PetroSkills

2024 PetroAcademy Course Catalog

Blended Learning combining self-paced online training with virtual instructor-led sessions

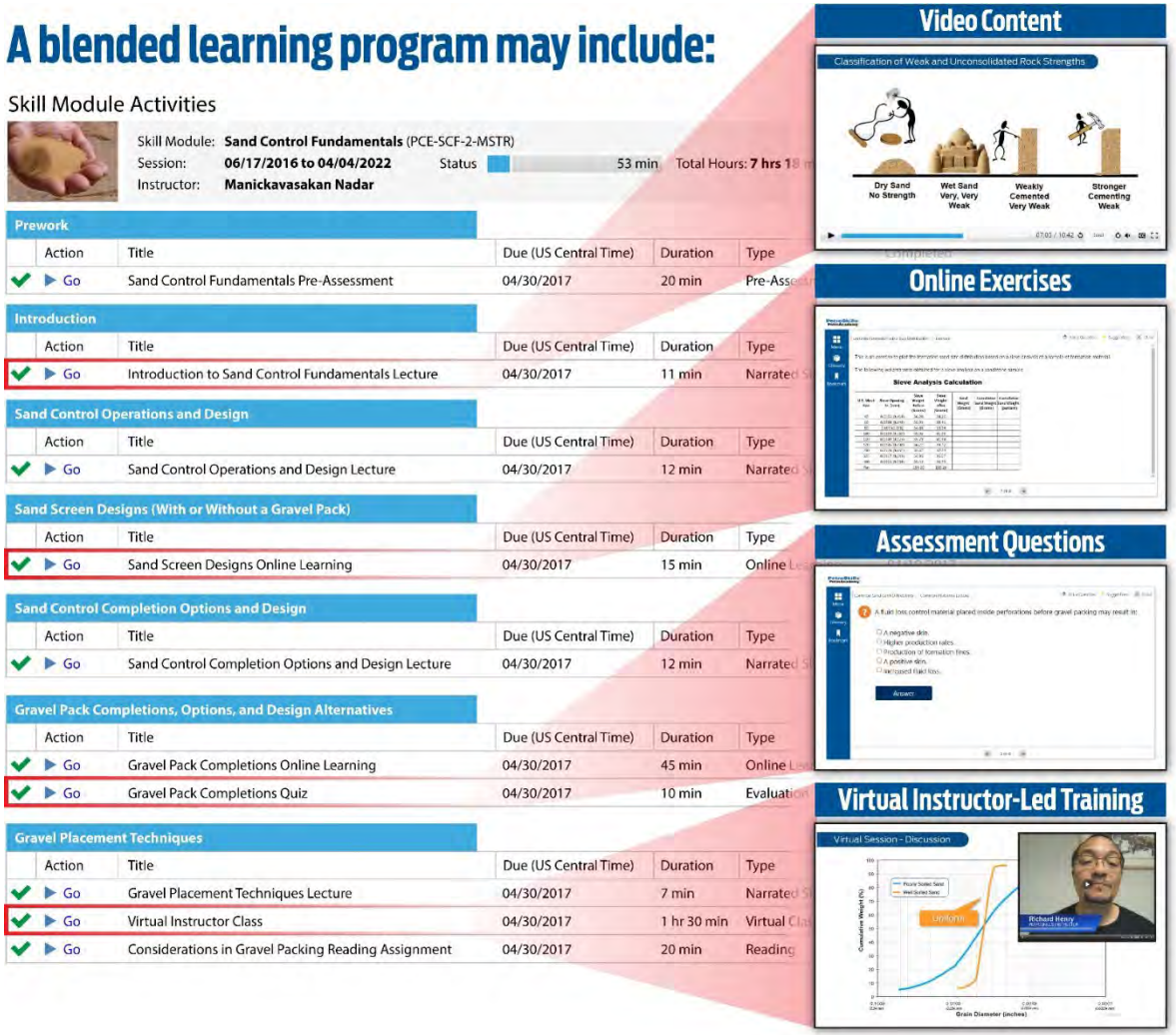
www.petroskills.com/blended

ABOUT PETROACADEMY®

PetroAcademy combines PetroSkills industry knowledge, expertise, content, and technology to develop workforce competency. Each PetroAcademy offering integrates multiple learning activities, such as reading assignments, self-paced e-Learning, virtual instructor-led sessions, discussion forums, group exercises, case studies, quizzes, and experiential activities. This combination of activities serves to increase knowledge retention. PetroAcademy further optimizes time away from work while incurring no travel expense.

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

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



Blended Learning Course Catalog

Introductory and Multi-Discipline

Overview of the Petroleum Industry

ABOUT THIS COURSE

This course provides the participant with an understanding of basic petroleum technology in the context of the Petroleum Value Chain, from exploration to abandonment. The participant will understand how and when geoscience and engineering professionals use technology to find, then determine and optimize the economic value of an oil and gas field. This enables the participant to maximize their professional and administrative contribution in their organization.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- E&P Industry and Asset Life Cycle Core (IAM-EIA-1)
- Petroleum Geology Core (IAM-PGC-1)
- Hydrocarbon Reservoirs Core (IAM-HRC-1)
- Rock and Fluid Properties Core (IAM-RFP-1)
- Surface/Subsurface Exploration Core (IAM-SSE-1)
- Drilling Operations and Well Completions Core (IAM-DOW-1)
- Production Operations Core (IAM-POC-1)

DESIGNED FOR

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

Geology

Basic Petroleum Geology

ABOUT THIS COURSE

This course is designed to introduce anyone to the basic concepts of Petroleum Geology. An important goal of the course is to explain the vocabulary and context of Petroleum Geology so that participants can learn and understand the role of the Geologist in the overall process of Petroleum Exploration and Production, for both Conventional and Unconventional Resources. The course is supplemented by a large number of case histories and examples that concretely illustrate the concepts and principles presented in the course material.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module ranges from 3-5 hours of self-paced or virtual instructor-led activities.

- Basic Petroleum Geology – Introduction Core (GEO-GOC-1)
- Basic Petroleum Geology − Foundation Geological Concepts Core (GEO-FGC-1)
- Basic Petroleum Geology − Sedimentary Petroleum Geology – Depositional Controls for Clastic Reservoir Rocks Core (GEO-SGC-1)
- Basic Petroleum Geology − Sedimentary Geology – Depositional Controls for Carbonate Reservoir Rocks Core (GEO-SGD-1)
- Basic Petroleum Geology − Petroleum System – Overview and Source Core (GEO-RFS-1)
- Basic Petroleum Geology − Petroleum System – Reservoir and Seal Core (GEO-RSC-1)
- Basic Petroleum Geology − Petroleum System – Trap and Timing Core (GEO-TTC-1)
- Basic Petroleum Geology − Petroleum System – Examples Core (GEO-EXC-1)
- Basic Petroleum Geology – Phases of Conventional Exploration and Development Core (GEO-PCE-1)
- Basic Petroleum Geology − Tools and Techniques Core (GEO-GTT-1)
- Basic Petroleum Geology − Unconventional Petroleum Resources Core (GEO-UPR-1)

DESIGNED FOR

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

Geophysics

Basic Geophysics

ABOUT THIS COURSE

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 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.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Seismic Image and Geological Association with Seismic Reflections Core (GEP-SIG-1)
- Wavelets and Seismic Velocities Core (GEP-WSV-1)
- Seismic Acquisition, Processing and Migration Core (GEP-SAP-1)
- Seismic Mapping Core (GEP-SEM-1)
- Direct Hydrocarbon Indicators and Amplitude versus Offset Core (GEP-DHI-1)
- Seismic Inversion and Attributes Core (GEP-SIA-1)
- Seismic for Unconventional Reservoirs Core (GEP-SUR-1)

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.

COURSE INSTRUCTOR

The following PetroSkills world-class expert in Petroleum Geophysics will teach this PetroAcademy course:

Tom Temples

For more information on this instructor, please visit www.petroskills.com/instructors

Direct Hydrocarbon Indicators and Amplitude versus Offset

ABOUT THIS COURSE

This PetroAcademy short course is designed to familiarize anyone using seismic data with the basics of what AVO and DHI's are and how they are used in an interpretation. One of the key goals of the PetroAcademy short course is to explain the large and confusing amount of jargon that is used by the geophysical community when they use seismic data.

Short courses are a blend of self-paced online modules, virtual instructor-led lectures, problem assignments, virtual instructor-led problem debriefs with real-world application examples and knowledge sharing.

It is strongly recommended that you take (1) Principles of Geophysics, (2) Seismic Acquisition, Processing and Migration, and (3) Seismic Mapping in order to understand the fundamental concepts before taking this short course.

YOU WILL LEARN HOW TO

- Explain the effect of hydrocarbons in the seismic data
- Detect hydrocarbons in the seismic data
- Describe rock physics
- Define amplitude variation with offset/angle (AVO/AVA)
- Make approximations to the Zoeppritz equations, including Aki-Richards equation and Shuey's equation
- Identify the Rutherford and Williams classification
- Describe slope, intercept, and the fluid line
- Describe the methods for prestack inversion, including Simultaneous Inversion; Elastic Impedance and Extended Elastic Impedance; Lambda Rho and Mu Rho

SHORT COURSE INSTRUCTOR

The following PetroSkills world-class expert in Petroleum Geophysics will teach this PetroAcademy short course:

Tom Temples

For more information on this instructor, please visit www.petroskills.com/instructors

Day 1			
e-Learning	Types of Direct Hydrocarbon Indicators Detecting Direct Hydrocarbon Indicators Rock Physics AVO Effects and Anomalies Prestack Inversion Amplitude versus Offset Workflow Reading	Required	3.5 hr
Day 2			
Virtual Instructor-Led	Instructor Debrief/Problems	Required	2 hr
Duration:			5.5 hr

Principles of Geophysics

ABOUT THIS COURSE

This PetroAcademy® short course is designed to familiarize anyone using seismic data with the fundamentals of seismic data. One of the key goals of the PetroAcademy short course is to explain the large and confusing amount of jargon that is used by the geophysical community when they use seismic data.

