

PetroSkills[®]

2016 Well Construction/Drilling Training Guide



OGCI[®]

John M. Campbell

RDC

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. These matrices are ideal for building training plans for early-career staff or finding the right course to build upon existing knowledge and experience.

The first two courses in this section are 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** 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**. Also, be sure to check out our exciting new deepwater course **Deepwater Well Engineering - DWE**.

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

MR. PETER AIRD	MR. RICHARD CARDEN	MR. RAMSEY KOSTANDI	DR. LEON ROBINSON	MR. KEN TALBOT
DR. JJ AZAR	MR. KEVIN CUYLER	MR. STEVE MCKEEVER	DR. DON SCHMIDT	MR. BOB WESTERMARK
MR. JAMES BOBO	MR. KIRK HARRIS	MR. STEVE METCALF	DR. SUBHASH SHAH	MR. LARRY WOLFSON
MR. JERRY CALVERT	MR. AARON KLEIN	MR. HECTOR MORENO	MR. MARC SUMMERS	MR. DICK WRIGHT

		Well Construction / Drilling					Data Management Petroleum Business, and Professional Development	Health, Safety, Environment
		COMPLETIONS AND WORKOVER OPERATIONS	WELL DESIGN / PLANNING	WELLSITE OPERATIONS / SUPERVISION	WELL CONSTRUCTION MANAGEMENT	FIG SELECTION, PROCUREMENT LOGISTICS		
SPECIALIZED		APPLIED ROCK MECHANICS (PAGE 10)	HORIZONTAL AND MULTILATERAL WELLS: COMPLETIONS AND STIMULATION (PAGE 6)	SOLIDS CONTROL SYSTEMS (PAGE 5)				
				DRILL STRING DESIGN AND OPTIMIZATION (PAGE 5)	CEMENTING PRACTICES - CEMENTING II (PAGE 4)	MANAGING WELLSITE OPERATIONS (PAGE 5)	PRACTICAL DRILLING SKILLS (PAGE 5)	
INTERMEDIATE				DIRECTIONAL, HORIZONTAL, AND MULTILATERAL DRILLING (PAGE 4)	DEEPWATER WELL ENGINEERING (PAGE 4)		PETROLEUM PROJECT MANAGEMENT: PRINCIPLES AND PRACTICES (PAGE 11)	
	FORMATION DAMAGE (PAGE 8)							
FOUNDATION	FOUNDATIONS OF PETROPHYSICS (PAGE 9)		WELL DESIGN AND ENGINEERING (PAGE 2)	STUCK PIPE PREVENTION - TRAIN WRECK AVOIDANCE™ (PAGE 4)				
	PRODUCTION TECHNOLOGY FOR OTHER DISCIPLINES (PAGE 8)	EVALUATING AND DEVELOPING SHALE RESOURCES (PAGE 7)	FUNDAMENTALS OF CASING DESIGN (PAGE 3)				PETROLEUM RISK AND DECISION ANALYSIS (PAGE 11)	APPLIED ENVIRONMENT (PAGE 13)
	COMPLETIONS AND WORKOVERS (PAGE 8)	HORIZONTAL WELL PLACEMENT IN HEAVY OIL RESERVOIRS (PAGE 9)	PRIMARY CEMENTING - CEMENTING I (PAGE 3)				APPLIED HSE MANAGEMENT (PAGE 12)	
	PRODUCTION OPERATIONS I (PAGE 7)	MUDLOGGING (PAGE 9)	DRILLING FLUIDS TECHNOLOGY (PAGE 3)	DRILLING PRACTICES (PAGE 3)			TEAM LEADERSHIP (PAGE 11)	APPLIED SAFETY (PAGE 12)
BASIC		CASING AND CEMENTING (PAGE 2)	BASIC DRILLING, COMPLETION AND WORKOVER OPERATIONS (PAGE 6)				ESSENTIAL TECHNICAL WRITING SKILLS (PAGE 11)	
	BASIC PETROLEUM GEOLOGY (PAGE 9)		BASIC DRILLING TECHNOLOGY (PAGE 2)				ESSENTIAL LEADERSHIP SKILLS FOR TECHNICAL PROFESSIONALS (PAGE 10)	
	BASIC RESERVOIR ENGINEERING (PAGE 8)		BASIC PETROLEUM ENGINEERING PRACTICES (PAGE 6)				INTRODUCTION TO DATA MANAGEMENT (PAGE 10)	BASICS OF ENVIRONMENT (PAGE 12)
	EXPLORATION AND PRODUCTION PROCESS BASICS: UNDERSTANDING THE PETROLEUM INDUSTRY VALUE CYCLE (2 WEEKS) (PAGE 7)		BASIC PETROLEUM TECHNOLOGY (PAGE 6)				BASIC PETROLEUM ECONOMICS (PAGE 10)	BASICS OF HSE MANAGEMENT (PAGE 12)



