recovery. Mr. Sourisseau has worked throughout Alberta, in Abu Dhabi, and the Netherlands. He has authored a number of technical papers for international conferences, provided training for Shell in numerous countries, and has taught Gas Processing at the University of Calgary. He earned B.Sc. and M.Sc. degrees in Chemical Engineering from the Universities of Saskatchewan ('76) and Minnesota ('78) respectively. He is a registered professional engineer in Alberta.

WILLIAM STARKEY

MR. WILLIAM D. STARKEY has over 30 years' experience in mechanical engineering and reliability; most of it spent with ExxonMobil or Mobil Oil. He recently served as a Section Head, Machinery Section and Machinery Advisor, which is an executive level position, for ExxonMobil. He provided supervision and technical direction and support to approximately 15 machinery specialists in the Section, who form the core of machinery expertise and networking within the Downstream areas of ExxonMobil. He was responsible for providing machinery support to capital projects and technical services to ExxonMobil and affiliate locations; field support during facility turnarounds; and development of new technologies that improve/optimize machinery operability, maintainability and reliability. Activities also included close alliances and best practice sharing with global Downstream field locations and the parallel machinery groups in the Upstream organization. He also coordinated with Upstream for the preparation, development and maintenance of ExxonMobil Engineering Practices and research and development programs for machinery, including equipment health monitoring. Mr. Starkey is a past participating member of the American Petroleum Institute Sub-Committee on Mechanical Equipment. He holds a B.S. in Mechanical Engineering from the University of Kentucky (1968).

DAVID TENHOOR

MR. DAVID A. TENHOOR, CPIM has been consulting and teaching APICS (The Association for Operations Management) CPIM certification courses since 2005. He has taught in many different industries from chemical processing to discrete manufacturing. Companies include BASF, National Oilwell Varco, Halliburton, ExxonMobil Chemical and Cameron. David brings a well-rounded package of industry experience to PetroSkills/JMC. He has held positions in Inventory Control, Manufacturing Management, Strategic Sourcing and Transportation/Distribution Management. He also has experience in Finance and Product Development. David received his undergraduate degree in Geology from Hope College in Holland, Michigan and

an MBA in Supply Chain Management from Michigan State University. He is a member of the Houston Chapter of APICS and served two terms on the Board of Directors as Treasurer.

BUCK TITSWORTH

MR. BUCK TITSWORTH's experience includes over 40 years with major international operating and service companies in worldwide oil and gas production/process engineering, project execution, and business planning. Specific experience includes: upstream projects (Middle East - Saudi Arabia, Egypt, Kuwait); oil & gas pipeline and production facilities projects (South America, the Far East, FSU, Austral-Asia); FPSO/mobile system development projects (Canada, Asia-Pacific, West Africa); refining projects (USA and eastern Europe); and global business/strategic planning for the engineering and construction industry. Assignments have included establishing joint ventures and/or new offices in Vietnam, Pakistan, Nigeria, Australia, Canada, and Holland. Mr. Titworth has a BS in Chemical Engineering from the University of Houston, and is a registered professional engineer in four states.

DANNY VAN SCHIE

MR. DANNY VAN SCHIE 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. His areas of expertise include: high level 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 Design engineering 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.

PAUL VERRILL

MR. PAUL VERRILL has over 25 years' experience working in the chemicals, petrochemicals, hydrocarbon processing 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, Rolls Royce and Enron Engineering & Construction, working on projects around the world. His experience includes piping and mechanical equipment design, rotating equipment engineering, project management, gas processing project development including FEED study management and operations and turnaround management. For the previous 3 years Mr. Verrill has been working in the senior management team of an 800mmscfd gas processing facility which has been developing the onshore assets for a new UK gas field. In 2011 Mr. Verrill started working with JM Campbell as an Instructor in addition to providing project development and asset management services through his own consultancy company. Mr. Verrill is based in Yorkshire, England and graduated with a B.Eng degree in Mechanical Engineering from Newcastle University in the UK and he is a Chartered Member of the Institute of Mechanical Engineers.

COLIN WATSON

MR. COLIN WATSON has over 35 years' broad experience in petrochemicals, primarily in Engineering support and Process Safety management. His experience includes assignments in technical support, operations, turnarounds, project execution and HSE and engineering management. From 2006 he has worked as an independent Engineering & Process Safety Consultant working with Oil & Gas clients. He has worked primarily with BP to design, develop and facilitate their global Process Safety training and awareness programs both for engineering and operations teams. In a varied 28 year career in BP he latterly worked to develop strategic structures and governance systems to manage Process Safety and Integrity Management for the BP Grangemouth Complex and the European BP Chemicals Sites. His Operations experience providing technical support and engineering management extends across a variety of petrochemical and refining processes. He holds a B.Sc. in Engineering Science (Mechanical) from Edinburgh University (1978) and is a Chartered Engineer with the Institute of Mechanical Engineers.