YOU WILL LEARN HOW TO

- Identify a seismic image
- Explain how a seismic image relates to geology
- Describe how a seismic image is formed
- Identify how a seismic image is displayed
- Differentiate between time and depth
- Describe the lithology and how it relates to the seismic image
- Relate the logs to the seismic data
- Identify the effect of pore filling material on velocity and density
- Identify why the vertical resolution of the seismic data is a critical issue
- Explain how the resolution is controlled by the propagating wavelet that is generated by the acquisition parameters
- Identify the recorded wavelet and its phase
- Describe the data display polarity and display conventions
- The velocity family, the relationship between depth and time
- Well velocities
- Vertical seismic profiles (VSPs)
- Overpressure and seismic velocities

SHORT COURSE INSTRUCTOR

The following PetroSkills world-class expert in Petroleum Geophysics will teach this PetroAcademy short course:

Tom Temples

For more information on this instructor, please visit www.petroskills.com/instructors

Day 1			
e-Learning	Seismic Displays in Time and Depth Lecture Reflections Stacked Traces Rays and Waves 3D Data Cube Exercise	Required	3 hr
Day 2			
Virtual Instructor-Led	Instructor Debrief/Problems	Required	2 hrs
Day 3			
e-Learning	The Effects of Lithology Relating the Logs to the Seismic Data The Effect of Pore Filling Material on Velocity and Density Wavelet in the Seismic Data and Limits on Resolution Seismic Velocities Geophysical Fundamentals reading Seismic Velocities	Required	6.5 hr
e-Learning	Overview of Seismic Attributes and Lateral Changes in Amplitude and Pattern Recognition Articles	Optional	(.3 hr)
Day 4			
Virtual Instructor-Led	Instructor Debrief/Problems	Required	2 hrs
Duration:			13.5 hr

Seismic Acquisition, Processing, and Migration

ABOUT THIS COURSE

This PetroAcademy short course is designed to familiarize anyone using seismic data with how seismic data is acquired, processed, and migrated to form a section that can be used by an interpreter. One of the key goals of the PetroAcademy short course is to explain the large and confusing amount of jargon that is used by the geophysical community when they use seismic data.

Short courses are a blend of self-paced online modules, virtual instructor-led lectures, problem assignments, virtual instructor-led problem debriefs with real-world application examples and knowledge sharing.

YOU WILL LEARN HOW TO

- Describe the marine configuration for a 3D survey including:
  - Components used for data acquisition
  - Arrays to attenuate noise
  - Bin gathering as a CMP assemblage of reflections
- Describe the land configuration for a 3D survey including:
- Bin gathering for a land 3D survey
- Compare the costs of 2D and 3D surveys
- Describe processing flow
- Explain the concept of deconvolution
- Identify what the processors do to produce the seismic image
- Identify a seismic image

SHORT COURSE INSTRUCTOR

The following PetroSkills world-class expert in Petroleum Geophysics will teach this PetroAcademy short course:

Tom Temples

For more information on this instructor, please visit www.petroskills.com/instructors

Day 1			
e-Learning	Marine Data Acquisition Land Data Acquisition Acquisition and Processing Fold (Trace Density) Exercise Seismic Velocities Overview of Seismic Data Processing Producing the Seismic Image	Required	4 hr
ay 2			
e-Learning	Seismic Mapping Velocity Analysis Reading Acquisition Reading QC for Seismic Processing Seismic Processing Basics Reading Introduction to Migration Reading	Required	1.5 hr
Virtual Instructor-Led	Instructor Debrief/Problems	Required	2 hr
Duration:			7.5 hr

Seismic Inversion and Attributes

ABOUT THIS COURSE

This PetroAcademy short course is designed to familiarize anyone using seismic data with the principles of Inversion and attributes and how they are used in an interpretation. 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.

Short courses are a blend of self-paced online modules, virtual instructor-led lectures, problem assignments, virtual instructor-led problem debriefs with real-world application examples and knowledge sharing.

It is strongly recommended that you take (1) Principles of Geophysics, (2) Seismic Acquisition, Processing and Migration, and (3) Seismic Mapping in order to understand the fundamental concepts before taking this short course.

YOU WILL LEARN HOW TO

- Explain the seismic inversion processes, both forward and inverse
- Identify relative and absolute impedance in seismic inversion
- Identify the inversion algorithms and their application

SHORT COURSE INSTRUCTOR

The following PetroSkills world-class expert in Petroleum Geophysics will teach this PetroAcademy short course:

Tom Temples

For more information on this instructor, please visit www.petroskills.com/instructors

Day 1			
e-Learning	Seismic Inversion Relative and Absolute Impedance in Seismic Inversion Inversion Algorithms Attributes Spectral Decomposition and Spectral Notching Attenuation, Q, and Hilbert Transform Multi-Trace Attributes Self-Organizing Maps Additional Considerations for Attributes	Required	2.5 hr
Day 2			
e-Learning	1. Seismic Attributes for Prospect Identification and Reservoir Characterization 2. Prestack Geometric Attributes Reading 3. Log Input for Rock Physics Reading 4. Seismic Inversion Additional Reading 5. Acoustic Impedance Inversion Reading 6. Attributes Workflow Reading 7. Spectral Decomposition and Wavelet Transforms Article 8. Seismic Processing Basics Reading	Optional	(2.5 hr)
Virtual Instructor-Led	Instructor Debrief/Problems	Required	2 hr
Duration:			7 hr

Seismic Mapping

ABOUT THIS COURSE

This PetroAcademy short course is designed to familiarize anyone using seismic data in the principles of how to map an interpretation made from seismic data. One of the key goals of the PetroAcademy short course is to explain the large and confusing amount of jargon that is used by the geophysical community when they use seismic data.

Short courses are a blend of self-paced online modules, virtual instructor-led lectures, problem assignments, virtual instructor-led problem debriefs with real-world application examples and knowledge sharing.

YOU WILL LEARN HOW TO

- Identify the layout of a 3D seismic survey
- Turn the interpretation into a data reduction process resulting in an interpretation and a structural map originally in time

SHORT COURSE INSTRUCTOR

The following PetroSkills world-class expert in Petroleum Geophysics will teach this PetroAcademy short course:

Tom Temples

For more information on this instructor, please visit www.petroskills.com/instructors

Day 1			
Virtual Instructor-Led	Virtual Instructor-Class	Required	1 hr
e-Learning	Seismic Mapping Interpretation Exercise	Required	3 hr
Day 2			
e-Learning	Seismic Attributes for Prospect Identification and Reservoir Characterization Articles	Optional	(.5 hr)
Virtual Instructor-Led	Instructor Debrief/Problems	Required	(3 hr)
Duration:			7.5 hr

Seismic for Unconventional Reservoirs

ABOUT THIS COURSE

This PetroAcademy short course is designed to familiarize anyone using seismic data with how seismic data is used to explore and develop unconventional reservoirs. One of the key goals of the PetroAcademy short course is to explain the large and confusing amount of jargon that is used by the geophysical community when they use seismic data.

Short courses are a blend of self-paced online modules, virtual instructor-led lectures, problem assignments, virtual instructor-led problem debriefs with real-world application examples and knowledge sharing.

It is strongly recommended that you take (1) Principles of Geophysics, (2) Seismic Acquisition, Processing and Migration, and (3) Seismic Mapping in order to understand the fundamental concepts before taking this short course.

YOU WILL LEARN HOW TO

- Identify rock physics for shale reservoirs
- Describe seismic analysis for unconventional reservoirs
- Describe microseismic, including surface and subsurface recording arrays
- Describe source (event) recording and location detection
- Describe three component recording
- Identify the role of Hodograms in source orientation
- Identify the importance of microseismic monitoring in different stress areas

SHORT COURSE INSTRUCTOR

The following PetroSkills world-class expert in Petroleum Geophysics will teach this PetroAcademy short course:

Tom Temples

For more information on this instructor, please visit www.petroskills.com/instructors

Day 1			
e-Learning	Seismic Unconventional Reservoirs Unconventional Rock Physics Microseismic Recording and Monitoring	Required	1.25 hr
Day 2			
Virtual Instructor-Led	Instructor Debrief/Problems	Required	2 hrs
Duration:			3.5 hr

Petrophysics

Foundations of Petrophysics

ABOUT THIS COURSE

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 series of online learning activities, 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.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Introduction and Overview of Petrophysics Core (PPH-IOP-1)
- Mud Logging, Coring and Cased Hole Logging Operations Core (PPH-MLC-1)
- Porosity Logging Core (PPH-PLC-1)
- Gamma Ray and SP Logging Core (PPH-GRS-1)
- Formation Testing Core (PPH-FTC-1)
- Resistivity Logging Tools and Interpretation Core (PPH-RLT-1)
- Petrophysical Evaluation Core (PPH-HSL-1)
- Core Analysis Core Knowledge (PPH-CAC-1)
- Special Petrophysical Tools: NMR and Image Logs Core (PPH-SPT-1)

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.