Basic Drilling Technology – BDT

BASIC

FIELD TRIP

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

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

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

† includes field trip

Casing and Cementing

– CAC

BASIC

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

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

HOUSTON, US	15-19 AUG	US\$3940
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Well Design and Engineering – WDE

FOUNDATION

Well Design and Engineering integrates all major well design technologies from pre-spud 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 address 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 the teams 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 point 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 applications
- 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

2016 Schedule and Tuition / 10 Days

DUBAI, UAE	16-27 OCT	US\$8990
HOUSTON, US	15-26 FEB	US\$7430
	6-17 JUN	US\$7430
	22 AUG-2 SEP	US\$7430
	5-16 DEC	US\$7430
KUALA LUMPUR, MY	4-15 APR	US\$8660
LONDON, UK	1-12 AUG	US\$8530+VAT

Drilling Fluids Technology – DFT

FOUNDATION **LAB VISIT**

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.

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 API water-based mud and non-aqueous drilling fluids tests
- Evaluate the information on an API water-based and non-aqueous drilling fluid report
- Identify drilling fluid contaminants and prescribe corrective treatments
- Select water phase salinity and activity for bore hole stability
- Select non-aqueous fluids to meet drilling requirements and environmental concerns
- Manage non-aqueous drilling fluid systems
- Minimize formation damage to optimize well producibility

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

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, toolpushers, 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 penetration 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 • Lifting capacity of drilling fluids, pressure losses in the circulating system and ECD • Maximizing hydraulics 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

2016 Schedule and Tuition / 10 Days

DUBAI, UAE	4-15 DEC	US\$8980
HOUSTON, US	20 JUN-1 JUL	US\$7090
	17-28 OCT	US\$7090
LONDON, UK	4-15 APR	US\$8190+VAT

Fundamentals of Casing Design – FCD

FOUNDATION

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. Byrom'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

2016 Schedule and Tuition / 5 Days

HOUSTON, US	19-23 SEP	US\$4060*
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*plus computer charge

Primary Cementing – Cementing I – PCE

FOUNDATION **LAB VISIT**

Cementing is a key factor in the well construction plan. The base cement used in the designing 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

2016 Schedule and Tuition / 4 Days

DENVER, US †	16-19 AUG	US\$3755
HOUSTON, US †	3-6 OCT	US\$3745

† includes field trip

2016 Schedule and Tuition / 5 Days

HOUSTON, US †	28 MAR-1 APR	US\$4165
	5-9 DEC	US\$4165

† includes field trip

Stuck Pipe Prevention - Train Wreck Avoidance™ - SPP

FOUNDATION

The Stuck Pipe Prevention™ Train Wreck Avoidance workshop provides the most comprehensive coverage in the industry for understanding and preventing the underlying causes of Stuck Pipe, Wellbore Instability, Loss Circulation, and other sources of non-productive time (NPT) in drilling operations. The workshop also focuses on correct responses by individuals and teams, early warning signs, and minimizing the impact to drilling operations. Through world-class presentations, practical discussion, and the best reference and instructional materials available, delegates hone their knowledge of basic drilling technology and how it relates to avoiding NPT.

