PetroSkills Petroleum Data Management course offerings will continue to grow in the near future with more courses and a broader range of subject matter. Wise business decisions depend on sound data and information, therefore good data management is increasingly being seen as a competitive advantage to companies across the E&P industry. The initial course in this offering, **Introduction to Data Management – IDM**, will provide participants with a thorough understanding of the data management issues and challenges affecting companies in today’s competitive marketplace.

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

<table>
<thead>
<tr>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>Mr. Michael Barnes</td>
</tr>
<tr>
<td>Ms. Fiona Buckingham</td>
</tr>
<tr>
<td>Mr. Ian Jones</td>
</tr>
<tr>
<td>Mr. Simon Kettle</td>
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<tr>
<td>Mr. Mike Phillips</td>
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<tr>
<td>Dr. Martin Rayson</td>
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<tr>
<td>Dr. Devlyn Robson</td>
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<tr>
<td>Ms. Sharon Smith</td>
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</tbody>
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### Petroleum Data Management Course Progression Matrix:

<table>
<thead>
<tr>
<th>Production, Drilling, and Surface Facilities</th>
<th>Reservoir and Petrophysics</th>
<th>Geology and Geophysics</th>
<th>Petroleum Data Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Reservoir Engineering</td>
<td>Introduction to Data Management</td>
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<tr>
<td>Basic Geophysics</td>
<td>ArcGIS Essentials for Petroleum</td>
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<tr>
<td>Basic Drilling Technology</td>
<td>ArcGIS Coordinate Reference Systems for Petroleum</td>
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<tr>
<td>Basic Petroleum Geology</td>
<td>Geomatics: Geodesy and Cartography</td>
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<tr>
<td>Reservoir Engineering for Other Disciplines</td>
<td>Seismic Positioning Data Management</td>
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<tr>
<td>Completions and Workovers</td>
<td>Integration of Rocks, Log and Test Data</td>
<td></td>
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</tbody>
</table>

**Apply HSE Management**: (Page 8)

- Applied HSE Management

**Applied Safety**: (Page 8)

- Applied Environmental Management

**Applied Environmental Management**: (Page 8)

- ArcGIS Data Management for Petroleum (Page 3)

**Essential Leadership Skills for Technical Professionals**: (Page 7)

- Essentials of HSE Management

**Essential Technical Writing Skills**: (Page 7)

- Basics of HSE Management

**Health, Safety, Environment**: (Page 8)

- Team Leadership (Page 7)
Introduction to Data Management – IDM

**BASIC 2-Day**

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

Geomatics: Geodesy and Cartography – GEOM1

**FOUNDATION 2-Day**

Use of incorrect geodetic parameters can cause major errors in positions of wells, pipelines, and seismic surveys, with significant financial losses and sometimes with HSE risks, as demonstrated by case studies. Awareness of geodetic datums, coordinate reference systems, and map projections is provided via interactive demonstrations and hands-on workshops. Use of incorrect geodetic parameters is examined with focus on its strengths and weaknesses for E&P purposes. Lastly, the importance of geospatial metadata is stressed, since often such metadata is implemented at the end of a project. This critical geospatial data component is discussed with recommendations for “best practices” using current industry references.

**DESIGNED FOR**

Geologists, geophysicists, exploration and production managers, reservoir engineers, drilling engineers, data acquisition and data managers, and GIS specialists.

**YOU WILL LEARN**

- To identify “bad” geodetic parameters within your project data, and ensure that geodetic parameters provided to you are correct
- Advantages and disadvantages of using various map projections
- To apply this course to projects in your specific geoscience software applications
- Evaluation of geospatial metadata in your projects; learn how to generate good geospatial metadata
- The limitations on “reasonable use” of Google Earth for your own applications
- The accuracy limits of different types of GNSS/GPS receivers and technology

**COURSE CONTENT**

- How much trouble coordinate errors can cause (with case studies) • Key geomatics/geodesy definitions • Geodetic datums, coordinate reference systems, and transformations • Global Navigation Satellite Systems (GNSS), including GPS • Map projection methods • What is “North”? • Effects of different linear units • Vertical datums, geoidal models, vertical CRS, and transformations • Google Earth and associated geospatial data issues • Geospatial metadata: what is it and how can it be made part of the normal workflow process • Recap and course references

