Well Construction / Drilling
Course Progression Matrix

The Course Progression Matrix below shows how the Well Construction/Drilling courses in this section are structured within each topic, from Basic to Specialized. On either side of the Well Construction/Drilling section, you will see courses in associated disciplines for cross-training.

The first two courses in this section are two of our most popular and build the foundation of the discipline. Basic Drilling Technology - BDT provides a basic overview of the drilling process, while Well Design and Engineering - WDE on page 1 integrates all major well design technologies. If you need to build a foundation around directional and horizontal wells, be sure to see Directional, Horizontal, and Multilateral Drilling - DHD on page 4. Also, be sure to check out our exciting deepwater course Deepwater Well Engineering - DWE on page 3.

The following instructors have been selected and approved by the PetroSkills Curriculum Network:
### Casing and Cementing – CAC

**BASIC 5-Day**

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

**DESIGNED FOR**

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

**YOU WILL LEARN**

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

**COURSE CONTENT**

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

### Well Design and Engineering – WDE

**FOUNDATION 10-Day**

Well Design and Engineering integrates all major well design technologies from pre-spool to TD. Participants are actively engaged in every aspect of the technical activities required to deliver a cost-effective well plan while also gaining valuable perspective on how the overall process should be managed in a dynamic team environment. The workshop content is often customized to adddress technologies and practices that may be specific to a project or operational situation. The single most important goal of the workshop is to draw the linkages between the design topics and to leave the participants with an understanding that each decision has influence on those that follow. Intensity mounts as the course progresses and each design topic builds on those that came before. Design iterations are commonly required, and seemingly unrelated decisions push a team into situations of uncomfortable operational risk. On the last day, each team presents their completed design before the class and an invited panel of industry professionals. A scientific calculator is required and a laptop computer is strongly recommended.

**DESIGNED FOR**

Drilling engineers, completion engineers, and drilling supervisors involved with drilling operations and well planning.

**YOU WILL LEARN HOW TO**

- Understand the responsibilities of a well planner as a designer and project manager
- Review offset analysis and data gathering
- Understand the influence of completion design and production requirements on well design
- Identify trajectory design issues and their influence on torque and drag, wellbore stability, and future intervention
- Develop specific casing design skills including casing cost selection; design load case development; burst, collapse and tension calculations; controlling load and safety factor determination and select appropriate size, weight and grade
- Perform cement slurry and displacement volume calculations
- Complete drill string and BHA designs and failure prevention assessment for each hole section, and review for directional well stability
- Understand different bit types and applications, and perform calculations to support bit run economics
- Optimize hydraulics for each hole interval based upon wellbore, fluids and drill string configurations
- Compile risks to well delivery, and develop mitigations and contingency plans
- Develop minimum rig capability specifications to deliver well requirements
- Present and defend a well plan to management

### Drilling Fluids Technology – DFT

**FOUNDATION 5-Day**

This course is designed for engineers and field personnel involved in the planning and implementation of drilling programs. The seminar covers all aspects of drilling fluids technology, emphasizing both theory and practical application. Hands-on laboratory exercises are included in the five-day Houston sessions. Drilling is a complex operation requiring the marriage of different technologies and disciplines. Today’s drilling personnel must have a working knowledge of drilling fluid in order to effectively drill a well. The course provides the fundamentals necessary to drill a well, whether it is a shallow well or a complex, high pressure well. This course is valuable for anyone who needs to understand the fundamental aspects of drilling fluids.

**DESIGNED FOR**

Drilling supervisors, drilling engineers, tool pushers, managers, and technical support personnel involved with drilling operations.

**YOU WILL LEARN HOW TO**

- Use clays and polymers to achieve desired mud properties
- Apply water chemistry to the treatment of drilling fluids
- Perform complete water-based fluid as well as non-aqueous fluid tests using API Recommended Practice 13B/ISO 10414-1.1
- Evaluate and apply the results of an API drilling fluids report to maximize drilling operations and minimize non-productive time
- Identify critical drilling fluid contaminants and prescribe corrective treatments for effective drilling fluid management
- Calculate the chloride concentration of the drilling fluid in order to maintain wellbore stability
- Select non-aqueous fluids to meet drilling requirements and environmental concerns
- Manage non-aqueous drilling fluid systems
- Minimize formation damage to optimize well productivity
- Evaluate options for drilling fluid waste management

**COURSE CONTENT**

Composition and properties of water-based drilling fluids • Analysis of API water-base mud and non-aqueous drilling fluid report • Identification and treatment of drilling fluid contaminants • Composition and properties of water-based and non-aqueous drilling fluid systems • Selection of water phase salinity for borehole stability • API water-based and non-aqueous drilling mud tests • Adjustment of non-aqueous drilling fluid properties • Managing invert emulsion fluid systems: rig preparation and displacement • Non-aqueous drilling fluids designed for environmental compliance

### Drilling Practices – DP

**FOUNDATION 10-Day**

The two-week course is designed for engineers and field personnel involved in the planning and implementation of drilling programs. The seminar covers all aspects of drilling technology, emphasizing both theory and practical application. Drilling is a complex operation requiring the marriage of different technologies and disciplines. Today’s drilling personnel must have a working knowledge of all these disciplines in order to effectively drill a well. The course provides all the fundamentals necessary to drill a well whether it is a shallow well or a complex, high pressure well. Computer programs are used to design many aspects of the modern well and the course will provide the participants with the theory behind most programs along with practical implementation. Participants are required to bring a scientific calculator. For in-house courses, the instructors of this course will accept examples from your company for analysis in the class as one of the demonstration exercises. Please contact PetroSkills Training for a list of the information and support data required, as well as the necessary lead-time.

**DESIGNED FOR**

Drilling supervisors, drilling engineers, tool pushers, managers and technical support personnel.

**YOU WILL LEARN HOW TO**

- Review drilling data and plan the well
- Incorporate completion plans into the drilling plan
- Drill a well cost effectively and maximize production rate
- Evaluate stuck pipe problems and avoid potential problems
- Evaluate and maintain drilling fluids
- Optimize hole cleaning
- Design casing, drill string and BOP/wellheads
- Evaluate and implement cementing programs
- Design and implement bit and hydraulics programs
- Incorporate directional drilling and deviation control
- Recognize and evaluate well control problems

**COURSE CONTENT**

Planning including requirements for the completion and testing, AFE preparation • HSE at the rig site • Cost control, evaluating alternative drilling methods and maximizing penetration rate • Hole cleaning, sloughing shale, lost circulation, stuck pipe and fishing operations • Drilling fluids • Rigging capacity of drilling fluids, pressure losses in the circulating system and ECD • Maximizing hydratics in the planning phase and at the rig • Bit selection and application • Casing and drill string design, selection of casing seats, BOP equipment • Cement, cement additives and displacement mechanics • Deviation control, directional drilling and horizontal drilling • Pressure control, routine and special problems • Project post analysis