STUART WATSON

MR. STUART WATSON 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 1996 from Curtin University, Perth, Australia, with a bachelor's degree 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 92MMscfd amine sweetening and cryogenic NGL train for the Government of Ras Al Khaimah (U.A.E.). Thereafter, he started his own engineering consultancy supporting both mechanical and process disciplines. Stuart began instructing for John M. Campbell in 2009 and now supports Petroskills as Instructor and Technical Director for facilities engineering; including Mechanical, Piping, Reliability, Corrosion and Instrumentation, control and electrical disciplines.

DAVID WEEKS

MR. DAVID WEEKS graduated from the University of Manchester, Institute of Science and Technology in 1973 with a Bachelor of Science Honors degree in Chemical Engineering. He joined Kellogg International Corporation, now KBR, in London as a Graduate Engineer in September 1973. During his two-and-a-half-year graduate training period, David worked on the Front End Engineering Design of Ammonia plants in Algeria, Syria, Spain and Ireland and gained site operating experience on an ammonia plant in Tirgu Mures, Romania. After completing the Company's training scheme, David transferred into KBR's Process Design Department. For twelve years, he specialized in Refinery design working on units for refineries in such diverse areas as Qatar, Abu Dhabi, Mauritania and many countries in Europe. Between 1988 and 1990,

David was trained to be the Subject Matter Expert in KBR London on steam cracker plants and worked on the designs of new Ethylene plants in Saudi Arabia, Korea and Scotland. Since 1990, David has managed KBR process engineering teams on a number of world-scale gas processing projects, including the Troll and KUP gas terminals in Norway, the In Salah Gas development in Algeria, the Dragon LNG import terminal in Wales, UK and the Shah Deniz 2 Sangachal on-shore gas terminal in Azerbaijan. On his retirement from KBR after 40 years of service, David held the position of Chief Process Engineer in KBR's Greenford office in London. David is a Fellow of the UK's Institution of Chemical Engineers and is the immediate past chairman of GPA Europe Ltd.

PETER WILLIAMS

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 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.

RONN WILLIAMSON

MR. RONN E. WILLIAMSON, C.P.M., CFPIM is Technical Training Director of John M. Campbell & Co. He has been consulting and instructing in the field of supply chain management for more than fifteen years. During this time, he has delivered significant value to more than fifty, cross-industry organizations around the world. He has provided education programs internationally to hundreds of people in procurement, logistics and materials management. In 2005, he joined the PetroSkills/John M. Campbell team to develop a competency-based training tool with linked industry course offerings for Procurement/Supply Chain Management (PSCM) professionals in the oil and gas industry. Mr. Williamson gained his supply management expertise during twenty-three years of operational and management roles for a major equipment OEM company. For five years, he had executive responsibility for purchasing and transportation at Thermo King Corporation, a subsidiary of Westinghouse Electric and a billion-dollar global business. He received an undergraduate degree (BME) in engineering and a master of business administration degree (MBA) from the University of Minnesota. Mr. Williamson has been a member and past chapter president, of the American Production and Inventory Control Society (APICS), is a member of and frequent presenter for the Institute for Supply Management (ISM), and is a member of the International Association for Commercial Contract Management (IACCM). He is also certified at the Fellow Level by APICS and has a lifetime certification from ISM.

WES WRIGHT

MR. WES WRIGHT has 25 years experience in oil and gas producing facilities. Mr. Wright began teaching with John M Campbell in 2004 where he has been delivering courses in CO₂ Surface Facilities, Oil and Gas Processing and Operator Training world-wide. Prior to joining John M Campbell, Mr. Wright was the lead on-site engineer at the Weyburn CO₂ Miscible flood where he was closely involved in the development, design, 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 Saskatchewan and Alberta, Canada and is a member of the SPE. He has been published in the ASME-OMAE, the CSCE and the IAHR.

CLYDE YOUNG

MR. CLYDE YOUNG has over thirty 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.

NASSER ZOGHAIB

DR. NASSER ZOGHAIB has over 28 years of experience in mechanical and pipeline projects. He originally graduated with a degree in mechanical engineering in 1985 from Ain Shams University in Cairo-Egypt. In 1996, he attended the Faculty of Mining & Petroleum Engineering in Suez-Egypt, and finally completed his PhD in 2004, "Optimization of Gas Pipeline Networks". His strong pipeline experience in the North African and Egypt region is further emphasized through more than 8 technical papers focusing on rejuvenation of corroded systems and debottlenecking projects in the area. Dr. Zoghaib also has worked extensively in the field of rotating equipment; optimizing availability, troubleshooting performance and establishing predictive maintenance programs to reduce OPEX budgets and improve gas field overall production. Dr Zoghaib began instructing for John M. Campbell / Petroskills in 2014 as part of the BP Roo Project in Piping and Pipeline disciplines, and participates as a member of both American and Egyptian Societies for Mechanical Engineers.

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- 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

Seats fill quickly, so enroll today at petroskills.com/ss2

See page 27 inside for more details!

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