Seismic Positioning Data Management – SPDM

**FOUNDATION 2-Day**

While both seismic navigation and trace data topics are covered, there is a greater focus on the geo-spatial component of trace data, with respect to navigation and positioning. The course will provide insight into geodetic considerations to ensure removal of geo-spatial data ambiguity using case studies of data acquisition, processing, data loading, and proposed well location selection. Preservation of metadata and compliance to international standards in data exchange provide the integrity backbone to enhancing data quality and removing any ambiguity with respect to georeferencing and legal ownership. Ensuring interpreters interpret and are not deviated from their activities by having to resolve mis-ties within the data is key to enhancing efficiency at a critical stage of the project cycle.

**DESIGNED FOR**

This course is aimed at a wide audience and will be of particular benefit to technicians, data loaders, and data analysts. Those involved with seismic data processing can preserve data quality and obtain geo-spatially accurate imaging of subsurface features by applying techniques covered in the course. Asset team members responsible for maintaining seismic data and data loading workstations can enhance their processes by applying techniques covered.

**YOU WILL LEARN HOW TO**

- Assess data quality and manage seismic trace and navigation data related to seismic data acquisition, processing and data loading
- Apply best practices to enhance and preserve data integrity and ensure seismic data sets are fit for purpose and do not contain geophysically significant errors
- Preserve metadata and maintain compliance with international standards for data exchange

**COURSE CONTENT**

Seismic navigation data principles • Basic geodesy • 2D data loading exercises • Data quality control and practical examples thereof • 2D data editing and exporting • 3D bin grid data definitions and exercises for importing, analyzing, editing, and exporting • Applied geodesy (Introduction to EPSG database) • Trace data Licensing • Acquisition • Storage • Import and quality assessment • Formats and conversions • Best practices

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### Technical Resources Available to You

Keep current and ensure you always have the latest information by joining our email list.

**You Will Receive:**

- Complimentary learning and development resources
- Information on new courses and instructors
- Additional public course locations and dates
- Invitations for PetroSkills events and conferences

Simply go to petroskills.com/EmailSignUp
ArcGIS Coordinate Reference Systems for Petroleum – GISC

FOUNDATION 1-Day

With a view to encouraging good practice within the oil and gas exploration and production (E&P) sector, the emphasis in this course is on developing the ArcGIS Desktop skills you need to successfully manage coordinate reference systems (CRS) issues within ArcView. All spatial data is concerned with location on the surface of the earth and this “position” is governed by the parameters of the CRS employed. If you do not manage coordinate reference systems correctly, your data could be incorrectly located with the potential for costly disasters and mistakes, such as drilling in the wrong location, damage to existing infrastructure, incorrect positioning of geohazards, interpretation and modeling in wrong location, and incorrect reserves calculation.

DESIGNED FOR
Data management, IT, geoscience, and other professionals and support staff who are going to be building and managing spatial data for specific projects, assets, or company-wide data stores and need to be able to acquire the relevant ArcGIS skills and knowledge.

YOU WILL LEARN HOW TO
• Explore the benefits in applying Geographic Information Systems (GIS) to your petroleum workflows
• Utilize ArcGIS functionality to import spatial and non-spatial databases, integrate, manage, and analyze data to produce information for decision making
• Use industry standard ArcGIS tools, including ArcMap, ArcCatalog, and ArcToolbox
• Develop the ArcGIS skills required to manage coordinate reference systems
• Better understand petroleum CRS sector standards
• Understand the workflows required to undertake datum transformations
• Work through common problems encountered in oil and gas and develop a strategy for dealing with these issues

COURSE CONTENT
Properties of coordinate reference • Systems map projections and the ArcMap Data Frame • Exporting and projecting vector data • Raster datasets and coordinate reference systems • Datum transformations • The EPSG Geodetic Parameter Dataset

ArcGIS Data Management for Petroleum – GISD

SPECIALIZED 2-Day

This course takes you through the development of oil and gas exploration and production (E&P) spatial data infrastructure. Using ArcGIS Desktop tools, you will be guided through the hands-on process of structuring and loading an E&P GIS using a realistic collection of oil, surface, and subsurface data sources from an operating field. You will also develop an understanding of how to implement metadata in a petroleum-focused spatial data infrastructure. This course focuses on the management of a spatial data infrastructure and is geared towards helping you develop the skills needed to manage data quality and refresh datasets without compromising the integrity of the data store. Participants with GIS expertise but who are new to the oil and gas sector will gain a more thorough understanding of the spatial data management issues.