COMING SOON

Introduction to Geomechanics for Unconventional Reservoirs

ABOUT THIS COURSE

This course provides an overview of petroleum geomechanics and its applications for development of unconventional plays. It is presented in three sections: (i) fundamentals of petroleum geomechanics, (ii) geomechanical characterization, stress modeling and building mechanical earth models, and (iii) geomechanical modeling for unconventional plays. Several exercises and case studies will help the participants to gain a profound understanding of the presented materials.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

SECTION I. Fundamentals of Petroleum Geomechanics

- Introduction to Reservoir Geomechanics and its Application Core (PPH-IPG-1)
- Rock Mechanics Core (PPH-FRM-1)
- Pore Pressure Measurement and Prediction Core (PPH-PPM-1)
- Laboratory Measurements of Rock Mechanical Properties Core (PPH-LMB-1)
- Laboratory and Field Measurement of Special Rock Mechanical Properties Core (PPH-LFM-1)

SECTION II. Geomechanical Characterization Stress Modeling and Building Mechanical Earth Models

- Rock Mechanics for Shale Plays Core (PPH-RMS-1)
- Characterization of In-Situ Stresses Core (PPH-CIC-1)
- Characterization of In-Situ Stresses Fundamentals (PPH-CIF-2) – *COMING SOON*

DESIGNED FOR

Geoscientists, petrophysicists, completion and drilling engineers, or anyone involved in unconventional reservoir development.

COURSE INSTRUCTOR

The following PetroSkills world-class expert in Geomechanics will teach this PetroAcademy course:

Mehrdad Soltanzadeh

For more information on this instructor, please visit www.petroskills.com/instructors

Reservoir Engineering

Applied Reservoir Engineering

ABOUT THIS COURSE

The Applied Reservoir Engineering blended course represents the core of the PetroSkills' reservoir engineering program and the foundation for all future studies in this subject. Numerous engineering practices are covered, ranging from fluid and rock properties to simulation and field development planning. Proficiency in using Microsoft Excel to perform calculations and make graphs is desirable. Reservoir engineering is also presented in the context of a modern, multi-disciplinary team effort using supporting computer technology.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Reservoir Rock Properties Core (RES-RRP-1)
- Reservoir Rock Properties Fundamentals (RES-RRP-2)
- Reservoir Fluid Core (RES-RFC-1)
- Reservoir Fluid Fundamentals (RES-RFF-2)
- Reservoir Flow Properties Core (RES-RFP-1)
- Reservoir Flow Properties Fundamentals (RES-RFP-2)
- Reservoir Material Balance Core (RES-RMB-1)
- Reservoir Material Balance Fundamentals (RES-RMB-2)
- Decline Curve Analysis and Empirical Approaches Core (RES-RSA-1)
- Decline Curve Analysis and Empirical Approaches Fundamentals (RES-RSA-2)
- Reserves and Resources Core (RES-RRC-1)
- Pressure Transient Analysis Core (RES-PTA-1)
- Rate Transient Analysis Core (RES-RTA-1)
- Reservoir Fluid Displacement Core (RES-RFD-1)
- Reservoir Fluid Displacement Fundamentals (RES-RFD-2)
- Enhanced Oil Recovery Core (RES-EOR-1)
- Improved Oil Recovery Fundamentals (RES-IOR-2)
- Reservoir Surveillance Core (RES-RSC-1)
- Reservoir Surveillance Fundamentals (RES-RSF-2)
- Reservoir Management Core (RES-RMC-1)
- Reservoir Management Fundamentals (RES-RMF-2)
- Reservoir Simulation Core (RES-RSI-1)

DESIGNED FOR

Engineers or geoscientists who will occupy the position of reservoir engineer, and any other technically trained individual who desires a more in-depth foundation in reservoir engineering than is offered in the one-week Basic Reservoir Engineering course.

COURSE INSTRUCTORS

The following PetroSkills world-class experts in reservoir engineering will teach this PetroAcademy course:

Richard Henry
Mohan Kelkar

For more information on these instructors, please visit www.petroskills.com/instructors

Basic Reservoir Engineering

ABOUT THIS COURSE

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

This program is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Reservoir Rock Properties Core (RES-RRP-1)
- Reservoir Rock Properties Fundamentals (RES-RRP-2)
- Reservoir Fluid Core (RES-RFC-1)
- Reservoir Flow Properties Core (RES-RFP-1)
- Reservoir Material Balance Core (RES-RMB-1)
- Decline Curve Analysis and Empirical Approaches Core (RES-RSA-1)
- Reserves and Resources Core (RES-RRC-1)
- Pressure Transient Analysis Core (RES-PTA-1)
- Rate Transient Analysis Core (RES-RTA-1)
- Reservoir Fluid Displacement Core (RES-RFD-1)
- Enhanced Oil Recovery Core (RES-EOR-1)

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.

COURSE INSTRUCTORS

The following PetroSkills world-class experts in reservoir engineering will teach this PetroAcademy program:

Richard Henry
Mohan Kelkar

For more information on these instructors, please visit www.petroskills.com/instructors

Waterflooding A to Z

ABOUT THIS COURSE

Waterflooding has long been proven as the simplest and the lowest cost approach to maintaining production and increasing oil recovery from an oil reservoir. However, these benefits may fall far short of the expectations unless the time-tested concepts and practices are clearly understood and judiciously implemented. These concepts and practices aim at process optimization – reducing production cost while minimizing waste and maximizing oil recovery and income.

This course is light on theory but heavy on proven and successful practices. Published case histories of projects around the world are reviewed to provide an understanding of divergent points-of-view, what works where, what fails when, and why. This training covers all elements of a waterflood project from A to Z – from source water selection to produced water disposal and everything in between. Participants are grouped into small multi-disciplinary teams. All classroom discussions and problem-solving sessions are handled in an asset management team format. Simulation studies are done in class to evaluate basic waterflooding physics as well as to optimize the development of a hypothetical field.

This course is comprised of the following skill modules in PetroSkills PetroAcademy®. Each skill module ranges from 4-8 hours of self-paced or virtual instructor-led activities.

- Waterflood Overview Core (RES-WOV-1)
- Waterflood Reservoir Property Effects Fundamentals (RES-WRP-2)
- Waterflood Reservoir Heterogeneity Effects Fundamentals (RES-WRH-2)
- Waterflood Forecasting Overview Core (RES-WFO-1)
- Waterflood Analytical Forecasting Fundamentals (RES-WAF-2)
- Waterflood Surveillance Core (RES-WSC-1)
- Producing versus Injecting Wells Fundamentals (RES-PVI-2)
- Waterflood Water Sources Core (RES-WWS-1)
- Waterflood Reservoir Optimization Core (RES-WRO-1)
- Waterflood Planning Core (RES-WPC-1)

DESIGNED FOR

Reservoir, production, facilities, and operations engineers who are involved with some aspects of a new or existing waterflood project; geoscientists and professionals who want to get a better feel for the entire process of planning, development, management, and recovery optimization of a waterflood project

COURSE INSTRUCTORS

The following PetroSkills world-class expert in reservoir engineering will teach this PetroAcademy course:

Richard Henry

For more information on this instructor, please visit www.petroskills.com/instructors

Unconventional Reservoir Geoscience and Engineering

ABOUT THIS COURSE

This course is designed for professional engineers and geoscientists with little experience in unconventional reservoirs who wish to quickly learn the key elements of these reservoirs and the technologies to exploit them. Focused on shale (tight) oil, tight gas, and coalbed methane this course begins with geoscience elements, reservoir fluid properties, and unconventional well completions. Tests and techniques such as diagnostic fracture injection tests (DFIT's), diagnostic plots, and rate transient analysis (RTA) to understand individual well performance are discussed. Field level topics include field development and reservoir surveillance. Decline curve analysis (DCA) for individual wells is presented followed by assignment of reserves and resources in unconventionals. Attendees should leave this course with a better understanding of the reservoirs which supply an ever-increasing fraction of the world's oil and gas, unconventional reservoirs.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Introduction to Unconventional Reservoirs Core (RES-IUR-1)
- Reservoir Fluid Core (RES-RFC-1)
- Reservoir Rock Properties Core (RES-RRP-1)
- Reservoir Flow Properties Core (RES-RFP-1)
- Unconventional Reservoir Properties Core (RES-URP-1)
- Unconventional Reservoir Properties Fundamentals (RES-URP-2)
- Unconventional Reservoir Analysis Core (RES-URA-1)
- Unconventional Reservoir Analysis Fundamentals (RES-URA-2)
- Rate Transient Analysis Core (RES-RTA-1)

DESIGNED FOR

All petro-technical professionals who have little experience with unconventional reservoirs but who need or desire to start developing some understanding of important basic concepts and methods associated with these resource types.

COURSE INSTRUCTORS

The following PetroSkills expert will teach this PetroAcademy course:

John Seidle

For more information on this instructor, please visit www.petroskills.com/instructors

Production and Completions

Completions and Workovers

ABOUT THIS COURSE

The Completions and Workovers blended course represents one of the most popular foundation series courses within PetroSkills' production engineering curriculum. Participants will become familiar with many aspects of modern completion design as well as a variety of workover technologies. This course is intended to be broad based and includes both conventional and unconventional wells. The focus of this course is on design and selection.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module ranges from 4-10 hours of self-paced or virtual instructor-led activities.