DESIGNED FOR

Entire drilling and completions team, including operator, drilling contractor, and service companies. Agendas are typically customized to address topics relevant to the team.

YOU WILL LEARN HOW TO

- Identify mechanisms and risk factors that lead to stuck pipe incidents
- Anticipate, prevent, recognize, and resolve stuck pipe due to wellbore instability, hole cleaning, differential sticking, and wellbore geometry
- Assess mechanics of wellbore stresses and the impact on wellbore stability
- Analyze trends to identify early warning signs of developing wellbore problems
- Use hole cleaning factors in both vertical and deviated wellbores
- Apply mechanics of jars and how to use them effectively
- Implement effective drilling and tripping practices
- Make cost-effective choices in planning fishing operations

COURSE CONTENT

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

Cementing Practices - Cementing II - CEP

INTERMEDIATE **LAB VISIT**

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

The overall cementing operation • Primary cementing • Remedial cementing • Plug cementing • The use of cement additives • Laboratory testing • Casing hardware • Cement sheath integrity • Cement sheath evaluation • Mixing equipment • Special cement systems • Cement guidelines • Current documents

2016 Schedule and Tuition / 5 Days

HOUSTON, US † 10-14 OCT US\$4265
† includes field trip

Deepwater Well Engineering - DWE

INTERMEDIATE **NEW**

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.

DESIGNED FOR

Experienced drilling engineers, drilling supervisors, and other 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 recommended as a prerequisite.

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, salt, 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; 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 riserless and post-riser phases of well construction
- Define drilling fluids for a DW well; assess and address any unique issues
- Compile 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 drillstring 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

2016 Schedule and Tuition / 5 Days

HOUSTON, US 28 MAR-1 APR US\$4140*
*plus computer charge

Directional, Horizontal, and Multilateral Drilling - DHD

INTERMEDIATE

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/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

Drilling, 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 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 underbalanced
- 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

2016 Schedule and Tuition / 5 Days

HOUSTON, US 7-11 MAR US\$4140
28 NOV-2 DEC US\$4140

2016 Schedule and Tuition / 3 Days

HOUSTON, US 14-16 NOV US\$3015

Drill String Design and Optimization – DSD

INTERMEDIATE

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.

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

Drill string and BHA failure prevention • Low-angle design applications • High-angle design applications • Torque, drag, and casing wear mitigation • Vibration monitoring and avoidance • Drill string handling and inspection

Managing Wellsite Operations – MWC

INTERMEDIATE

Managing Wellsite Operations teaches participants to apply organizational learning processes, wellsite technical limits analysis, and more efficient use of all resources at the wellsite. Good well planning is essential. However, in spite of very good planning and design there exist geological and reservoir uncertainties, surface and downhole environmental constraints, failed equipment, and misunderstood practices coupled with inexperienced wellsite personnel that are creating unsafe work conditions and driving up drilling cost. This course brings together a documented planning and design process, maximizes drilling efficiency, and transfers the execution plan to the wellsite for implementation. Participants will learn to build effective teams by using a case study and applying the skills of the company representative, drilling contractor, and service company personnel. Critical issues are identified and analyzed to maximize safety and reduce drilling costs. Similarly, engineering, technical service, and drilling contract personnel learn to analyze inefficient practices at the wellsite and utilize their newfound skills to improve the operation. Drilling organizations are using new and complex drilling technology to maximize return on capital costs. Combine the known variables with the influx of inexperienced personnel in the planning, design, and execution phases and you have high cost and unsafe operations at the wellsite. Mastering the drilling operations at the wellsite will reduce costs, improve drilling budgets, and maximize resources.

DESIGNED FOR

Operations managers, drilling managers, drilling superintendents, drilling supervisors, wellsite drilling engineers, rig managers, rig superintendents, contract drilling engineers.