### Wells Construction / Drilling

**2019-2020 Schedule and Tuition (USD)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doha, Qatar</td>
<td>1-12 Dec 2019</td>
<td>$9990</td>
</tr>
<tr>
<td>Houston, US</td>
<td>29 Nov-30 Dec 2020</td>
<td>$9990</td>
</tr>
<tr>
<td>Houston, US</td>
<td>4-15 Nov 2019</td>
<td>$8325</td>
</tr>
<tr>
<td>Houston, US</td>
<td>2-13 Nov 2020</td>
<td>$8490</td>
</tr>
<tr>
<td>Kuala Lumpur, Malaysia</td>
<td>22 June-3 July 2019</td>
<td>$9990</td>
</tr>
<tr>
<td>London, UK</td>
<td>7-18 Oct 2019</td>
<td>$9690+VAT</td>
</tr>
<tr>
<td>London, UK</td>
<td>21 Sep-2 Oct 2020</td>
<td>$9895+VAT</td>
</tr>
</tbody>
</table>

**2019-2020 Schedule and Tuition (USD)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen, UK</td>
<td>11-15 Nov 2019</td>
<td>$5285+VAT</td>
</tr>
<tr>
<td>Aberdeen, UK</td>
<td>26-30 Oct 2019</td>
<td>$5785+VAT</td>
</tr>
<tr>
<td>Dubai, UAE</td>
<td>12-16 July 2020</td>
<td>$5550+VAT</td>
</tr>
<tr>
<td>London, UK</td>
<td>21-25 Sep 2020</td>
<td>$4865</td>
</tr>
<tr>
<td>London, UK</td>
<td>11-15 May 2020</td>
<td>$5135+VAT</td>
</tr>
</tbody>
</table>

**2019-2020 Schedule and Tuition (USD)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calgary, Canada</td>
<td>6-10 May &amp; 5-9 June 2020</td>
<td>$7720+GST</td>
</tr>
<tr>
<td>Dubai, UAE</td>
<td>6-10 Dec 2019</td>
<td>$9350+VAT</td>
</tr>
<tr>
<td>Houston, US</td>
<td>6-7 Dec 2020</td>
<td>$9715+VAT</td>
</tr>
<tr>
<td>Houston, US</td>
<td>3-14 Aug 2020</td>
<td>$7720</td>
</tr>
</tbody>
</table>

*Includes lab visit*
**Fundamentals of Casing Design – FCD**

**FOUNDATION 5-Day**

Casing design is an integral part of a drilling engineer’s work scope. This course provides a comprehensive overview of the design process, emphasizing the working stress approach currently used in the industry. On completion of this course, successful participants will be able to select casing points, identify tubular requirements and loads, and design and specify the required casing string. Through a combination of lecture and extensive hands-on examples, the fundamentals of casing design are imparted to the attendees. Estimation of standard and special loads is covered in detail. Standard theories of strength and failure are discussed as well as advanced considerations for combined loads. In addition, safe handling, running, and hanging practices are covered. Participants will be furnished Dr. Byron’s textbook, “Casing and Liners for Drilling and Completion,” and computer spreadsheets to facilitate routine design calculations.

**DESIGNED FOR**

Drilling engineers, service personnel involved in developing well plans, and managers interested in learning about the well design process.

**YOU WILL LEARN HOW TO**

- Select casing setting depths based on pore and fracture pressure data as well as other criteria
- Determine casing and bit sizes, and alternatives for contingencies and special clearance situations
- Identify and define load cases to meet specific design requirements
- Apply standardized design factors to meet specific design requirements and identify the controlling design load for each string in the well
- Use and understand casing and connection specifications and select casing to satisfy the controlling design requirements
- Understand the limits of single load specifications and adjust the basic design for combined loading effects
- Design casing for high pressure fracturing in horizontal wells
- Apply practical safe handling, running, and hanging

**COURSE CONTENT**

Goals of casing design • Types of oilfield tubulars and connections • Casing point selection and size determination • Load estimation methods for casing and liners • Typical design factors • Theories of strength and failure (standard collapse, burst, axial; yield basis for combined loads) • Design examples and exercises for all key loads and strings • Casing handling, running, and hanging practices

---

**Casing Design Workshop – CDW**

**Course Description**

**INTERMEDIATE**

Casing design is an integral part of a drilling engineer’s work scope. This workshop provides a comprehensive overview of the design process, emphasizing the working stress approach currently used in the industry. Upon completion, participants will be able to select casing points, identify tubular requirements, loads, and present a design which incorporates life cycle considerations. Estimation of standard and special loads is covered in detail. Standard theories of strength and failure are discussed as well as advanced considerations for combined loads. Topics related to safe handling, running and hanging practices will additionally be covered.

**DESIGNED FOR**

Engineers, site supervisors, and technical managers responsible for casing design and/or review of the casing design for the full life cycle of the well. Participants should have at least one year of drilling-related experience AND be in a role that requires that they perform a detailed casing design.

**YOU WILL LEARN HOW TO**

- Incorporate well objectives and offset data to assure wellbore integrity through its life cycle
- Incorporate risk mitigation strategies into well design
- Apply alternative design approach to address unanticipated torque/drag forces, etc.
- Conduct pre-job safety analysis and identify potential well control trouble spots
- Walk through key equipment and hazards associated with running, landing and cementing casing

**COURSE CONTENT**

Introduction to casing design • Select casing depth and sizes • Calculate collapse and burst loads • Casing load determination • Make preliminary casing selection, adjust for axial loads • Casing selection for collapse, burst, and axial design • Calculate combined load effects, adjust and make final selection • Final casing design with combined loads • Additional load considerations • Workshop wrap-up

**TO LEARN MORE, VISIT**

PETSROSKILLS.COM/ CASING-DESIGN-WORKSHOP

---

**Offshore Drilling Operations – ODO**

**FOUNDATION 3-Day**

This course is designed to familiarize personnel with unique aspects of offshore operations, structures, and vessels, and how drilling rigs interact with them over the life of an asset. All styles of rigs are analyzed, including bottom-supported and floating, mobile and fixed. Advantages and disadvantages of specific rig applications are considered when clarifying selection criteria, especially HSE performance, technical capabilities, and full-cycle efficiency.

**DESIGNED FOR**

Operator staff including engineering, geoscience, operations supervision and technical support, and HSE, drilling contractor rig crew and technical support personnel, and service company and logistics support personnel.

**YOU WILL LEARN HOW TO**

- Identify differences between onshore and offshore operations
- Clarify HSE and other risks associated with offshore operations (helicopter operations, boat operations, crane and deck operations, simultaneous operations, emergency response)
- Identify offshore structures commonly used in the oil and gas industry and their typical applications (bottom-supported or floating, fixed or mobile, moored or dynamically positioned, single use and multi-use structures)
- Identify various styles and designs of marine risers, subsea and surface BOPs, wellheads and trees
- Determine differences between various rig types and how they interact with offshore structures over the life of an asset (platforms and topsides, FPSOs, risers, and pipelines; wellheads and trees; subsea; and jackup rig, semi-submersible, drillships)
- Identify operational effectiveness differences between various configurations of rig equipment ( especially multiple activity centers)
- Specify rig selection criteria
- Clarify logistical drivers for drilling and completion operations