- Onshore Conventional Well Completions Core (PCE-OCW-1)
- Design Process for Completion and Workovers Core (PCE-DEC-1)
- Perforating Core (PCE-PEC-1)
- Onshore Unconventional Well Completions Core (PCE-OUW-1)
- Sand Control Core (PCE-SCC-1)
- Hydraulic Fracturing Core (PCE-HFC-1)
- Completion Design Fundamentals (PCE-DEF-2)
- Well Completions Fundamentals (PCE-WCF-2)
- Formation Damage and Matrix Stimulation Core (PCE-FDC-1)
- Flow Assurance and Production Chemistry Core (PCE-FAP-1)
- Production Problem Diagnosis Core (PCE-PPD-1)
- Well Intervention Core (PCE-WIC-1)
- Workover Fundamentals (PCE-WOF-2)

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.

COURSE INSTRUCTORS

The following PetroSkills world-class experts in Production Operations will teach this PetroAcademy course:

Mason Gomez
Kyle Travis

For more information on these instructors, please visit www.petroskills.com/instructors

Production Logging

ABOUT THIS COURSE

Production logging refers to acquiring a suite of logging measurements in a completed well that is either on injection or production to evaluate the flow performance of the well or the reservoir. Special purpose production logging instruments can evaluate the well completion or look behind the pipe to evaluate the formation and its fluids in the near-well bore vicinity. Production logs are playing an increasing role in modern reservoir management by providing the only means of directly identifying downhole fluid movement. This course will cover single-phase and multi-phase fluid flow in pipes, the theoretical bases of production logging techniques, production log interpretation, and operational considerations in acquiring production logs. Numerous field examples are used to illustrate the principles of production log interpretation.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Production Logging Wellsite and Downhole Environment Core (PCE-WDH-1)
- Conventional Production Logging: Temperature and Single-Element Spinners Fundamentals (PCE-TSE-2)
- Conventional Production Logging: Two-Phase Flow Fundamentals (PCE-TPF-2)
- Production Logging in High Angle/Horizontal Wells Fundamentals (PCE-PLH-2)
- Advanced Nuclear Production Logging Fundamentals (PCE-ANP-2)
- Special Purpose Production Logging Fundamentals (PCE-SPP-2)

DESIGNED FOR

Petroleum and drilling engineers and managers, reservoir engineers, subsurface engineers, production engineers/technologists, petrophysicists, log analysts, and anyone interested in understanding production logs and cased-hole surveys.

COURSE INSTRUCTOR

The following PetroSkills world-class expert in Production Logging will teach this PetroAcademy course:

Dale Fitz

For more information on this instructor, please visit www.petroskills.com/instructors

Production Operations I

ABOUT THIS COURSE

The Production Operations blended course represents the core foundation series of PetroSkills' production engineering curriculum. Participants will become familiar with both proven historical production practices as well as current technological advances to enhance oil and gas production. Applied skills guide the participant within a framework to make careful, prudent, technical oil and gas business decisions.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module ranges from 4-10 hours of self-paced or virtual instructor-led activities.

- Production Principles Core (PCE-PPC-1)
- Well Performance and Nodal Analysis Fundamentals (PCE-WPN-2)
- Onshore Conventional Well Completions Core (PCE-OCW-1)
- Hydraulic Fracturing Core (PCE-HFC-1)
- Onshore Unconventional Well Completions Core (PCE-OUW-1)
- Perforating Core (PCE-PEC-1)
- Sand Control Core (PCE-SCC-1)
- Sand Control Fundamentals (PCE-SCF-2)
- Primary and Remedial Cementing Core (PCE-PRC-1)
- Rod, PCP, Plunger Lift, and Jet Pump Core (PCE-RPJ-1)
- Reciprocating Rod Pumps Fundamentals (PCE-RRP-2)
- Gas Lift Core (PCE-GLC-1)
- Electric Submersible Pumps (ESP) Core (PCE-ESP-1)
- Gas Lift Fundamentals (PCE-GLF-2)
- Electric Submersible Pumps (ESP) Fundamentals (PCE-ESP-2)
- Formation Damage and Matrix Acidizing Core (PCE-FDC-1)
- Formation Damage and Matrix Acidizing Fundamentals (PCE-FDF-2)
- Flow Assurance and Production Chemistry Core (PCE-FAP-1)
- Production Problem Diagnosis Core (PCE-PPD-1)
- Production Logging Core (PCE-PLC-1)
- Production Logging Fundamentals (PCE-PLF-2)

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.

COURSE INSTRUCTORS

The following PetroSkills world-class experts in Production Operations will teach this PetroAcademy course. For more information on these instructors, please visit www.petroskills.com/instructors.

Paul Barry Iskander Diyashev Dan Gibson Manickam Nadar

Production Technology for Other Disciplines

ABOUT THIS COURSE

Production Technology for Other Disciplines is an asset team blended 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. Case Studies illustrate the multi-discipline interaction required in applying various production technologies to optimize project development and operations.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module ranges from 4-10 hours of self-paced or virtual instructor-led activities.

- The Role of Production Technology Core (PCE-TRP-1)
- Drilling Operations and Well Completions Core (IAM-DOW-1)
- Production Principles Core (PCE-PPC-1)
- Well Performance and Nodal Analysis Fundamentals (PCE-WPN-2)
- Rod, PCP, Plunger Lift, and Jet Pump Core (PCE-RPJ-1)
- Reciprocating Rod Pumps Fundamentals (PCE-RRP-2)
- Gas Lift Core (PCE-GLC-1)
- Electric Submersible Pumps (ESP) Core (PCE-ESP-1)
- Gas Lift Fundamentals (PCE-GLF-2)
- Electric Submersible Pumps (ESP) Fundamentals (PCE-ESP-2)
- Formation Damage and Matrix Stimulation Core (PCE-FDC-1)
- Perforating Core (PCE-PEC-1)
- Sand Control Core (PCE-SCC-1)
- Hydraulic Fracturing Core (PCE-HFC-1)
- Production Problem Diagnosis Core (PCE-PPD-1)
- Production Technology Applications Core (PCE-PTA-1)

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.

COURSE INSTRUCTORS

The following PetroSkills world-class expert in Production Operations will teach this PetroAcademy course: Paul Barry

For more information on this instructor, please visit www.petroskills.com/instructors

Well Construction and Drilling

Basic Drilling, Completions, and Workover Operations

ABOUT THIS COURSE

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. Learn to communicate with drilling and production personnel.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Drilling Operations and Well Completions Core (IAM-DOW-1)
- Defining Well Objectives Core (IAM-DWO-1)
- Bits and Hydraulics Core (IAM-BHC-1)
- Drill String and BHA Core (IAM-DSB-1)
- Drilling Fluids and Solids Control Core (IAM-DFS-1)
- Directional Drilling and Trajectory Design Core (IAM-DDC-1)
- Oilfield Casing Core (WCD-OCC-1)
- Primary and Remedial Cementing Core (PCE-PRC-1)
- Onshore Conventional Well Completions Core (PCE-OCW-1)
- Hydraulic Fracturing Core (PCE-HFC-1)
- Formation Damage and Matrix Stimulation Core (PCE-FDC-1)
- Sand Control Core (PCE-SCC-1)
- Well Intervention Core (PCE-WIC-1)

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.

Basic Drilling Technology

ABOUT THIS COURSE

This course provides a fundamental overview of the design, planning and implementation associated with drilling an oil and gas well. It is beneficial to all interested parties, directly and indirectly, involved in the well drilling process. Administrative support and multiple-discipline team members would all benefit from this overview of the basic concepts and practices. Their ability to add value to the overall process through collaboration is greatly enhanced.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Defining Well Objectives Core (IAM-DWO-1)
- Characterizing the Drilling Environment Core (WCD-CDE-1)
- Directional Drilling and Trajectory Design Core (IAM-DDC-1)
- Drilling Fluids and Solids Control Core (IAM-DFS-1)
- Oilfield Casing Core (WCD-OCC-1)
- Bits and Hydraulics Core (IAM-BHC-1)
- Drill String and BHA Core (IAM-DSB-1)
- Casing Running Operations Core (WCD-CRO-1)
- Primary and Remedial Cementing Core (PCE-PRC-1)
- Well Performance Management Core (WCD-WPM-1)

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.

Gas Processing

Gas Conditioning and Processing Principles

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in self-paced online Skill Modules™.

These competencies set the base knowledge that is required for a successful career as an entry level facilities engineer, seasoned operator, and / or field supervisor. These modules provide an understanding of common terminology, hydrocarbons and their physical properties, qualitative and quantitative phase behavior, hydrates, and fluid flow. In addition, they provide a systematic approach to understanding the common types of equipment, and the primary unit operations in both offshore and onshore gas conditioning and processing facilities.

This course is comprised of these PetroAcademy®skill modules. Each skill module ranges from 3-5 hours of self-paced activities, with pre and post assessments. In addition, the skill modules have interactive exercises and problems to solve on various topics.

- Hydrocarbon Components and Physical Properties Core (GAS-HCP-1)
- Introduction to Production and Gas Processing Facilities Core (GAS-IGC-1)
- Qualitative Phase Behavior and Vapor Liquid Equilibrium Core (GAS-QPB-1)
- Water / Hydrocarbon Phase Behavior Core (GAS-WHP-1)
- Thermodynamics and Application of Energy Balances Core (GAS-TAE-1)
- Fluid Flow Core (GAS-FFC-1)
- Relief and Flare Systems Core (PRS-RFS-1)
- Separation Core (GAS-SEC-1)
- Heat Transfer Equipment Overview Core (GAS-HTE-1)
- Pumps and Compressors Core (GAS-PCC-1)
- Refrigeration, NGL Extraction and Fractionation Core (GAS-RNG-1)
- Contaminant Removal – Gas Dehydration Core (GAS-CRD-1)
- Contaminant Removal – Acid Gas and Mercury Removal Core (GAS-CRA-1)

DESIGNED FOR

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

Acid Gas Removal – Amine Focused Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

Acid gas removal is an important gas conditioning step that is required for natural gas streams that contain moderate to large amounts of carbon dioxide and hydrogen sulfide. The treated gas specification depends upon the downstream requirements, for example if it needs to meet a pipeline tariff specification or if it is flowing to a natural gas liquefaction facility where the specifications will be much more stringent.