YOU WILL LEARN HOW TO

- Define a well's technical limit and implement a plan that will work to reach it
- Identify and mitigate hidden risks to reduce lost time
- Apply practical organizational learning techniques to benefit from lessons learned
- Build effective rig site teams

COURSE CONTENT

Critical elements of effective planning and management of drilling operations • Design and implement a program checklist for critical well drilling operations • Investigate various elements of a drilling operation and mitigate visible and hidden risk • Investigate and perform an analysis of trouble time events, non-productive time occurrences, and invisible lost time for a drilling operation • Dissect the drilling plan and apply total task analysis to wellsite activities • Enhance your knowledge of organizational learning systems and transfer lessons learned • Perform technical limit analysis to improve wellsite performance • Measure and performance monitoring of the drilling operation • Maximize the inexperienced resources through total task analysis in a case study to reduce drilling costs and improve safety

Practical Drilling Skills

– PDS

INTERMEDIATE

This course teaches how to listen to the well, perform simple tests on the rig, and make proper decisions unique to each well. The intent is to eliminate visible and invisible Non-Productive Time (NPT). Visible NPT includes stuck pipe, conditioning drilling fluid, lost circulation, etc. Invisible NPT is often far more expensive and includes drilling much slower than is possible, wearing out the bits prematurely, and bad cement barriers.

Considerable attention is devoted to correcting drilling fluid properties and controlling filter cake quality. This eliminates many seen and unseen obstacles for drilling a trouble-free hole as cheaply as possible. This involves proper drilling fluid processing in the surface tanks. No discussion will be presented of fishing tools—they should rarely be needed after this course. Bring a calculator—you will need it.

DESIGNED FOR

Experienced people on drilling rigs who want to drill cheaper, specifically drilling rig personnel, drilling engineers, drilling rig supervisors, tool pushers, drilling managers, and service company personnel. This course is NOT recommended for inexperienced personnel or people not directly involved with actual drilling operations. You should have completed the Basic Drilling Technology course or have several years of drilling experience to gain the most from the course.

YOU WILL LEARN HOW TO

- Calibrate a mud logger's gas unit curve
- Interpret gas unit curves
- Determine pore pressure
- Select the correct nozzle sizes and flow rate to make the fluid strike the bottom of the hole with the greatest force possible or the greatest power available
- Select drilling fluid yield point needed to clean the vertical portion of the well
- Extend the life of drill bits and have the maximum drilling rate by determining the flounder point of a roller cone or PDC bit
- Avoid poor cementing jobs by creating a thin, slick, compressible filter cake
- Decrease vibration which seriously impacts PDC bit performance by eliminating drilled solids
- Arrange equipment for a proper PIT
- Read Pressure Integrity charts
- Evaluate dull bits to select the best next bit
- Understand well bore instability

COURSE CONTENT

Interpretation of mud logger gas units • Determining pore pressure • On-site hydraulic optimization • Selecting proper bit loading (weight on bit and rotary speed) for the fastest, cheapest hole • Interpreting pressure integrity tests • Hole problems (such as, stuck pipe, lost circulation, and ballooning) • Borehole stability • Operating guidelines • Drilling fluid properties necessary to maximize drilling performance • Discussion of polymers in drilling fluids • Solids control equipment arrangement to assure best drilled solids removal

Solids Control Systems

– SCS

SPECIALIZED

Drilling fluids containing too many drilled solids increase trouble costs or visible and invisible Non-Productive Time [NPT]. Invisible NPT relates to drilling performance, excessive volumes of drilling fluid, as well as cementing problems and barrier failure.

All drilling fluid surface treatment systems should have three identifiable sections: Suction, Addition, and Removal. The suction section must blend the fluid so that the mud weight in the drill pipe is the same from top to bottom for reliable well control. Tank volumes, agitation, mud guns, and additional procedures are discussed to ensure a homogeneous fluid.

Drilled solids are easier to remove when they are large. Solids control starts with cuttings removal at the drill bit to eliminate regrinding and reduced drilling rate. Removal of drilled solids requires an understanding of the performance of shale shakers, hydrocyclones, mud cleaners, and centrifuges.

Analysis procedures applicable for all drilling rigs, large and small, as well as any drilling fluid, will be discussed. Procedures will be presented to determine the optimum drilled solids removal efficiency for each target drilled solids concentration.