**COURSE CONTENT**

Surface and subsurface characteristics unique to the offshore environment • HSE considerations for offshore and how it impacts planning, operations, and logistics • Design options for offshore and onshore installations (platforms; FPSOs, risers, and pipelines; wellheads and trees; subsea; and jackup rig, semi-submersible, drillships) • HSE considerations for offshore and how it impacts planning, operations, and logistics • Design options for offshore and onshore installations (platforms; FPSOs, risers, and pipelines; wellheads and trees; subsea; and jackup rig, semi-submersible, drillships) • Well construction sequences (surface and subssea wellheads, casing and cementing program strategies, drilling fluids selection, wellbore stability, NPT avoidance) • Transition to completion/intervention (barrier maintenance, job sequencing, intervention options)

---

2019-2020 Schedule and Tuition (USD)

**Houston, US**

*17-21 Aug 2020*  
FCD: $4410  
CDW: $5385  
ODO: $3885

See website for dates and locations.
Stuck Pipe Prevention – Train Wreck Avoidance™ – SPP

FOUNDATION 4-Day

Cementing is a key factor in the well construction plan. The base cement used in the design of cement slurries may or may not be API class cement. The operating company and the service company personnel should have a good working knowledge of cement slurry design, cement additives, and placement procedures. The majority of the operating companies do not have cement testing laboratories; therefore, the laboratory testing is conducted by service companies. This course is designed to give a good understanding of how the cement slurries are tested and under what conditions depending on given well parameters. This course will also cover casing hardware (both internal and external), cement blending, cement additive blending (dry and/or liquid), on-site mixing equipment and job execution on location.

DESIGNED FOR
Operating and service company personnel responsible for planning, designing, laboratory testing, overseeing, and executing cementing operations.

YOU WILL LEARN HOW TO
• Design cement slurries using API and/or field adapted procedures and laboratory testing procedures
• Use cement additives in designing cement slurries to improve job success and/or reduce overall job costs
• Design cement jobs to include casing, multi-stage, liner, and tie-back strings
• Design and perform remedial (squeeze) cement jobs to include selection of tools
• Design cement plug slurries and selection of tools to improve overall job success

COURSE CONTENT
Basic cements • Cement additives • Laboratory testing • Casing hardware • Blending equipment • Mixing equipment • Primary cementing • Remedial cementing • Plug cementing

Cementing Practices – Cementing II – CEP

INTERMEDIATE 5-Day

Cementing is a very important phase of the well construction plan. Operating company personnel must have a good working knowledge of cements, cementing additives, and placement procedures. The use of temperature modeling, computer programs used for job design, and placement of the cement has caused some operating companies to retain a cement service company representative on a full-time basis to assist in the overall cementing operations. The operator is critical to the success of the job. This course covers the importance of the cement sheath integrity during the life of the well, which will require additional mechanical properties of the cement sheath than just the unconfined compressive strength in many cases. The parameters that the cement sheath will be subjected to must be considered. There are a number of joint industry projects addressing this area of work. The course covers the use of cement formulations, cement additives, casing hardware, cement blending, on-site mixing equipment, and a well-planned job procedure. Cementing guidelines that aid in overall job performance will be covered.

DESIGNED FOR
Operating company and service company personnel responsible for planning, overseeing, and executing cementing operations.

YOU WILL LEARN HOW TO
• Use cementing additives properly to improve and reduce job costs
• Interpret laboratory test results
• Perform primary cementing operations to include: casing cementing, liner cementing, multi-stage cementing
• Conduct squeeze jobs and selection of squeeze tools
• Perform cement plug operations to improve overall job success
• Interpret cement sheath evaluation logs

COURSE CONTENT
Stuck Pipe Prevention • Rock mechanics • Wellbore stress • Wellbore instability • Trend recognition • Hole cleaning • Differential sticking • Wellbore geometry • Tripping practices • Fishing practices

Deepwater Well Engineering – DWE

INTERMEDIATE 5-Day

This is a five-day course designed to promote understanding of well design and engineering capabilities unique to the deep water environment. Participants are actively engaged in the skills and activities required to deliver a cost-effective well plan, while also gaining valuable perspective on the role of a DW drilling engineer as a project manager. Suggested course prerequisites include 3+ years’ experience in drilling and 2+ years in a well planning role for onshore or shallow water applications.

DESIGNED FOR
Experienced drilling engineers, drilling supervisors, and other petroleum professionals that are new to deep water (DW) who will become involved or responsible for DW well planning or oversight of non-operated DW wells. The ten day, Well Design and Engineering (WDE) course, or its equivalent, is highly recommended as a pre-requisite.

YOU WILL LEARN HOW TO
• Understand and manage technologies, practices, and design methodologies unique to the DW environment
• Analyze and utilize offset well data important for DW planning and well design
• Identify key issues and risks related to floating operations and rig selection
• Manage challenging logistics and unique equipment/supply chain issues
• Clarify the potential impact of geohazards, such as shallow gas and water flows, hydrates, salts, and tar
• Identify well control constraints and calculate kick tolerance
• Develop specific casing design skills, including impact of metocean environmental conditions on structural pipe design, casing point selection, annular pressure buildup design strategies, and use of US GOM Well Containment Screening Tool
• Assess DW cementing technologies and make appropriate choices for a DW well
• Develop designs for DW drill strings, BHAs, and landing strings
• Clarify well design issues for both riskier and post-riser phases of well construction
• Define drilling fluids for a DW well; assess and address any unique issues
• Complete risks to well delivery; develop mitigations and contingency plans
• Consider abandonment requirements in well design

COURSE CONTENT
Floating drilling rigs and equipment • Unique challenges of deepwater • Shallow hazards • Deepwater planning cycle • Subsea BOP equipment • Subsea well control issues • Structural pipe design for bending • Riserless drilling • Casing shoe depth considerations in DW • Annular pressure buildup in casing strings • Regulatory requirements • Subsea cementing process • Subsea wellheads and trees • Hydrates • Drilling fluid issues in DW • Slip crushing for drilling design • Landing string design • Salt drilling • Relief well planning for DW • DW risks • Abandonment of subsea wells • Awareness of the basics of Managed Pressure • Drilling and other emerging technologies

Deepwater Well Construction & Drilling – DWC

INTERMEDIATE 5-Day

This is a five-day course designed to promote understanding of well design and engineering capabilities unique to the deep water environment. Participants are actively engaged in the skills and activities required to deliver a cost-effective well plan, while also gaining valuable perspective on the role of a DW drilling engineer as a project manager. Suggested course prerequisites include 3+ years’ experience in drilling and 2+ years in a well planning role for onshore or shallow water applications.

DESIGNED FOR
Experienced drilling engineers, drilling supervisors, and other petroleum professionals that are new to deep water (DW) who will become involved or responsible for DW well planning or oversight of non-operated DW wells. The ten day, Well Design and Engineering (WDE) course, or its equivalent, is highly recommended as a pre-requisite.