Amine acid gas removal units are by far the most common technology used to remove these compounds from natural gas streams.

This short course covers different acid gas removal technologies, with a strong focus on natural gas amine treating.

The virtual instructor-led lecture will cover simple methods to estimate the amine circulation rate for treating a gas stream with and without CO2 slip. In addition, maintaining a water balance in this process unit is critical. The method to estimate a water balance will be presented, as well as the key factors that affect the degree of sweetening (or acid gas removal) possible.

The problem assignment will allow the participants to practice the methods presented in the virtual instructor-led lecture. The problem set will provide additional insight into the practical aspects of amine treating.

The virtual instructor-led debrief will work through the insights gained by in the problem assignment. Common operating problems and potential solutions will be discussed. During the round table discussion, the participants will be able to share their experiences and to ask detailed questions to the group. Participants may test out of the prerequisites.

		Instructor Led	OR	On Demand
Prerequisites	**Day 1**			
	Basic Conversions Gas and Liquid Physical Properties Introduction to Gas Processing Facilities Multicomponent Phase Behavior Non-Hydrocarbon Components Effect on Phase Envelopes Fundamental Applications of Phase Envelopes Water Content of Sweet and Sour Natural Gas	3 hr 57 min		3 hr 57 min
Required e-Learning	Acid Gas Removal Acid Gas Removal by Amines Types of Internals in Mass Transfer Devices	1 hr 37 min		1 hr 37 min
Optional e-Learning	Sulfur Recovery and Amine Treating Acid Gas Injection NGL Product Treating	[1 hr 23 min]		[1 hr 23 min]
Virtual Instructor-Led or On-Demand	**Day 2**			
	Fundamentals of Amine Treating Lecture Self-Directed Problem Assignment	3 hr		1 hr 30 min
	Day 3			
	Problem Debrief and Experience Round Table	3 hr		2 hr 12 min
	Total Duration:	**12 hr 57 min**		**10 hr 39 min**

DESIGNED FOR

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

Centrifugal Compressors Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

This short course covers the fundamentals of centrifugal compressor selection and operations. It also reviews the other types of compressors and their applications. The virtual instructor-led lecture will prepare the participants to do detailed analysis on centrifugal compressors using the vendors compressor curves. The methods applied will allow one to estimate the required compressor head for a given process operating conditions, estimate the number of impellers required for multistage applications, analyze the effect of changing inlet conditions to centrifugal compressor performance, interpret centrifugal compressor curves, and understand the basics of centrifugal compressor controls.

The problem assignment will review two different centrifugal compressor applications. The first problem assignment involves determining the new operating envelope for a fixed speed centrifugal compressor that was specified for a new field development where the initial production conditions were off from the design conditions of the machine. The second problem investigates a variable speed, multistage centrifugal compressor application and investigates the compressors performance over changing operating conditions, from the initial field start up conditions, through end of life of the plant.

The virtual instructor-led debrief will provide practical insight in terms of options to mitigate operating limitations of centrifugal compressors, discuss common operating problems and potential solutions for both centrifugal and reciprocating compressors. Participants may test out of the prerequisites.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led OR On Demand	
Prerequisites	**Day 1**		
	Basic Conversions Gas and Liquid Physical Properties Multicomponent Phase Behavior Thermodynamic Principles and the First Law of Thermodynamics Second Law of Thermodynamics and Energy Balance Equations Using PH Diagrams to Perform Energy Balance Calculations	3 hr 59 min	3 hr 59 min
Required e-Learning	Compressor Applications, Types and Selection Compressor Head, Power Requirements and Discharge Temperature Principles of Centrifugal Compressor Operation	1 hr 18 min	1 hr 18 min
Optional e-Learning	Principles of Reciprocating Compressor Operations Principles of Rotary Screw Compressor Operations	[1 hr 2 min]	[1 hr 2 min]
Virtual Instructor-Led or On-Demand	**Day 2**		
	Fundamentals of Centrifugal Compressors Lecture Self-Directed Problem Assignment	3 hr	1 hr 7 min
	Day 3		
	Problem Debrief and Experience Round Table	3 hr	1 hr 56 min
	Total Duration:	**12 hr 19 min**	**9 hr 22 min**

Centrifugal Pumps Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

This short course covers not only the basics of pumps but also covers the fundamental aspects of centrifugal pump selection and operation. The content sets the foundation for a successful study of the practical application of centrifugal pump analysis. This short course will prepare the participant to confidently select centrifugal pumps for different process operating conditions and troubleshoot current pumps operating out in the field from a process performance perspective.

The skill modules will prepare participants for a review of the centrifugal pump analysis and selection. During the virtual instructor-led session, you will learn how to determine the required pump head, NPSHR, and NPSHA for a given pump application. We will review how to develop process system hydraulic curves based upon the flowing conditions and facilities layout and apply the process system curve with the pump curve to determine optimal pump selection. In addition, pump process control options will be discussed.

The virtual, instructor-led lecture is followed by two centrifugal pump assignments (case studies), where delegates apply the analysis methods reviewed during the lecture. The problem assignments will be debriefed in detail, giving additional practical insights into pump selection and operation from a process requirement perspective. The round table discussion will explore common operating problems and potential pump damage for off-design pump operations. Troubleshooting and potential solutions to pump operating problems will also be discussed. Participants will have the opportunity to share their experiences and ask specific application questions. Participants may test out of the prerequisites.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led	OR	On Demand
Prerequisites	**Day 1**			
	Gas and Liquid Physical Properties Multicomponent Phase Behavior Fundamental Applications of Phase Envelopes	1 hr 41 min		1 hr 41 min
Required e-Learning	Pump Applications, Types and Selection Head vs Pressure Rise and Pump Power Requirements Centrifugal Pumps vs Positive Displacement Pumps Cavitation, NPSHR, NPSHA Principles of Centrifugal Pump Operations Principles of Plunger Pump Operations	2 hr 25 min		2 hr 25 min
Virtual Instructor-Led or On-Demand	**Day 2**			
	Fundamentals of Centrifugal Pumps Lecture Self-Directed Problem Assignment	3 hr		2 hr 24 min
	Day 3			
	Problem Debrief and Experience Round Table	3 hr		2 hr 24 min
	Total Duration:	**10 hr 6 min**		**8 hr 16 min**

Fluid Hydraulic Fundamentals – Multiphase Focus for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

Multiphase flow in offshore subsea pipelines and gathering systems can present significant operating problems in both offshore and onshore facilities due to operating in the slugging flow regime. This short course covers fluid flow fundamentals and has a focus on multiphase flow systems. The virtual instructor-led lecture will cover simple correlations that will give significant insight into the phenomenon of multiphase flow systems, and what the key operating parameters are that determine the flow regime for a given system or pipeline.

The assigned problem will highlight the governing factors that result in total pressure drop in multiphase systems, and the significant reduction in gathering system capacity even with a small amount of liquids present. The virtual instructor-led problem debrief session will further develop other important considerations in multiphase flow systems, discuss potential slug mitigation methods, and the round table discussion will allow delegates to share their experiences, challenges and solutions to problems involving multiphase flow systems. Participants may test out of the prerequisites.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led OR On Demand	
Prerequisites	**Day 1**		
	Basic Conversions Gas and Liquid Physical Properties Multicomponent Phase Behavior Effect of C6+ Characterization on Phase Behavior Fundamental Applications of Phase Envelopes	2 hr 45 min	2 hr 45 min
Required e-Learning	Estimation and Application of Friction Factors Sizing Piping Systems Pressure Drop in Plant Piping Systems Flow Regimes in Multiphase Flow Systems Difference Between Liquid Holdup and Liquid Volume Fraction Common Slugging Mechanisms Erosional Velocity	2 hr 31 min	2 hr 31 min
Optional e-Learning	Common Gas Transmission Pipeline Flow Correlations and Applications Parameters Affecting Heat Transfer in Piping Systems Newtonian and Non-Newtonian Fluids	[30 min]	[30 min]
Virtual Instructor-Led or On-Demand	**Day 2**		
	Fundamentals of Hydrate Inhibition Lecture Self-Directed Problem Assignment	3 hr	1 hr 45 min
	Day 3		
	Problem Debrief and Experience Round Table	3 hr	1 hr 5 min
	Total Duration:	**11 hr 46 min**	**8 hr 36 min**

Fractionation Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

This short course covers fractionation and stabilization of hydrocarbon liquids at both the basic and fundamental levels. Fractionation is one of the most complex processing units in a gas production and processing facility and is often the least understood. This short course will prepare a facilities engineer to understand the operating envelop of stabilization and fractionation columns, what sets the operating pressure and bottoms temperature required, typical fractionation column control options and how to troubleshoot fractionation column operations.

The virtual, instructor-led lecture will cover how to estimate the fractionation column operating pressure and bottoms temperature, as well as cover the different column process control options. The problem assignment will reinforce the key operating principles covered in the instructor led session and will lead to more effective column troubleshooting skills.