DESIGNED FOR
Data management, IT, geoscience, and other professionals and support staff who are going to be building and managing spatial data infrastructure for specific projects, assets, or company-wide data stores, and need to be able to acquire the relevant ArcGIS skills and knowledge.

YOU WILL LEARN HOW TO
• Explore the benefits in applying Geographic Information Systems (GIS) to your petroleum workflows
• Utilize ArcGIS functionality to import spatial and non-spatial databases, integrate, manage, and analyze data to produce information for decision making
• Use industry standard ArcGIS for Desktop tools, including ArcMap, ArcCatalog, and ArcToolbox
• Automate E&P workflows through ArcGIS using batch processing, Model Builder, and ArcPy
• Use oil field datasets to build a working GIS
• Encounter and deal with common data management issues

COURSE CONTENT
Build an E&P GIS Spatial Data Infrastructure (SDI) • Create and load a geodatabase, feature datasets, feature classes, and a raster catalogue • Import well, lease, seismic, and raster data • Generate and update metadata • Check and improve the quality of spatial data • Manage and archive an SDI • Discuss how ArcGIS interfaces with third party systems

ArcGIS Essentials for Petroleum – GISE

FOUNDATION 2-Day

This is an entry-level course that teaches you how to use Esri’s ArcGIS Desktop within oil and gas exploration and production activities, using petroleum industry spatial data and workflows. This course allows you to explore the benefits in applying Geographic Information Systems (GIS) to your petroleum workflows. You will be introduced to fundamental ArcView functionality that allows geoscientists to import spatial and non-spatial databases, and integrate, manage, and analyze data to produce information for decision making. No geospatial knowledge is assumed beyond that acquired through the use of geological maps. Although petroleum exploration and production (E&P) sector knowledge is not required, this course is geared towards assisting participants to implement E&P workflows geospatially.

DESIGNED FOR
Geoscience professionals and support staff who are going to be using GIS tools, and E&P project staff who need a basic understanding of GIS in order to manage geospatial projects.

YOU WILL LEARN HOW TO
• Explore the benefits in applying Geographic Information Systems (GIS) to your petroleum workflows
• Utilize ArcGIS functionality to import spatial and non-spatial databases, and integrate, manage, and analyze data to produce information for decision making
• Use industry standard ArcGIS tools, including ArcMap, ArcCatalog, and ArcToolbox
• Focus on learning how to put E&P workflows through ArcGIS
• Set up an E&P project
• Join spatial data to a well database
• Create a well layer from tabular X and Y coordinates
• Digitize a fault map and edit a play fairway map
• Undertake spatial and attribute queries
• Export data into a number of formats
• Produce professional map layouts
• Update a play fairway and assess potential acreage

COURSE CONTENT
Setting up an E&P project • Managing E&P data layers • Georeferencing images • Joining spatial data to tabular well data • Linking spatial data to a well database • Creating simple hyperlinks • Building hyperlinks in an attribute table • Digitizing a fault map • Editing a simple play fairway • Spatial data queries • Attribute query with SQL • Simple spatial data analysis • Exporting attribute tables • Producing map layouts • Exporting map images • Updating the play fairway • Assessing potential acreage
Overview of the Petroleum Industry – OVP

BASIC 2-Day

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

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

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

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

2017 Schedule and Tuition (USD)
HOUSTON, US 10-14 JUL $3940
16-20 OCT $3940
KUALA LUMPUR, MY 4-8 DEC $4570+VAT
LONDON, UK 6-10 NOV $4570+VAT

Basic Petroleum Technology – BPT

BASIC 5-Day

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

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

YOU WILL LEARN
• The E&P Process, the role of each technical department and specialist, and the technologies used.
• The economic value and properties of reservoir fluids.
• Petroleum geology for exploration and production.
• About petroleum reservoirs - conventional and unconventional.
• Exploration and appraisal technologies.
• Drilling operations for exploration, development and production.
• Production - well completions and production technology.
• Reservoir recovery mechanisms through primary, secondary and tertiary recovery.
• Surface processing of produced fluids.