YOU WILL LEARN HOW TO
• Understand and manage technologies, practices, and design methodologies unique to the DW environment
• Analyze and utilize offset well data important for DW planning and well design
• Identify key issues and risks related to floating operations and rig selection
• Manage challenging logistics and unique equipment/supply chain issues
• Clarify the potential impact of geohazards, such as shallow gas and water flows, hydrates, salts, and tar
• Identify well control constraints and calculate kick tolerance
• Develop specific casing design skills, including impact of metocean environmental conditions on structural pipe design, casing point selection, annular pressure buildup design strategies, and use of US GOM Well Containment Screening Tool
• Assess DW cementing technologies and make appropriate choices for a DW well
• Develop designs for DW drill strings, BHAs, and landing strings
• Clarify well design issues for both riskier and post-riser phases of well construction
• Define drilling fluids for a DW well; assess and address any unique issues
• Complete risks to well delivery; develop mitigations and contingency plans
• Consider abandonment requirements in well design

COURSE CONTENT
Floating drilling rigs and equipment • Unique challenges of deepwater • Shallow hazards • Deepwater planning cycle • Subsea BOP equipment • Subsea well control issues • Structural pipe design for bending • Riserless drilling • Casing shoe depth considerations in DW • Annular pressure buildup in casing strings • Regulatory requirements • Subsea cementing process • Subsea wellheads and trees • Hydrates • Drilling fluid issues in DW • Slip crushing for drilling design • Landing string design • Salt drilling • Relief well planning for DW • DW risks • Abandonment of subsea wells • Awareness of the basics of Managed Pressure • Drilling and other emerging technologies

All classes available at your location. Contact us today.

+1.918.828.2500 | petroskills.com | +1.800.821.5933 (toll free North America)
Directional, Horizontal, and Multilateral Drilling – DHD

INTERMEDIATE 5-Day

This course builds a firm foundation in the principles and practices of directional drilling, calculations, and planning for directional and horizontal wells. Specific problems associated with directional and horizontal drilling such as torque, drag, hole cleaning, logging, and drill string component design are included. Participants will receive instruction on planning and evaluating horizontal wells based on the objectives of the horizontal well. The basic applications and techniques for multi-lateral wells are covered in the course. Additionally, they will become familiar with the tools and techniques used in directional drilling such as survey instruments, bottomhole assemblies, motors, steerable motors, and steerable rotary systems. Participants will be able to predict wellbore path based on historical data and determine the requirements to hit the target.

DESIGNED FOR
Driiling, production and operations engineers, field supervisors, toolpushers, managers, and technical support personnel.

YOU WILL LEARN HOW TO
• Make survey calculations
• Interpret TVD, polar and rectangular coordinates, and vertical section
• Interpret dogleg severity and the problems associated with dogleg severity
• Plan a two-dimensional directional well
• Plan horizontal wells based on the objectives of the horizontal well
• Determine the best multi-lateral completion for an application
• Determine declination and non-magnetic drilling collar selection
• Apply the best survey instrument for the job
• Directionally drill with rotary BHAs, jetting, whipstocks, motor, steerable motors, and rotary steerable systems
• Drill horizontally unbalanced
• Interpret torque and drag and determine what factors will affect the torque and drag
• Determine cementing requirements for directional wells

COURSE CONTENT
Applications for directional drilling • Directional profiles • Extended reach wells • Survey calculations and accuracy • Dogleg severity calculations and problems associated with doglegs • Planning directional and horizontal wells • Horizontal drilling methods and applications • Logging high angle wells • Hole-cleaning • Multi-laterals • Types of survey instruments • Tools used to deflect a wellbore • Torque and drag calculations • Cementing


Drill String Design and Optimization – DSD

INTERMEDIATE 5-Day

We have been presenting Drill String Design workshops for over 12 years for all types of operations around the world. We are constantly updating our materials to reflect the latest technology applications for both near-vertical and high-angle well designs while maintaining a thorough grounding in the fundamentals. Workshop content is often customized to address customer-specific operational situations and software applications. Course tuition includes a copy of DS-1 Drill String Design Standard 4th Ed. Vol.2.

DESIGNED FOR
Operator, drilling contractor, and service company engineers; drilling supervisors and superintendents. This is an intensive technical workshop. A calculator is required and a laptop is strongly recommended. Class size is typically limited to 18-20.

YOU WILL LEARN HOW TO
• Place the drill string design process in context with other planning and operational considerations
• Refresh underlying physics of drill string failures and mechanical properties of drill string materials
• Clarify performance properties of drill string components and how to apply design margins
• Design cost-effective BHAs and match them to your bit
• Gain specific application experience analyzing common load cases for both near-vertical and high-angle situations: tension loads, torque loads, combined tension-torque loads, fatigue loads, buckling loads
• Understand the basis for industry software design tools, including torque and drag, casing wear, and hydraulics
• Identify drilling tools and operational practices to reduce both torque and drag and casing wear
• Diagnose and mitigate vibration to reduce drill string damage and failure
• Optimize your drill string inspection program using the latest industry standards

COURSE CONTENT
• Diagnose and mitigate vibration to reduce drill string damage and failure
• Manage well monitoring program to reduce lost time risks
• Manage key relationships between surface – subsurface parts of the well program
• Manage technical and interpersonal skills associated with complex operations
• Manage self and rig team situational awareness and competencies
• Manage communications to improve wellsite performance and build effective rig teams
• Manage the well monitoring program to reduce lost time risks

Managing Wellsite Operations

INTERMEDIATE 5-Day

Managing Wellsite Operations is an interactive course that teaches participants to successfully manage wellsites operational plans, resource time management, and control measures. Interpersonal skills associated with the art of managing the Jaothi window through active listening and conducting crucial conversations is exercised throughout the course. This course brings together documented case histories of complex well operations and techniques to manage associated human factors. Participants will learn to build effective teams by assuming roles in class exercises of the company representative, rig contractor, and supplier personnel. Critical issues are identified to improve safety and reduce trouble time. Improving the facilitation of wellsite action planning, rig instructions, and work processes is exercised to improve operator, contractor, and service provider performance metrics.

DESIGNED FOR
Driiling and completion well supervisors, wellsites engineers, superintendents, operations managers, senior drilling contractor, and wellsites service personnel.

YOU WILL LEARN HOW TO
• Manage key relationships between surface – subsurface parts of the well program
• Manage technical and interpersonal skills associated with complex operations
• Manage self and rig team situational awareness and competencies
• Manage communications to improve wellsite performance and build effective rig teams
• Manage the well monitoring program to reduce lost time risks

COURSE CONTENT
• Rig team priorities and success measures
• Focusing on wellsite challenges, distractions, and sensitivities
• Managing reports and rig documentation
• Rig meetings and drills
• Well monitoring, limits, alarms, and suspension of operations
• Reducing unscheduled events, technical limits, and drilling/completing well on paper techniques
• Managing complex situations associated with tripping, displacements, and testing
PetroSkills delivers the knowledge and skills required for unconventional resource plays.