DESIGNED FOR

Only people interested in eliminating non-productive time while drilling; such as: drilling engineers, drilling rig supervisors, tool pushers and drilling managers.

YOU WILL LEARN HOW TO

- Evaluate effect of drilled solids on total cost
- Remove drilled solids from beneath the drill bit
- Transport drilled solids to surface
- Component arrangement of drilling fluid processing plant for proper performance
- Determine Equipment Solids Removal Efficiency of system
- Understand the new API RP 13C (Solids Control)
- Evaluate effect of drilled solids on drilling fluid properties
- Minimize volume of discarded drilling fluid

COURSE CONTENT

Analysis of different aspects of drilling affected by drilled solids • Solids transport capabilities of a drilling fluid • How shale shakers, hydrocyclones and centrifuges separate drilled solids • The new API shaker screen designation and how it works • Equipment arrangement on a drilling fluid processing plant • Mud tank agitation • Mud gun placement • Degasser operation and objective • Guidelines for effective drilled solids removal • Developing a thin, slick compressible filter cake in a well bore, maintaining a homogeneous fluid to fill drill pipe

2016 Schedule and Tuition / 5 Days

HOUSTON, US 11-15 JUL US\$4215

2016 Schedule and Tuition / 5 Days

HOUSTON, US 22-26 FEB US\$4140
12-16 SEP US\$4140

See website for dates and locations.

See website for dates and locations.

Basic Petroleum Engineering Practices

– BE

BASIC

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

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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

Basic Drilling, Completion and Workover Operations – BDC

BASIC

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

No experience or prerequisites required.

Learn to communicate with drilling and production personnel.

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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

Horizontal and Multilateral Wells: Completions and Stimulation – HML2

SPECIALIZED

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

Basic Petroleum Technology – BPT

BASIC

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

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

2016 Schedule and Tuition / 5 Days

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

2016 Schedule and Tuition / 5 Days

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

*plus computer charge

2016 Schedule and Tuition / 5 Days

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

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

BASIC

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

DESIGNED FOR

Newly-hired engineers and geoscientists.

YOU WILL LEARN

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

COURSE CONTENT

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

Evaluating and Developing Shale Resources – SRE

FOUNDATION

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

*plus computer charge

Production Operations 1 – PO1

FOUNDATION

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 10 Days

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

2016 Schedule and Tuition / 10 Days

HOUSTON, US	16-21 MAY	US\$6890*
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*plus computer charge

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Completions and Workovers – CAW

FOUNDATION

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

Production Technology for Other Disciplines – PTO

FOUNDATION

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

*plus computer charge

Formation Damage: Causes, Prevention, and Remediation – FD

INTERMEDIATE

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

Basic Reservoir Engineering – BR

BASIC

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

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

Basic Petroleum Geology – BG

BASIC

FIELD TRIP

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

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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

Mudlogging – MDLG

FOUNDATION

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 well 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

Horizontal Well Placement in Heavy Oil Reservoirs – HOWP

FOUNDATION

Conventional hydrocarbon resources are becoming more and more elusive with each passing year. Many oil and gas companies are reverting to heavy oil or bitumen as 'Resource' plays to be exploited. Often, the technical challenge lies in how best to extract the reserves. Optimal placement of a horizontal or deviated wellbore can impact the economics significantly. This course uses real examples to demonstrate some of the challenges faced, and progressive group and team exercises to learn the skills needed to plan and coordinate the geological aspects of horizontal drilling.

DESIGNED FOR

Geoscientists, technologists, and/or junior engineers involved in planning and implementing deviated or horizontal drilling programs.