COURSE CONTENT
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.

2017 Schedule and Tuition (USD)
HOUSTON, US 10-14 JUL $3940
16-20 OCT $3940
KUALA LUMPUR, MY 4-8 DEC $4570+VAT
LONDON, UK 6-10 NOV $4570+VAT


BASIC 10-Day

This workshop describes the petroleum value chain from prospect identification, to project 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 discussion 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.
• 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.

2017 Schedule and Tuition (USD)
HOUSTON, US 17-21 JUL $4115
13-17 NOV $4115
LONDON, UK 18-22 SEP $4570+VAT
† includes field trip

Basic Drilling Technology – BDT

BASIC 5-Day

This 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 regardless of academic background. The overall drilling process is presented along with definitions and descriptions of drilling equipment. This provides the vocabulary to understand the drilling process. 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 drilling include mathematical explanations for those involved with the engineering aspects of drilling operations; however, some concepts and intent of these mathematical equations will 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.
• How to plan a successful well.
• Common drilling problems and avoiding them.
• How to read a morning report.
• Technology behind info in a morning report.

COURSE CONTENT
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 • Mud control • Well control • Drilling fluid properties • Well control • Cementing • Casing design • Hole problems (stuck pipe, lost circulation) • Well control • Directional drilling operations and tools • Safety.
Completions and Workovers – CAW

FOUNDATION 5-Day

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

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

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

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

2017 Schedule and Tuition (USD)

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<th>Tuition</th>
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<td>23-27 OCT</td>
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<td>KUALA LUMPUR, MYS</td>
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<td>LONDON, UK</td>
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<tr>
<td>MIDLAND, US</td>
<td>5-9 JUN</td>
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Production Technology for Other Disciplines – PTO

FOUNDATION 5-Day

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

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

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

COURSE CONTENT
Role and tasks of production technology • Completion design • Inflow and outflow performance • Artificial lift well completion systems (bear 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

2017 Schedule and Tuition (USD)

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<td>THE HAGUE, NLD</td>
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Basic Reservoir Engineering – BR

BASIC 5-Day

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. For nearly 30 years this has been one of our most popular and successful courses.

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

YOU WILL LEARN
• How to collect and analyze the data needed for reservoir engineering tasks
• 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 • Darcy’s law 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

2017 Schedule and Tuition (USD)

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Foundations of Petrophysics – FPP

FOUNDATION 5-Day

NEWLY REVISED

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

2017 Schedule and Tuition (USD)

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<td>LONDON, UK</td>
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PetroSkills® PetroAcademy®
PETROSKILLS.COM/BLENDED
Reservoir Engineering for Other Disciplines – REO

FOUNDATION 5-Day

This course gives the non-reservoir engineer a better understanding of reservoir engineering practices and limitations. The course is designed to provide a good understanding of reservoir engineering processes, the required data, and the limitations on the engineers’ analysis and interpretations. The course also provides persons who are already well trained in the other upstream petroleum industry technical disciplines with an understanding of the current state-of-the-art practice of reservoir engineering.

DESIGNED FOR
Engineers and geoscientists now working in an asset environment where they need to better understand the practices and limitations of the methods and procedures employed by the reservoir engineers with whom they work. Participants should have three or more years of technical experience in the upstream petroleum industry.

YOU WILL LEARN HOW TO
• Utilize the tools and techniques of the reservoir engineer
• Apply the principles of reservoir engineering
• Develop reservoir well performance and asset management options

COURSE CONTENT
Distribution of Reservoir Properties: structure, fluid contacts, water saturation, and pressure • Rock Properties: porosity, permeability, capillary pressure, and relative permeability • Fluid Properties: phase behavior of reservoir fluids; properties of gas, oil, and water; PVT Sampling; and PVT laboratory reports • Volumetric Calculation of Initial Hydrocarbons in Place: oil in place, gas in place, addressing uncertainty using probabilistic methods, reserve booking practices, and reserve recovery efficiencies • Material Balance Methods: oil reservoir material balance, Haetena Odeth method, gas material balance, volumetric, compaction, water drive, and compartmentalized reservoirs • Fluid flow and well performance: radial and linear flow, transient, pseudosteady state, steady state flow regimes, productivity of vertical and horizontal wells • Reservoir Types and Drive Mechanisms: gas reservoirs - volumetric, water drive and compaction drive; oil reservoirs - solution gas drive, water drive, water flood, gas cap expansion, combination drive, naturally fractured and critical reservoir fluid reservoirs • Reservoir Simulation: why simulate, types of simulators and simulation models, setting up a simulation model, conducting a simulation study • Field Development Planning: characteristics, planning tools, deliverability issues, determining a well count and rate forecast