PetroSkills Unconventional Resource Courses:
- Advanced Hydraulic Fracturing
- Applied Rock Mechanics
- Artificial Lift for Unconventional
- Basic Petroleum Engineering Practices
- Basic Petroleum Technology
- Basin Analysis Workshop: An Integrated Approach to the Exploration and Evaluation of Conventional and Unconventional Resources
- Coiled Methane Reservoirs
- Completions and Workovers
- Directional, Horizontal, and Multilateral Drilling
- Evaluating and Developing Shale Resources
- Foundations of Petrophysics
- Gas Production Engineering
- Horizontal and Multilateral Wells: Analysis and Design
- Horizontal and Multilateral Wells: Completions and Stimulation
- Hydraulic Fracturing Applications
- Introduction to Geomechanics for Unconventional Reservoirs
- Introduction to Well Test Design and Analysis
- Introduction to Fiber Optics for Well Surveillance
- Operations and Development of Surface Production Systems
- Petroleum Systems Analysis
- Petrophysics of Unconventional Reservoirs
- Production Operations 1
- Project Management in Upstream Field Development
- Reservoir Management for Unconventional Reservoirs
- Unconventional Resource and Reserve Evaluations
- Unconventional Resources Completion and Stimulation
- Use of Full Azimuth Seismic and Microseismic for Unconventional Plays
- Well Test Design and Analysis
- Well Design and Engineering

FOR MORE INFORMATION ON THESE PROGRAMS, VISIT US AT www.petroskills.com/unconventional
OR EMAIL US AT unconventional@petroskills.com | +1.918.828.2500 or 1.800.821.5933 (toll free North America)

Breakthroughs in technology have placed unconventional resources at the center of the US E&P and Midstream sector growth. Interest continues to expand internationally. PetroSkills Unconventional Resource offerings enable participants to develop and hone critical competencies associated with the development and management of shale oil/gas, tight gas, and coalbed methane resource plays. Challenges with developing unconventional resources require enhanced project management expertise, more cost-effective testing and completion protocol, enhanced production operations techniques, and greater efficiencies in the process and treating of produced fluids and gases.

Count on PetroSkills to help build your organizational capability in the Unconventionals.
Basic Petroleum Technology – BPT

**BASIC 5-DAY**

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

**YOU WILL LEARN**

- Historical petroleum occurrences and usage
- The objectives and processes of the exploration phase of the E&P asset life cycle
- The objectives, processes, and economic metrics of the appraisal phase of the E&P asset life cycle
- The relationship between depositional environments and geologic settings
- Exploration concepts
- Elements of a successful petroleum system
- Key differences between unconventional and conventional petroleum systems
- Features of structural control and isopach maps
- The basic reservoir rock properties and the significance of core samples
- The roles involved in exploration
- Rig type classification and selection for onshore and offshore drilling
- and more...

**COURSE CONTENT**

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

**2019-2020 Schedule and Tuition (USD)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSTON, US</td>
<td>7-11 OCT 2019</td>
<td>$4225</td>
</tr>
<tr>
<td>KUALA LUMPUR, MYS</td>
<td>19-23 NOV 2019</td>
<td>$4120</td>
</tr>
<tr>
<td>LONDON, UK</td>
<td>4-8 NOV 2019</td>
<td>$4035+WAT</td>
</tr>
<tr>
<td>NEW ORLEANS, US</td>
<td>20-24 APR 2020</td>
<td>$4255</td>
</tr>
<tr>
<td>OKLAHOMA CITY, US</td>
<td>3-7 JUL 2020</td>
<td>$4355</td>
</tr>
<tr>
<td>PITTSBURGH, US</td>
<td>22-26 JUN 2020</td>
<td>$4305</td>
</tr>
<tr>
<td>SINGAPORE</td>
<td>16-20 NOV 2020</td>
<td>$5225</td>
</tr>
</tbody>
</table>

Self-paced, virtual course - start anytime. Tuition US$3570

FOR MORE INFORMATION VISIT PETROSKILLS.COM/BPTONLINE
### Evaluating and Developing Shale Resources – SRE

#### FOUNDATION 5-Day

This course will cover current practices for evaluating, drilling, and completing these challenging reservoirs with the primary goal that all participants come away with a clear understanding of the role and value of every discipline in an integrated team. Discussions and exercises will include a focus on the limitations of many of the current tools and technologies. Information and opportunities for many current and future shale plays will be described. The participant should leave the course with a foundational understanding of value-adding shale gas resource practices and an insight into determining the critical reservoir and stimulation parameters used to predict a potential commercial resource play.

#### DESIGNED FOR

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

#### YOU WILL LEARN HOW TO

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

#### COURSE CONTENT

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

#### 2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSTON, US</td>
<td>10-14 AUG 2020</td>
<td>$4410</td>
</tr>
<tr>
<td>LONDON, UK</td>
<td>14-18 SEP 2020</td>
<td>$5135+VAT</td>
</tr>
<tr>
<td>MILAND, US</td>
<td>11-15 MAY 2019</td>
<td>$4335</td>
</tr>
<tr>
<td>DENVER, US</td>
<td>11-15 NOV 2019</td>
<td>$4320</td>
</tr>
<tr>
<td>9-13 NOV 2020</td>
<td>$4405</td>
<td></td>
</tr>
</tbody>
</table>

* plus computer charge

### Introduction to Fiber Optics for Well Surveillance – IFOS

#### FOUNDATION 3-Day

This course will give attendees an introduction to fiber optics sensing in reservoirs and wells. Attendees will gain an awareness of the types of fiber available, how it can be deployed, the range of measurements that can be made and how these can be applied to resolving common well and reservoir issues. The emphasis in the course will be on distributed measurements rather than point measuring sensors. The course will discuss the differences between the main types of fiber available, the underlying physics of the measurements, and the principles of operation for the different measurements and sensor types.

#### DESIGNED FOR

Petrophysicists, geologists, geophysicists, and other professionals who desire a thorough overview of shale resource development.

#### YOU WILL LEARN HOW TO

- Describe the fiber optic deployment options for your well
- Select the appropriate measurements for well and reservoir diagnostics
- Determine the optimal fiber interrogation units for your application
- Design a basic program for a fiber surveillance system
- Understand the physics behind distributed fiber measurements
- Perform basic distributed temperature and acoustic interrogations
- Integrate fiber with other data forms to generate robust well diagnostics

#### COURSE CONTENT

Basic fiber construction and manufacture; How fiber is selected for downstream service; The types of measurements that are commonly made with fiber; The differences between point measurements and distributed measurements; Different fiber deployment methodologies; Selection and performance characteristics of optical interrogation units; Principles behind distributed temperature interrogation (DTI); Principles of distributed acoustic interrogation (DAI); Integration of fiber with other data forms; Case examples with different fiber applications.

#### 2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSTON, US</td>
<td>11-15 MAY 2020</td>
<td>$4410</td>
</tr>
<tr>
<td>LONDON, UK</td>
<td>13-17 JULY 2020</td>
<td>$5325+VAT</td>
</tr>
<tr>
<td>29 SEP-2 OCT 2020</td>
<td>$5145+VAT</td>
<td></td>
</tr>
</tbody>
</table>

### Basic Petroleum Geology – BG

#### BASIC 5-Day

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

#### DESIGNED FOR

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

#### YOU WILL LEARN

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

#### COURSE CONTENT

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

#### 2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSTON, US</td>
<td>11-15 MAY 2020</td>
<td>$4420</td>
</tr>
<tr>
<td>LONDON, UK</td>
<td>13-17 JULY 2020</td>
<td>$5235+VAT</td>
</tr>
<tr>
<td>28 SEP-2 OCT 2020</td>
<td>$5145+VAT</td>
<td></td>
</tr>
</tbody>
</table>

### Basic Reservoir Engineering – BR

#### BASIC 5-Day

This course is designed to help the participants develop a more complete understanding of the characteristics of oil and gas reservoirs, from fluid and rock characteristics through reservoir definition, delineation, classification, development, and production. Data collection, integration, and application directed toward maximizing recovery and Net Present Value are stressed. Basic reservoir engineering equations are introduced with emphasis directed to parameter significance and an understanding of the results.