The problem debrief will include a process simulation tool that will run the participants through a number of what-if scenarios that will deepen their understanding of how these columns separate the components, but also how they respond depending upon changing inlet conditions, such as ambient temperatures, feed composition changes, and feed rate cooling and heating rate changes. With this knowledge, facility engineers will be better equipped to support operations staff, as well as be more proficient in understanding the critical components for system design, troubleshooting and debottlenecking. Participants may test out of the prerequisites.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led OR On Demand	
Prerequisites	**Day 1** Basic Conversions Hydrocarbon Component Families Gas and Liquid Physical Properties Introduction to Gas Processing Facilities Pure Component Phase Behavior Multicomponent Phase Behavior Vapor Liquid Equilibrium Multi-Stage Stabilization of Crude Oil and Condensate RVP and TVP of Condensate and Crude Oils	5 hr 34 min	5 hr 34 min
Required e-Learning	Pump Applications, Types and Selection Head vs Pressure Rise and Pump Power Requirements Centrifugal Pumps vs Positive Displacement Pumps Cavitation, NPSHR, NPSHA Principles of Centrifugal Pump Operations Principles of Plunger Pump Operations	2 hr 35 min	2 hr 35 min
Virtual Instructor-Led or On-Demand	**Day 2** Fundamentals of Fractionation Lecture Self-Directed Problem Assignment	3 hr	1 hr 6 min
	Day 3 Problem Debrief and Experience Round Table	3 hr	1hr 21 min
	Total Duration:	**14 hr 9 min**	**10 hr 36 min**

Gas/Liquid Separation Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

Separators are a critical but often overlooked component in a processing facility. Applications range from bulk separation of fluids to gas scrubbing upstream of compressors and gas polishing upstream of dehydrators and amine systems. Poor separator performance can significantly impair the effectiveness and availability of downstream process equipment, which in turn reduces profitability.

This short course covers separation principles, applications, and sizing techniques. We will cover the sizing criteria for 2-phase (gas - liquid) and
3-phase (gas - hydrocarbon liquids - water), separator configurations, components and internal devices. The virtual instructor-led lecture will cover detailed separator sizing and analysis methods that will allow facilities engineers to do detailed vendor bid package analysis in terms of the proposed separator size, as well as brownfield separator troubleshooting and debottlenecking.

The problem assignments will apply these methods to real-world example problems, and a problem debrief and round table discussion will delve further into practical issues associated with separation equipment, causes of common operating problems, and possible solutions to consider.

This in-depth short course is invaluable to facilities engineers that are struggling with operating issues in existing facilities, or for engineers that are currently working on greenfield projects that will be responsible for separator sizing and selection. Participants may test out of the prerequisites.

		Instructor Led	OR	On Demand
Prerequisites	**Day 1**			
	Basic Conversions Gas and Liquid Physical Properties Multicomponent Phase Behavior Effect of C6+ Characterization on Phase Behavior Vapor Liquid Equilibrium	3 hr 7 min		3 hr 7 min
Required e-Learning	Principles of Gas Liquid Separation Two-Phase Separation Mist Extraction Devices Vertical and Horizontal Separators	1 hr 34 min		1 hr 34 min
Optional e-Learning	Multi-Stage Stabilization of Crude Oil and Condensate RVP and TVP of Condensate and Crude Oils	[32 min]		[32 min]
Virtual Instructor-Led or On-Demand	**Day 2**			
	Fundamentals of Gas / Liquid Separation Lecture Self-Directed Problem Assignment	3 hr		1 hr 45 min
	Day 3			
	Problem Debrief and Experience Round Table	3 hr		2 hr 5 min
	Total Duration:	**11 hr 13 min**		**9 hr 3 min**

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

Heat Transfer Equipment Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

This short course covers heat transfer equipment from the principles of heat transfer to the heat exchanger types and common applications. Heat transfer principles are covered, and detailed heat and material balance calculations are reviewed to allow one to estimate the required heat transfer area for a given heat exchanger application. Detailed hand calculation methods will be presented to estimate the sizing of shell and tube heat exchangers which will emphasize the impact of the effective temperature approaches selected. A case study compares the pros and cons of tighter temperature approaches, and heating and cooling curves will be utilized to investigate heat integration.

This short course provides insight into the various heat transfer equipment options and includes simple methods to troubleshoot the performance of existing exchangers through an understanding of principles of heat transfer analysis. These methods can also be applied to check conventional shell and tube heat exchanger vendor bid packages to ensure the vendor is quoting an optimal design for the application. During the problem debrief and round table discussion, delegates will have the opportunity to share their experiences and challenges with heat transfer equipment. Participants may test out of the prerequisites.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led	OR	On Demand
Prerequisites	**Day 1**			
	Basic Conversions Gas and Liquid Physical Properties Multicomponent Phase Behavior Thermodynamic Principles and the First Law of Thermodynamics Second Law of Thermodynamics and Energy Balance Equations Ethalpy Correlations and Applications of Energy Balance Correlations	3 hr 27 min		3 hr 27 min
Required e-Learning	Types of Heat Exchangers and Their Common Applications Heat Transfer Mechanisms and Parameters Affecting Heat Transfer Coefficient Estimating Exchanger's Heat Transfer Area Shell and Tube Exchanger Types and their Applications Compact Heat Exchanger and Fired Heaters Process Cooling Methods and Air-Cooled Heat Exchangers	1 hr 34 min		1 hr 34 min
Virtual Instructor-Led or On-Demand	**Day 2**			
	Fundamentals of Hydrate Inhibition Lecture Self-Directed Problem Assignment	3 hr		1 hr 45 min
	Day 3			
	Problem Debrief and Experience Round Table	3 hr		1 hr 24 min
	Total Duration:	**11 hr 50 min**		**8 hr 46 min**

Hydrate Inhibition Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

This short course describes hydrates and explores conditions favoring hydrate formation. It also describes how to estimate the hydrate formation temperature of a natural gas stream and provides methods to estimate hydrate inhibitor injection requirements. Participants will learn the key differences between low dosage hydrate inhibitors and thermodynamic inhibitors.

The problem assignment will provide technical insight into the differences between methanol and mono-ethylene glycol used as hydrate inhibitors. The problem debrief and round table will explore the advantages and disadvantages of both inhibitors and provide additional depth on practical industry experience regarding hydrate inhibition for both pipeline and NGL extraction plants (such as J-T Valve and Refrigeration facilities) applications.

During the problem debrief and round table discussion, participants will have the opportunity to ask additional questions and share their challenges and experiences with hydrate inhibition.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led	OR	On Demand
Prerequisites	**Day 1**			
	Basic Conversions Gas and Liquid Physical Properties Multicomponent Phase Behavior Water Content of Sweet and Sour Natural Gas	2 hr 41 min		2 hr 41 min
Required e-Learning	What Are Hydrates and How Are They Formed Hydrate Formation Temperature Preventing Hydrate Formation	1 hr 29 min		1 hr 29 min
Optional e-Learning	Low Dosage Inhibitors	[15 min]		[15 min]
Virtual Instructor-Led or On-Demand	**Day 2**			
	Fundamentals of Hydrate Inhibition Lecture Self-Directed Problem Assignment	3 hr		1 hr 23 min
	Day 3			
	Problem Debrief and Experience Round Table	3 hr		1 hr 3 min
	Total Duration:	**10 hr 25 min**		**6 hr 51 min**

Hydrocarbon Phase Behavior Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

John M. Campbell often said, "knowledge of the basic fundamentals is the required foundation for a successful professional practice." This is part 2 of the two short courses that will set the foundation for a successful facilities engineering career. This short course covers the fundamentals of hydrocarbon phase behavior, which is key to understanding gas processing facilities, and sets the foundation of being able to "think inside the pipe" for better insight into processing equipment as operating conditions change. We will cover both qualitative and quantitative phase behavior of hydrocarbons for pure components and for multicomponent streams. Being able to predict the phase condition of a hydrocarbon stream is critical in plant operation, troubleshooting and design. This short course will give you the tools to do so with a simple, robust, and easy to use process simulator.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led OR On Demand	
Required e-Learning	**Day 1**		
	Pure Component Phase Behavior Multicomponent Phase Behavior Effect of C6+ Characterization on Phase Behavior Non-Hydrocarbon Components Effect on Phase Envelopes Fundamental Applications of Phase Envelopes Vapor Liquid Equilibrium Multi-stage Stabilization of Crude Oil and Condensate RVP and TVP of Condensate and Crude Oils Asynchronous Problem Assignment	2 hr 58 min	2 hr 58 min
Virtual Instructor-Led or On-Demand	**Day 2**		
	Hydrocarbon Phase Behavior Fundamentals Lecture	2 hr 30 min	1 hr 15 min
	Total Duration:	**5 hr 28 min**	**4 hr 13 min**

Molecular Sieve Dehydration Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

Molecular sieve dehydration is required upstream of cryogenic turbo-expander gas plants and in front of liquefaction (LNG) facilities. The dehydration unit is critical to the performance of these plants as small amounts of water breakthrough can result in freezing in the downstream heat exchangers, typically Brazed Aluminum Plate Fin exchangers for turbo-expander plants, core and keetle, or possibly coil-wound exchangers for LNG facilities.

Molecular sieve dehydration units are sized and serviced by the molecular sieve vendors. However, facilities engineers need to understand how these dehydrators work and what their key parameters are.

The virtual, instructor-led lecture will cover equilibrium loading, define the mass transfer zone, and discuss the life factors that affect operations. The method to apply these principles to molecular sieve performance test runs will be covered, as well as the benefits of utilizing standby time to extend the life of molecular sieve beds. The problem assignment will work through determining the expected life of a molecular sieve bed using these principles with the results of a performance test run, and to investigate options to extend the bed life.