2017 Schedule and Tuition (USD)

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Basic Petroleum Geology – BG

BASIC 5-Day

What is Basic Petroleum Geology? For all practical purposes it closely resembles the freshman level course that a non-science major at a university would take to satisfy the science requirement. Presentation is oriented toward topics of interest to the petroleum industry. While high school chemistry and physics might help in understanding a very few selected topics, the course is designed for those with no technical training (and those who 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
• Oil reservoir origin, migration, and trapping
• How to correlate electric logs and recognize depositional environments on logs
• How to make contour maps and cross section
• Elements of geophysics and exploration
• How geology bears directly on engineering practices

COURSE CONTENT
Distribution of Reservoir Properties: structure, fluid contacts, water saturation, and pressure • Rock Properties: porosity, permeability, capillary pressure, and relative permeability • Fluid Properties: phase behavior of reservoir fluids; properties of gas, oil, and water; PVT Sampling; and PVT laboratory reports • Volumetric Calculation of Initial Hydrocarbons in Place: oil in place, gas in place, addressing uncertainty using probabilistic methods, reserve booking practices, and reserve recovery efficiencies • Material Balance Methods: oil reservoir material balance, Haetena Odeth method, gas material balance, volumetric, compaction, water drive, and compartmentalized reservoirs • Fluid flow and well performance: radial and linear flow, transient, pseudosteady state, steady state flow regimes, productivity of vertical and horizontal wells • Reservoir Types and Drive Mechanisms: gas reservoirs - volumetric, water drive and compaction drive; oil reservoirs - solution gas drive, water drive, water flood, gas cap expansion, combination drive, naturally fractured and critical reservoir fluid reservoirs • Reservoir Simulation: why simulate, types of simulators and simulation models, setting up a simulation model, conducting a simulation study • Field Development Planning: characteristics, planning tools, deliverability issues, determining a well count and rate forecast

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Basic Geophysics – BGP

BASIC 5-Day

This course is designed to familiarize anyone using seismic data with the nature of the data and what they specifically represent. One of the key goals of the course is to explain the large and confusing amount of jargon that is used by the geophysical community when they use seismic data. The course is supplemented by a large number of case histories that concretely illustrate the principles in the course material. These are updated with every course presentation to keep up with the rapidly developing technology in this field. Each section of the course is supported with a classroom exercise. The course participants are given a thumb drive that contains the case histories, class exercises, and all of the extensive PowerPoint animations used in the classroom.

DESIGNED FOR
Geoscientists, engineers, team leaders, geoscience technicians, asset managers, and anyone involved in using seismic data that needs to understand and use this data at a basic level or to communicate with others that use it.

YOU WILL LEARN
• How seismic data represent subsurface rock parameters including the relative structure, lithology, and pore filling material
• How land and marine seismic data are acquired and processed to produce both two- and three-dimensional seismic images
• The limits of vertical and horizontal resolution inherent in the seismic data
• How seismic data are used to measure reservoir parameters and how data guide reservoir development; this includes a detailed discussion of AVO and other seismic attributes
• The various approaches to seismic imaging and how the velocity model relates to this image
• How new technologies including seismic inversion have helped us define rock properties including pore filling material, pore pressure, water saturation, and fracture orientation
• How to value developments such as time lapse seismic surveys for reservoir monitoring purposes