#### DESIGNED FOR

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

#### YOU WILL LEARN

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

#### COURSE CONTENT

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

### Cross-Training

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

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABU DHABI, UAE</td>
<td>9-13 DEC 2019</td>
<td>$4035+VAT</td>
</tr>
<tr>
<td>9-13 NOV 2020</td>
<td>$4045+VAT</td>
<td></td>
</tr>
<tr>
<td>6-10 OCT 2019</td>
<td>$3325+VAT</td>
<td></td>
</tr>
<tr>
<td>11-15 OCT 2019</td>
<td>$5445+VAT</td>
<td></td>
</tr>
<tr>
<td>14-18 DEC 2019</td>
<td>$5450+VAT</td>
<td></td>
</tr>
<tr>
<td>24-28 JAN 2020</td>
<td>$4295</td>
<td></td>
</tr>
<tr>
<td>12-16 JULY 2020</td>
<td>$4295</td>
<td></td>
</tr>
<tr>
<td>22-26 JUNE 2020</td>
<td>$4295</td>
<td></td>
</tr>
<tr>
<td>30 NOV-4 DEC 2020</td>
<td>$4310</td>
<td></td>
</tr>
</tbody>
</table>

### 2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABERDEEN, UK</td>
<td>9-13 DEC 2019</td>
<td>$4035+VAT</td>
</tr>
<tr>
<td>9-13 NOV 2020</td>
<td>$4045+VAT</td>
<td></td>
</tr>
<tr>
<td>6-10 OCT 2019</td>
<td>$3325+VAT</td>
<td></td>
</tr>
<tr>
<td>12-16 JULY 2020</td>
<td>$4295</td>
<td></td>
</tr>
<tr>
<td>22-26 JUNE 2020</td>
<td>$4295</td>
<td></td>
</tr>
<tr>
<td>30 NOV-4 DEC 2020</td>
<td>$4310</td>
<td></td>
</tr>
</tbody>
</table>

All classes available at your location. Contact us today.

+1.918.828.2500 | petroskills.com | +1.800.821.5933 (toll free North America)
### Foundations of Petrophysics – FPP

**FOUNDATION 5-Day**

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

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

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

---

### Mudlogging – MDLG

**FOUNDATION 5-Day**

Mud logging, also known as surface logging, is the creation of a detailed record of a borehole by examining the bits of rock or sediment brought to the surface by the circulating drilling medium (most commonly mud). Mud logging is usually performed by a third-party mud logging company. This provides well owners and producers with information about the lithology and fluid content of the borehole while drilling. Historically it is the earliest type of well log.

#### DESIGNED FOR
- New hire geologists and geophysicists; and reservoir, petroleum, and drilling engineers.

#### YOU WILL LEARN HOW TO
- Make well to well correlation
- Understand mud drilling
- Understand mud logging equipment
- Calculate the lag time and advanced volumes calculations
- Describe the formation cuttings
- Integrate the cuttings evaluation with the drilling parameters
- Interpret all the acquired geological and engineering data at the rig site
- Evaluate the hydrocarbon potential of the formation
- Deal with drilling mud rheology and hydraulics
- Handle, process and describe cores
- Evaluate different types of pressure
- Handle formation pressure to minimize borehole risks

#### COURSE CONTENT
- Introduction
- Petroleum geology
- Rig types and their components
- Drilling and completing a well
- Sampling and cuttings analysis
- Volume calculations
- Advanced sample evaluation
- Formation pressures
- Borehole problems

---

### Applied Rock Mechanics – ARM

**SPECIALIZED 3-Day**

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

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

#### YOU WILL LEARN HOW TO
- Determine the stress, strain, and failure mechanics of rocks
- Apply rock mechanics concepts and generate economic benefits in all phases of reservoir development

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

---

### Production Technology for Other Disciplines – PTO

**FOUNDATION 5-Day**

PTO is an asset team course, as it introduces a broad array of important daily Production Technology practices. Terminologies, expressions, axioms, and basic calculations regularly utilized by production technicians are covered. Emphasis is upon proven technology required to effectively develop and operate an asset in a multidiscipline development environment. Practical application of technology is emphasized. Nodal analysis examples to assess well performance are set up. Well completion equipment and tools are viewed and discussed. Exercises include, basic artificial lift designs, acidizing programs, gravel pack designs, and fracturing programs. Shale gas and oil development challenges are thoroughly explained. Horizontal and multilateral technology is presented.

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

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

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

---

**2019-2020 Schedule and Tuition (USD)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20 MAR 2020</td>
<td>HOUSTON, US</td>
<td>$4745</td>
</tr>
<tr>
<td>21-25 OCT 2019</td>
<td>KUALA LUMPUR, MYS</td>
<td>$5285</td>
</tr>
<tr>
<td>2-6 NOV 2020</td>
<td>LONDON, UK</td>
<td>$5100+VAT</td>
</tr>
<tr>
<td>2-6 DEC 2019</td>
<td>LONDON, UK</td>
<td>$5200+VAT</td>
</tr>
</tbody>
</table>

**2019-2020 Schedule and Tuition (USD)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20 MAR 2020</td>
<td>HOUSTON, US</td>
<td>$4745</td>
</tr>
<tr>
<td>21-25 OCT 2019</td>
<td>KUALA LUMPUR, MYS</td>
<td>$5285</td>
</tr>
<tr>
<td>2-6 NOV 2020</td>
<td>LONDON, UK</td>
<td>$5100+VAT</td>
</tr>
<tr>
<td>2-6 DEC 2019</td>
<td>LONDON, UK</td>
<td>$5200+VAT</td>
</tr>
</tbody>
</table>

**Virtual Delivery $4325**

PETROSKILLS.COM/VIRTUAL-PTO

---

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

PETROSKILLS.COM/FPPONLINE

---

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

**6 APR-3 JULY 2020**

**US$4325**

**31 AUG-27 NOV 2020**

**US$4325**

---

**2019-2020 Schedule and Tuition (USD)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-20 NOV 2019</td>
<td>HOUSTON, US</td>
<td>$3365</td>
</tr>
<tr>
<td>16-18 NOV 2019</td>
<td>HOUSTON, US</td>
<td>$3430</td>
</tr>
</tbody>
</table>

---

**2019-2020 Schedule and Tuition (USD)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-29 NOV 2019</td>
<td>KUALA LUMPUR, MYS</td>
<td>$2425</td>
</tr>
<tr>
<td>23-27 NOV 2020</td>
<td>THE HAGUE, NLD</td>
<td>$2365</td>
</tr>
<tr>
<td>11-15 MAY 2020</td>
<td>THE HAGUE, NLD</td>
<td>$1875</td>
</tr>
</tbody>
</table>

**Plus computer charge**
Production Operations 1 – PO1

FOUNDATION
10-Day

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

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

COURSE CONTENT

Importance of the geological model • Reservoir engineering fundamentals in production operations • Understanding inflow and outflow and applied system analysis • Well testing methods applicable to production operations • Well completion design and related equipment • Primary and remedial cementing operations • Perforating design and applications • Completion and workover well fluids • Well intervention: wireline, hydraulic workover units, and coiled tubing • Production logging • Artificial lift completions: rod pump, gas lift, ESP, PCP, plunger lift, and others • Problem well analysis • and more...