The problem debrief will cover the practical applications learned in the problem assignment. Common operating problems and potential solutions will be discussed, and the participants will be able to share their experiences and ask detailed questions in the round table discussion. Participants may test out of the prerequisites.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led	OR	On Demand
Prerequisites	**Day 1**			
	Basic Conversions Gas and Liquid Physical Properties Introduction to Gas Processing Facilities Multicomponent Phase Behavior Fundamental Applications of Phase Envelopes Water Content of Sweet and Sour Natural Gas	4 hr 27 min		4 hr 27 min
Required e-Learning	Adsorption Dehydration Molecular Sieve Dehydration Performance Parameters Mol Sieve Regeneration Process	1 hr 29 min		1 hr 29 min
Virtual Instructor-Led or On-Demand	**Day 2**			
	Fundamentals of Molecular Sieve Dehydration Lecture Self-Directed Problem Assignment	3 hr		1 hr 36 min
	Day 3			
	Problem Debrief and Experience Round Table	3 hr		57 min
	Total Duration:	**11 hr 56 min**		**8 hr 29 min**

NGL Extraction Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

This short course details the processing technology options for hydrocarbon dewpoint control and deep NGL extraction and discusses the considerations that are important to the most optimal process selection for a given field development. The short course content will meet the needs of a facilities engineer that is supporting a hydrocarbon dewpoint facility, moderate NGL extraction plants, as well as those assigned to Gas Sub-cooled Process (GSP) or turbo-expander facilities. The key pieces of equipment will be covered, as well as the overall combined processing unit.

The virtual, instructor-led session will review the methods required to analyze the heat and material balance for NGL extraction plants from first principles. The two problem assignments will compare and contrast the differences between two different technologies used for hydrocarbon dewpoint control (mechanical refrigeration and turboexpander plants). These learnings also apply directly to GSP plants.

The problem debrief and round table discussion session will cover the practical learnings gained from the problem assignments. The difference between lean and rich gas processing will be discussed. A deep discussion on the limitations on brazed aluminum heat exchangers and their operating considerations will be held to raise the awareness of the issues associated with this type of heat exchanger. During the round table discussion, common operating problems of refrigeration and turboexpander facilities and their potential solutions will be discussed where the participants will have the opportunity to share their experiences and ask specific questions regarding their specific facilities. Participants may test out of the prerequisites.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led	OR	On Demand
Prerequisites	**Day 1**			
	Basic Conversions Gas and Liquid Physical Properties Introduction to Gas Processing Facilities Multicomponent Phase Behavior Effect of C6+ Characterization on Phase Behavior Fundamental Applications of Phase Envelopes Thermodynamic Principles and the First Law of Thermodynamics Second Law of Thermodynamics and Energy Balance Equations	5 hr 8 min		5 hr 8 min
Required e-Learning	NGL Extraction Compact Heat Exchanger and Fired Heaters Operation of Expansion Refrigeration Devices Common Process Configurations NGL Extractions	2 hr 35 min		2 hr 35 min
Optional e-Learning	Mercury Removal Application of Refrigeration Systems Simple Refrigeration Systems Stage Separation vs Fractionation Types of Internals in Mass Transfer Columns	[1 hr 45 min]		[1 hr 45 min]
Virtual Instructor-Led or On-Demand	**Day 2**			
	Fundamentals of Centrifugal Compressors Lecture Self-Directed Problem Assignment	3 hr		1 hr 46 min
	Day 3			
	Problem Debrief and Experience Round Table	3 hr		2 hr 16 min
	Total Duration:	**15 hr 28 min**		**13 hr 30 min**

Overview of Gas Conditioning and Processing for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format. This short course gives a solid understanding of the Natural Gas Value Chain and common terminology in the industry. It discusses the different types of reservoirs and their varying composition. In addition, it will discuss typical contaminants found in produced gas streams, and typical natural gas sales or transportation specifications, including higher heating value and Wobbe number. The products of a typical natural gas processing plant and their associated markets are reviewed.

The primary processing units of gas conditioning and processing are discussed, including NGL extraction. Different NGL extraction recoveries can be achieved depending upon the facilities processing operating objective. For example, hydrocarbon dewpointing of the gas to meet a pipeline tariff specification, or deep NGL recovery to enhance facility profits. Shrinkage is an important consideration for NGL extraction facilities, as it is one of the biggest operating costs. Shrinkage and how it is calculated will also be reviewed.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. By taking the 12 Short Courses, the delegate will essentially complete the Campbell Gas Course®, but in a 3-day class format that allows one to also be available for work assignments.

		Instructor Led	OR	On Demand
Required e-Learning	**Day 1**			
	Introduction to Gas Processing & Facilities NGL Extraction	1 hr 59 min		1 hr 59 min
Virtual Instructor-Led or On-Demand	**Day 2**			
	The Natural Gas Value Chain Lecture	2 hr 30 min		1 hr 26 min
	Total Duration:	**4 hr 29 min**		**3 hr 25 min**

Process Engineering Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

This is part 1 of the 2 short courses that will set the foundation for a successful facilities engineering career. John M. Campbell often said, "knowledge of the basic fundamentals is the required foundation for a successful professional practice." This short course will set the initial foundation in facilities engineering by covering the initial basic concepts required to deeply understand gas processing and be able to "look inside the pipe."

With this knowledge, you will better understand your facilities inlet stream compositions and the specific challenges that the composition may present. In addition, the necessary conversions required to do any gas processing or equipment calculation will come quickly and easily to you. This is the first part of the training to allow you to quickly troubleshoot plant operations based upon understanding how hydrocarbon gas and liquid physical properties change based upon the current or forecasted operating conditions.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led OR On Demand	
Required e-Learning	Day 1		
	Basic Conversions Hydrocarbon Component Families Gas and Liquid Physical Properties Hydrocarbon Analysis and C6+ Characterization Asynchronous Problem Assignment	2 hr 38 min	2 hr 38 min
Virtual Instructor-Led or On-Demand	Day 2		
	Process Engineering Fundamentals Lecture	2 hr 30 min	1 hr 31 min
	Total Duration:	**5 hr 08 min**	**4 hr 09 min**

Propane Refrigeration Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

Propane refrigeration is likely the most important utility system in refrigeration NGL extraction plants, and in rich gas turbo-expander facilities.

This short course covers the basics of refrigeration systems and builds up to the fundamental knowledge that is required for propane refrigeration system sizing, analysis, and troubleshooting.

Once the foundation is laid with the basic principles, the virtual, instructor-led session will take you through the fundamental sizing equations and analysis to determine a facilities propane refrigeration requirements. The problem assignments will give the participants insight into propane refrigeration operating issues, and limitations.

The virtual, instructor-led debrief will cover the practical insights that were gained from working the assigned problem set, as well as cover mechanical refrigeration system controls, common operating issues, and potential solutions. The round table discussion will allow delegates to ask questions regarding their particular systems and share the current problems and experiences. Participants may test out of the prerequisites.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led	OR	On Demand
Prerequisites	**Day 1**			
	Basic Conversions Gas and Liquid Physical Properties Pure Component Phase Behavior Thermodynamic Principles and the First Law of Thermodynamics Second Law of Thermodynamics and Energy Balance Equations Enthalpy Correlations and Applications of Energy Balance Correlations Using PH Diagrams to Perform Energy Balance Calculations Compressor Head, Power Requirements and Discharge Temperature	4 hr 29 min		4 hr 29 min
Required e-Learning	Application of Refrigeration Systems Simple Refigeration Systems Operation of Refigeration Systems Economizers in Mechanical Refrigeration Systems	1 hr 39 min		1 hr 39 min
Optional e-Learning	Factors in Selecting Refrigerants, Cascade and Mixed Refigeration Systems	[26 min]		[26 min]
Virtual Instructor-Led or On-Demand	**Day 2**			
	Fundamentals of Propane Refrigeration Lecture Self-Directed Problem Assignment	3 hr		1 hr 20 min
	Day 3			
	Problem Debrief and Experience Round Table	3 hr		1 hr 30 min
	Total Duration:	**12 hr 34 min**		**9 hr 24 min**

TEG Dehydration Fundamentals for Facilities Engineers

ABOUT THIS COURSE

The Campbell Gas Course® has been the industry standard for more than 50 years and the core competencies of the Campbell Gas Course® are now available in PetroAcademy's Short Course format.

Dehydration is the process of removing water from a gas so that no condensed water will be present in the system. Water is the most common contaminant in produced natural gas, and is a source for not only hydrates, but corrosion and erosion problems in equipment and pipelines. TEG Dehydration is by far the most common technology used to dehydrate natural gas. These units are often utilized as field dehydration units to prevent hydrates from forming in gathering systems, and in-plant facilities to meet a pipeline water dewpoint specification. Despite TEG Dehydration being used so frequently, these units are subject to multiple operating conditions and limitations depending upon how the system was specified and built.

The virtual instructor-led lecture will cover the fundamental application of TEG dehydration calculations and analysis. The key performance parameters of these units will be covered in detail. The problem assignment will give participants insight into the issues and limitation of TEG Dehydration technology.

The problem debrief and round table discussion will delve into common operating problems, potential solutions as well as give participants the opportunity to share their experiences. Participants may test out of the prerequisites.