COURSE CONTENT
• The nature of seismic data
• What is wave propagation
• What causes seismic reflections and how they relate to rock properties including pore filling material
• The wavelet in the seismic data and its limit of resolution
• Seismic velocities as they relate to rock properties and the imaging process
• The relationship between seismic velocities and pore pressure
• Pore pressure prediction
• Seismic data processing and seismic migration
• Prestack, poststack, time and depth imaging
• Direct hydrocarbon indicators and AVO
• Seismic inversion for rock and fluid properties
• Seismic attributes
• Time lapse reservoir monitoring (4D seismic surveys)
• Recent developments in seismic acquisition, processing, and interpretation

2017 Schedule and Tuition (USD)

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Available Soon as a Virtual Course

PetroAcademy

PETROSKEILLS.COM/BLENDED
### Essential Technical Writing Skills – ETWS

**BASIC 3-Day**
Writing for work-related purposes ought to be brief, clear, informative and, above all, readable. In this practical hands-on course, you gain a solid foundation in technical writing skills. The primary theme for the course is that a writer must “think constantly about their readers.” Examples and exercises provide hands-on experience. You may choose to bring a sample of your writing for one-on-one feedback.

#### 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

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

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

### Essential Leadership Skills for Technical Professionals – OMT23

**BASIC 5-Day**
In the oil and gas industry, skilled 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 these new skills for greater effectiveness. This seminar/workshop will include self-assessment, discussion, lecture, readings, role-playing, games, video examples, and creation of participant action plans. This course will help you unleash natural motivation in your team. Your stress level can be lowered by working more efficiently and effectively by tapping the emotional intelligence of your team and co-workers.

#### COURSE CONTENT
- 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

#### 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 cleaner 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

### Team Leadership – TLS

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

#### COURSE CONTENT
- Characteristics of 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

#### 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

### Basics of HSE Management – H518

**BASIC 5-Day**
Recognition and effective management of HSE risks/impacts is a fundamental requirement of companies operating in our sector. This course provides participants with the underpinning knowledge on how to specify and implement an effective HSE management system at the technical level. The course is based upon a common HSE management system which explains the elements and their interaction. A variety of exercises and case studies based on our PetroBarola 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 and gas and petrochemical 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 (H510). It provides the underpinning knowledge for participants seeking a career first-step qualification - the NEBOSH International General Certificate in Occupational Health and Safety (IGC). For holders of the NGC gained within the last five years, this class provides for conversion to the IGC (upon request).

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

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**CROSS-TRAINING**

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<td>ETWS</td>
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<td>TLS</td>
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**2017 Schedule and Tuition (USD)**

**ETWS (Essential Technical Writing Skills):**

- **BASIC 3-Day**
  - **2017 Schedule and Tuition (USD)**
  - **HOUUS, US**
    - 21-23 AUG: $2955
  - **ORLANDO, US**
    - 24-28 APR: $340
  - **LONDON, UK**
    - 1-3 NOV: $2850

**OMT23 (Essential Leadership Skills for Technical Professionals):**

- **BASIC 5-Day**
  - **2017 Schedule and Tuition (USD)**
  - **HOUUS, US**
    - 21-23 AUG: $2955
  - **ORLANDO, US**
    - 4-8 DEC: $4000

**TLS (Team Leadership):**

- **FOUNDATION 2-Day**
  - **2017 Schedule and Tuition (USD)**
  - **COLORADO SPRINGS, US**
    - 10-11 AUG: $2380 +VAT
  - **LONDON, UK**
    - 21-25 AUG: $4570+VAT

**H518 (Basics of HSE Management):**

- **BASIC 5-Day**
  - **2017 Schedule and Tuition (USD)**
  - **LONDON, UK**
    - 21-25 AUG: $4570+VAT

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**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

**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

**CASE STUDY**

- PetroSkills competence maps at the Foundation level are used to practice the application of the learned techniques in the authentic situation. The course is designed to introduce participants to solutions for 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).
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- Petrophysics
- Reservoir Engineering
- Well Construction/Drilling
- Production and Completions Engineering
- Unconventional Resources
- Integrated - Heavy Oil

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

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**Health, Safety, Environment**

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

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- Basic Geophysics
- Basic Petroleum Geology
- Basic Petroleum Technology
- Casing Design Workshop
- Completions and Workovers
- Foundations of Petrophysics
- NODAL™ Analysis Workshop
- Production Operations 1
- Production Technology for Other Disciplines
- Scale Identification, Remediation and Prevention Workshop

Additional courses to be released throughout 2017

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