2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Start/End</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALGARY, CAN</td>
<td>25-31 MAY 2020</td>
<td>$7955+GST</td>
</tr>
<tr>
<td>DENVER, US</td>
<td>15-26 JUNE 2020</td>
<td>$7995</td>
</tr>
<tr>
<td>HOUSTON, US</td>
<td>28 OCT-5 NOV 2019</td>
<td>$7845</td>
</tr>
<tr>
<td></td>
<td>23 MAR-2 APR 2020</td>
<td>$7995</td>
</tr>
<tr>
<td></td>
<td>20-31 JULY 2020</td>
<td>$7995</td>
</tr>
<tr>
<td></td>
<td>9-20 NOV 2020</td>
<td>$7995</td>
</tr>
<tr>
<td>KUALA LUMPUR, MYS</td>
<td>7-18 OCT 2019</td>
<td>$9140</td>
</tr>
<tr>
<td></td>
<td>2-12 DEC 2019</td>
<td>$9895+VAT</td>
</tr>
<tr>
<td></td>
<td>17-28 AUG 2020</td>
<td>$9820+VAT</td>
</tr>
<tr>
<td>LONDON, UK</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>plus computer change</td>
<td></td>
</tr>
</tbody>
</table>

TO LEARN MORE, VISIT
PETROSKILLS.COM/PO1-BLENDED

Completions and Workovers – CAW

FOUNDATION
5-Day

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

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

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

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

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

2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Start/End</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABERDEEN, UK</td>
<td>23-27 MAY 2020</td>
<td>$5650+VAT</td>
</tr>
<tr>
<td>BAKERSFIELD, US</td>
<td>11-15 MAY 2020</td>
<td>$4790</td>
</tr>
<tr>
<td>CALGARY, CAN</td>
<td>10-14 JUN 2020</td>
<td>$4790+GST</td>
</tr>
<tr>
<td>COPENHAGEN, US</td>
<td>13-17 APR 2020</td>
<td>$4840</td>
</tr>
<tr>
<td>DUBAI, UAE</td>
<td>3-7 NOV 2019</td>
<td>$5990+VAT</td>
</tr>
<tr>
<td>HOUSTON, US</td>
<td>29 MAR-2 APR 2020</td>
<td>$6105+VAT</td>
</tr>
<tr>
<td></td>
<td>7-11 OCT 2019</td>
<td>$4700</td>
</tr>
<tr>
<td></td>
<td>2-6 MAR 2020</td>
<td>$4850</td>
</tr>
<tr>
<td></td>
<td>13-17 JUL 2020</td>
<td>$4850</td>
</tr>
<tr>
<td></td>
<td>18-22 OCT 2020</td>
<td>$4650</td>
</tr>
<tr>
<td>KUALA LUMPUR, MYS</td>
<td>24-28 AUG 2020</td>
<td>$5560</td>
</tr>
<tr>
<td>LONDON, UK</td>
<td>11-15 NOV 2019</td>
<td>$5540+VAT</td>
</tr>
<tr>
<td></td>
<td>9-13 NOV 2020</td>
<td>$5600+VAT</td>
</tr>
<tr>
<td>MIDLAND, US</td>
<td>1-5 JUNE 2020</td>
<td>$4790</td>
</tr>
</tbody>
</table>

+ plus computer charge
Formation Damage: Causes, Prevention, and Remediation – FD

INTERMEDIATE  5-Day

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

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

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

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

Horizontal and Multilateral Wells: Completions and Stimulation – HML2

SPECIALIZED  5-Day

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

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

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

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

Basic Petroleum Economics – BEC3

BASIC  3-Day

Could you answer the following three questions for your next project? What will it cost? What is it worth? Will it earn sufficient profit? Before undertaking any project, these questions should be answered, and this course will provide the fundamentals necessary to enable you to do so. Contractual arrangements, which also significantly impact the economic viability of a project, are covered. Participants practice cash flow techniques for economic evaluations and investigate frequently encountered situations. Each participant will receive Economics of Worldwide Petroleum Production, written specifically for PetroSkills courses.

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

YOU WILL LEARN HOW TO
• How to evaluate the economic viability of a project • Cash flow techniques applicable in economic evaluations • How to use economic criteria to choose investments • Models to weigh risk and uncertainty

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

Petroleum Risk and Decision Analysis – PRD

FOUNDATION  5-Day

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

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

YOU WILL LEARN HOW TO
• Describe the elements of the decision analysis process and the respective roles of management and the analysis team • Express and interpret judgments about risks and uncertainties as probability distributions and popular statistics • Represent discrete risk events in Venn diagrams, probability trees, and joint probability tables • Solve for expected values with decision trees, payoff tables, and Monte Carlo simulation (hand calculations) • Craft and solve decision models • Evaluate investment and production alternatives with decision tree analysis • Develop and solve decision trees for value of information (V0I) problems

COURSE CONTENT
Decision Tree Analysis: decision models, value of information (a key problem type emphasized in the course). Flexibility and control, project threats and opportunities • Monte Carlo Simulation: Latin hypercube sampling, portfolio 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 interactions • Basic Probability and Statistics: four fundamental rules including Bayes’ rule (the easy way), calibration and eliciting judgments, choosing distribution types, common misconceptions about probability • Evaluating a multi-pay prospect (team exercise), and more

2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSTON, US</td>
<td>18-22 NOV 2019</td>
<td>$4425</td>
</tr>
<tr>
<td>OKLAHOMA CITY, US</td>
<td>7-11 OCT 2019</td>
<td>$4470</td>
</tr>
<tr>
<td>SAN FRANCISCO, US</td>
<td>11-13 NOV 2019</td>
<td>$3145</td>
</tr>
<tr>
<td>LONDON, UK</td>
<td>1-5 JUNE 2020</td>
<td>$5235+vat*</td>
</tr>
</tbody>
</table>

*plus computer charge

2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSTON, US</td>
<td>2-6 DEC 2019</td>
<td>$4325</td>
</tr>
<tr>
<td>KUALA LUMPUR, MYS</td>
<td>7-11 DEC 2019</td>
<td>$4410</td>
</tr>
<tr>
<td>LONDON, UK</td>
<td>7-11 OCT 2019</td>
<td>$5325+vat*</td>
</tr>
</tbody>
</table>

*plus computer charge

+1.918.828.2500  |  petroskills.com  | +1.800.821.5933 (toll free North America)
All classes available at your location. Contact us today.
Applied Environmental Management Systems – AEM

FOUNDATION 5-Day

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

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

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

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

Applied Occupational Health and Safety Management Systems – HSM

FOUNDATION 5-Day

Every 15 seconds, somewhere in the world, a worker is killed and over 150 others are injured. Our members’ and clients’ experience is that committed application of an Occupational Health and Safety Management System (OHSMS) can reduce such incidents, while providing a platform for sustained cultural change. We call this ‘predict and prevent’ instead of the unstructured approach of ‘react and remedy.’ Participants will receive a template OH&S-MS manual for their own use as part of the study materials. This class provides a complete review of the new international standard for occupational health and safety management, ISO 45001:2018, as well as an overview of other common OH&S-MSs #6666, ILO OSH-2001, ILOP HSE-MS that can be aligned to organizations’ own systems. Over five days, the class works through a Plan, Do, Check, Act improvement cycle teaching the tools and techniques of excellent practice. The course includes a week-long practical implementation case study set in the fictional highly-realistic setting of oil products distribution company Melvis Group where the new learning is validated through application. Please see www.melvisgroup.com for more information.