YOU WILL LEARN HOW TO

- Distinguish and understand which information is pertinent when working with drillers to plan your well path
- Communicate effectively as part of a multidisciplinary team in order to make timely, effective decisions, then implement them
- Interpret surveys and log data in real time during drilling in order to understand the position of your well versus the planned trajectory, and/or the planned position within the reservoir
- Compare the resulting logs against modelled responses in order to determine whether your current well path needs to be adjusted
- Evaluate the resulting data set to prepare recommendations for placement of perforations post drill

COURSE CONTENT

Fundamentals of directional drilling with mud motors • Bent housing vs. rotary steerable systems • Measurement While Drilling tools • Surveys and ellipse of uncertainty • Logging While Drilling tools • Dogleg severity • Target planning and 'Geo-Steering' • Landing intermediate • Modifying horizontal targets • Class and team example • Post well review and perforation discussion

Foundations of Petrophysics – FPP

FOUNDATION

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

† includes field trip

See website for dates and locations.

See website for dates and locations.

2016 Schedule and Tuition / 5 Days

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

Applied Rock Mechanics – ARM

SPECIALIZED

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

Basic Petroleum Economics – BEC3

BASIC

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

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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

2016 Schedule and Tuition / 3 Days

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

Introduction to Data Management – IDM

BASIC

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

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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

Essential Leadership Skills for Technical Professionals – OM23

BASIC

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

See website for dates and locations.

2016 Schedule and Tuition / 3 Days

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

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Essential Technical Writing Skills – ETWS

BASIC

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 3 Days

HOUSTON, US 11-13 APR US\$2955

Team Leadership – TLS

FOUNDATION

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

Petroleum Risk and Decision Analysis – PRD

FOUNDATION

Good technical and business decisions are based on competent analysis of project costs, benefits and risks. Participants learn the decision analysis process and foundation concepts so they can actively participate in multi-discipline evaluation teams. The focus is on designing and solving decision models. Probability distributions express professional judgments about risks and uncertainties and are carried through the calculations. Decision tree and influence diagrams provide clear communications and the basis for valuing each alternative. Monte Carlo simulation is discussed and experienced in detail in a hand-calculation exercise. Project modeling fundamentals and basic probability concepts provide the foundation for the calculations. Emphasis is on practical techniques for immediate application.

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

Decision Tree Analysis: decision models, value of information, flexibility and control, project threats and opportunities • Monte Carlo Simulation: Latin hypercube sampling, portfolio problems, optimization, advantages and limitations • Decision Criteria and Policy: value measures, multiple objectives, HSE, capital constraint, risk aversion • Modeling the Decision: influence diagrams, sensitivity analysis, modeling correlations • Basic Probability and Statistics: four fundamental rules including Bayes' rule, calibration and eliciting judgments, choosing distribution types, common misconceptions about probability • Expected Value Concept: foundation for decision policy, features, pitfalls to avoid • Implementing Decision Analysis: problem framing, guidelines for good analysis practice, team analyses, computer tools (discussion and demonstrations), mitigating risks • Evaluating a multi-pay prospect (team exercise)

2016 Schedule and Tuition / 5 Days

HOUSTON, US	11-15 APR	US\$4040
	11-15 JUL	US\$4040
	28 NOV-2 DEC	US\$4040
KUALA LUMPUR, MY	22-26 AUG	US\$4835
LONDON, UK	10-14 OCT	US\$4670+VAT

Petroleum Project Management: Principles and Practices – PPM

INTERMEDIATE

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

*plus computer charge

See website for dates and locations.

Basics of Environment

– HS13

BASIC

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

DESIGNED FOR

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

YOU WILL LEARN

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

COURSE CONTENT

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



2016 Schedule and Tuition / 5 Days

LONDON, UK	6-10 JUN	US\$4770+VAT
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Basics of HSE Management

– HS18

BASIC

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

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

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

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

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

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

DESIGNED FOR

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

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

YOU WILL LEARN

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

Applied Safety – HS20

FOUNDATION

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

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

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

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

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

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

DESIGNED FOR

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

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

Applied HSE Management

– HS28

FOUNDATION

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

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

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

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

DESIGNED FOR

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

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

Applied Environment

– HS23

FOUNDATION

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

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

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

DESIGNED FOR

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

YOU WILL LEARN HOW TO

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

COURSE CONTENT

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

2016 Schedule and Tuition / 5 Days

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

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