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

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

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

2019-2020 Schedule and Tuition (USD)

LONDON, UK 25-29 NOV 2019 $5035+VAT

2019-2020 Schedule and Tuition (USD)

LONDON, UK 25-29 NOV 2019 $5035+VAT

“…the instructor provided a holistic and comprehensive perspective to the course material. He was very engaging, and taught with clarity through demonstrations.”

JESSICA  BASIC GEOPHYSICS • BGP • HOUSTON

“…definitely improved my knowledge on the subject and systematized all the previously known unsorted information.”

DIAS  3D SEISMIC ATTRIBUTES FOR RESERVOIR CHARACTERIZATION • SARC • HOUSTON

“The course was very interactive, engaging, and educative, especially with such an experienced instructor. He has vast knowledge in various fields in the oil industry.”

HABIB  PERFORMANCE ANALYSIS, PREDICTION AND OPTIMIZATION USING NODAL SIMULATION • PO2 • DUBAI

“The instructor was very knowledgeable and was effective in his demonstration of the material. He was great at providing relevant case histories and real life examples.”

DEPREK  BASIC DRILLING, COMPLETION AND WORKOVER OPERATIONS • BDC • BAKERSFIELD

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

PetroSkills®
### Petroleum Project Management: Principles and Practices – PPM

#### INTERMEDIATE 5-Day

Successful petroleum operations need a blend of technology, business savvy, and people skills. If you have a firm grasp of exploration or production technology, boost its impact by applying project management techniques. Running a staged program that integrates reservoir modelling, production estimating, drilling, and facility design is challenging. The tools and techniques covered in this course will help you meet that challenge. Upon completion you will know how to make better decisions in field development that lead to high value and low cost; develop integrated plans to run the overall program; and deliver key deliverables for each stage of development to reduce uncertainty. Instruction, guided discussions and in-depth work tasks are used. You may choose a case study from several real-life situations that are based on the instructor’s petroleum experience. Or you may bring the details of one of your own current programs.

#### DESIGNED FOR

Exploration and production personnel with a background in geoscience, petroleum engineering or drilling should attend. If you are a facilities engineer, we refer you to our Project Management for Engineering and Construction (PM22) and Project Management for Upstream Field Development (PM21) courses.

#### YOU WILL LEARN HOW TO

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

#### COURSE CONTENT

The staged development process • Scope definition • Scheduling tools • Manpower resources • Finding and mitigating risks • Learning, continuous improvement, and quality control • Project team management • Petroleum case studies and exercises

### Essential Leadership Skills for Technical Professionals – OM23

#### BASIC 5-Day

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

#### DESIGNED FOR

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

#### YOU WILL LEARN HOW TO

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

#### COURSE CONTENT

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

### Essential Technical Writing Skills – ETWS

#### BASIC 3-Day

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

#### DESIGNED FOR

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

#### YOU WILL LEARN HOW TO

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

#### COURSE CONTENT

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

### Team Leadership – TLS

#### FOUNDATION 2-Day

This program will develop and refine the skills essential for leading a high performance team. Emphasis is placed on the leader’s role in effectively enhancing total team functionality and maximum team productivity. Individual communication styles will be assessed and examined to identify the most appropriate communication style to use with your team. This will be an active experience. In addition to receiving individual assessment information, participants will be exposed to team concepts, theories, and skill development through the use of lectures, videos, readings, role plays, case studies, and discussions. This course has been constructed to maximize opportunity to improve both knowledge and practical skills in leading a team and being a team player. (This is a great course to attend immediately following PetroSkills’ course titled: Leading and Managing Others.) In addition to this program designed specifically for Team Leaders, PetroSkills has a 2-day course titled: Team Building for Intact teams.

#### DESIGNED FOR

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

#### YOU WILL LEARN HOW TO

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

#### COURSE CONTENT

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

### 2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSTON, US</td>
<td>4-8 NOV 2019</td>
<td>$4255</td>
</tr>
<tr>
<td>Kuala Lumpur, Malaysia</td>
<td>21-25 SEP 2019</td>
<td>$4525</td>
</tr>
<tr>
<td>London, UK</td>
<td>8-12 JUNE 2020</td>
<td>$3225 +VAT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENVER, US</td>
<td>16-20 SEP 2019</td>
<td>$4220</td>
</tr>
<tr>
<td>HOUSTON, US</td>
<td>26-30 OCT 2020</td>
<td>$4510</td>
</tr>
<tr>
<td>ORLANDO, US</td>
<td>30 NOV-4 DEC 2020</td>
<td>$4355</td>
</tr>
<tr>
<td>DENVER, US</td>
<td>14-18 SEP 2020</td>
<td>$4305</td>
</tr>
<tr>
<td>HOUSTON, US</td>
<td>22-26 APR 2019</td>
<td>$4225</td>
</tr>
</tbody>
</table>

*plus computer charge

See website for dates and locations.

2019-2020 Schedule and Tuition (USD)

<table>
<thead>
<tr>
<th>Location</th>
<th>Dates</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSTON, US</td>
<td>7-8 MAY 2020</td>
<td>$2645</td>
</tr>
</tbody>
</table>

All classes available at your location. Contact us today.
TO VIEW OUR COURSES IN OTHER DISCIPLINES, VISIT:

**Subsurface**
- Introductory and Multi-Discipline
- Geology
- Geophysics
- Petrophysics
- Reservoir Engineering
- Production and Completions Engineering
- Unconventional Resources
- Integrated - Heavy Oil
- Petroleum Data Management

**Facilities**
- Gas Processing
- Process Facilities
- Offshore & Subsea
- Pipeline Engineering
- Instrumentation, Controls & Electrical
- Mechanical Engineering
- Reliability Engineering
- Procurement/Supply Chain Management
- Refining

**Operations & Maintenance**

**Health, Safety, Environment**

**Petroleum Business and Professional Development**
- Petroleum Professional Development
- Petroleum Business
- Project Management

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

- **Reduced time to competency**
- **Eliminated travel expense**
- **Flexibility—less time away from work**
- **Learning applied at point of need**

**Courses Available Now:**
- Applied Reservoir Engineering
- Basic Drilling, Completion, and Workover Operations
- Basic Geophysics
- Basic Petroleum Technology Principles
- Basic Reservoir Engineering
- Basics of Rotating and Static Mechanical Equipment
- Casing Design Workshop
- Completions and Workovers
- Foundations of Petrophysics
- Gas Conditioning and Processing Principles
- NODAL Analysis Workshop
- Process Safety Engineering
- Production Logging
- Production Operations 1
- Production Technology for Other Disciplines
- Scale Identification, Remediation and Prevention Workshop

**Coming Soon:** Pipeline, Drilling Principles, Geomechanics, Petroleum Geology, and ICE.

For more information, please visit petroskills.com/blended