DESIGNED FOR

Mid-career professionals who need to get quickly up to speed on a facilities engineering topic for a project need, or for a reassignment to a field in which they do not have significant experience. Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations. This short course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

		Instructor Led	OR	On Demand
Prerequisites	**Day 1**			
	Basic Conversions Gas and Liquid Physical Properties Introduction to Gas Processing Facilities Multicomponent Phase Behavior Water Content of Sweet and Sour Natural Gas Vapor Liquid Equilibrium	5 hr 14 min		5 hr 14 min
Required e-Learning	Gas Dehydration Processes Glycol Dehydration Methods to Mitigate Emissions Types of Internals in Mass Transfer Columns	2 hr 27 min		2 hr 27 min
Virtual Instructor-Led or On-Demand	**Day 2**			
	Fundamentals of TEG Dehydration Lecture Self-Directed Problem Assignment	3 hr		1 hr 26 min
	Day 3			
	Problem Debrief and Experience Round Table	3 hr		1 hr 20 min
	Total Duration:	**13 hr 41 min**		**10 hr 29 min**

Process Facilities

COMING SOON

Introduction to Oil and Gas Production Facilities

ABOUT THIS COURSE

This course introduces oil and gas production facilities at the awareness level. It covers the following topics in 3-5 hours of self-paced activities. This program is only available as a course.

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

DESIGNED FOR

Those interested in an overview of production facilities, including subsurface professionals, line managers, sales or business development staff, environmental personnel, operations staff, and those new to the industry, such as entry-level (1-2 year) engineers.

COMING SOON

Oil Production and Processing Facilities Principles for Engineers

ABOUT THIS COURSE

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

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module ranges from 3-5 hours of self-paced activities, with pre and post assessments. In addition, the skill modules have interactive exercises and problems to solve on various topics.

- Overview of Reservoir Engineering for Facilities Operations Core (PRS-RES-1)
- Gas, Oil, and Water Composition and Properties Core (PRS-GOW-1)
- Oil Gathering Systems Fundamentals (PRS-OGS-2)
- Gas-liquid Separation Fundamentals (PRS-GLS-2)
- Oil-Water Separation Fundamentals (PRS-OWS-2)
- Oil Treating and Desalting Fundamentals (PRS-OTR-2)
- Oil Stabilization, Sweetening, Storage, and VRU Crude Fundamentals (PRS-OSV-2)
- Water/Hydrocarbon Phase Behavior Core (GAS-WHP-1)
- Flow Assurance Fundamentals for Surface Facilities (PRS-FLA-2)
- Transportation of Crude Oil Fundamentals (PRS-TCO-2)
- Produced Water Treatment Fundamentals (PRS-PWT-2)
- Water Injection Systems Fundamentals (PRS-WIS-2)
- Overview of Solution Gas Handling Fundamentals (PRS-OSG-2)

DESIGNED FOR

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

Process Safety Engineering Principles

ABOUT THIS COURSE

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

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Process Safety Risk Analysis and Inherently Safer Design Core (PRS-PSR-1)
- Process Hazards Analysis and Layers of Protection Analysis Core (PRS-PHA-1)
- Leakage and Dispersion of Hydrocarbons Core (PRS-LDH-1)
- Combustion Behavior of Hydrocarbons Core (PRS-CBH-1)
- Sources of Ignition and Hazardous Area Classification Core (PRS-SIH-1)
- Specific Plant Systems and Equipment Core (PRS-SPS-1)
- Relief and Flare Systems Core (PRS-RFS-1)
- Historical Incident Databases, Plant Layout and Equipment Spacing Core (PRS-HID-1)
- Fire Protection Systems Core (PRS-FPS-1)
- SIS, Monitoring and Control Core (PRS-SIS-1)

DESIGNED FOR

Anyone who needs to work with process safety engineers; this would include facilities engineers, operations and maintenance supervisors, project engineers and managers, entry level process safety engineers, experienced professionals new to oil and gas, and anyone who needs a general understanding of the breadth of the process safety engineering discipline. Technical staff from insurance companies and regulatory agencies have found the course useful.

Process Safety Engineering Fundamentals

ABOUT THIS COURSE

This Process Safety Engineering blended course extends the Process Safety Engineering Principles course to the Fundamental level. Course material is reinforced using problems, simple calculations, and applications to an example facility. The applications provide an opportunity to integrate the concepts and methods in an oil and gas environment. Each skill module includes two 90 minute interactive sessions with the instructor, in which the applications and any concerns the participants may have will be discussed in detail. Frequent references will be made to historical incidents and common areas of process safety concern. By the end of the course, course participants should be ready to apply their learning on the job.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

Those requiring a less technical course may be interested in Process Safety Engineering Principles and risk-based process safety management is the subject of HS45.

- Risk Analysis and Inherently Safer Design Fundamentals (PRS-RAI-2)
- PHA Techniques and LOPA Fundamentals (PRS-PHA-2)
- Leakage and Dispersion, Combustion Behavior, Sources of Ignition Fundamentals (PRS-LDC-2)
- Historical Incident Databases, Metrics, and Specific Facilities (Bad Actors) Fundamentals (PRS-HID-2)
- Relief, Flare, and Depressurization Fundamentals (PRS-RFD-2)
- Controls and Safety Instrumented Systems Fundamentals (PRS-CSI-2)
- Spacing and Layout, Fire Prevention Fundamentals (PRS-SLF-2)

DESIGNED FOR

Facilities/process engineers, as well as engineers and operations staff involved in process safety and asset integrity.

COURSE INSTRUCTOR

The following PetroSkills expert will teach this PetroAcademy course:

Peter Williams

For more information on this instructor, please visit www.petroskills.com/instructors

Basics of Rotating Mechanical Equipment

ABOUT THIS COURSE

This course provides an overview of mechanical rotating equipment. The focus is on equipment selection of pumps, compressors and drivers and their integration into the process scheme and control strategy in upstream and midstream oil and gas facilities. Compressor and pump sizing are addressed as well as sizing of drivers including engines, electric motors and turbines. Commissioning and installation are reviewed to ensure optimal equipment integrity and reliability for the life of the plant. The material of the course is applicable to field production facilities, pipelines, gas plants, and offshore systems.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module ranges from 3-5 hours of self-paced activities.

- Pumps and Compressors Overview Core (GAS-PCC-1)
- Reciprocating Engines for Process Facilities Core (MEC-REC-1)
- Gas and Steam Turbines Core (MEC-GST-1)
- Machinery Design, Materials, and Subsystems Core (MEC-MDM-1)

DESIGNED FOR

Process Engineers, Senior Operations Personnel, Field Supervisors, Engineers who select, design, install, evaluate or operate gas processing plants and related facilities.

Basics of Static Mechanical Equipment

ABOUT THIS COURSE

This course provides an overview of mechanical non-rotating, static equipment. The focus is on equipment selection and integrity of pressure vessels, piping and heat exchangers and their integration into the process scheme and control strategy in upstream and midstream oil and gas facilities. The course addresses code requirements focusing on ASME Boiler & Pressure Vessel code as well as B31 code and API tank construction codes. Heat exchanger sizing and TEMA requirements are also discussed. Piping hydraulics and corrosion mechanisms are reviewed to ensure correct equipment sizing and integrity management. The material of the course is applicable to field production facilities, pipelines, gas plants, and offshore systems.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Mechanical Equipment Core (MEC-MEC-1)
- Properties of Materials Core (MEC-PMC-1)
- Piping Systems and Welding Core (MEC-PSW-1)
- Heat Transfer Equipment Overview Core (GAS-HTE-1)
- Unfired Pressure Vessels Core (MEC-UPV-1)
- Fired Heaters and Boilers Core (MEC-FHB-1)
- Storage Tanks Core (MEC-STC-1)
- Corrosion Control and Protection Core (MEC-CCC-1)
- Fire Protection Systems Core (PRS-FPS-1)
- Mechanical Equipment Inspection, Operation, and Maintenance Core (MEC-MEI-1)

DESIGNED FOR

Process Engineers, Senior Operations Personnel, Field Supervisors, Engineers who select, design, install, evaluate or operate gas processing plants and related facilities.

Industrial Automation for Oil and Gas Applications

ABOUT THIS COURSE

This foundation-level course provides an introduction and overview of electrical systems, instrumentation, control valves, process control, control/safety, and SCADA systems typically encountered in oil and gas facilities. The focus is to understand terminology, concepts, typical equipment configurations, applicable codes and standards, project execution strategies, and common pitfalls to improve communication with electrical and I&C professionals.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Control Systems for Oil and Gas Applications Core (Part 1) (INC-CS1-1)
- Control Systems for Oil and Gas Applications Core (Part 2) (INC-CS2-1)
- Instrumentation Selection for Oil and Gas Applications Core (General) (INC-ISO-1)
- Instrumentation Selection for Oil and Gas Applications Core (Flow) (INC-ISF-1)
- Instrumentation Selection for Oil and Gas Applications Core (Level) (INC-ISL-1)
- Instrumentation Selection for Oil and Gas Applications Core (Pressure, Temperature) (INC-ISP-1)
- Instrumentation Selection for Oil and Gas Applications Core (Analysis) (INC-ISA-1)
- Control Valves for Oil and Gas Applications Core (INC-CVO-1)

DESIGNED FOR

Process, chemical, and mechanical engineers, (i.e., non-instrumentation and non-electrical disciplines), as well as other technical and non-technical professionals with little or no background in IC&E systems.

Pipeline Engineering

Pipeline Engineering, Construction, and Operation

ABOUT THIS COURSE

The Pipeline Engineering, Construction, and Operation course represents the integration of all the skills associated with planning, evaluation, design, construction, operation and asset integrity through asset retirement and abandonment, applied to onshore and offshore pipelines.

The course covers typical pipeline life cycle activities, starting with the definition of the need for the pipeline, sizing parameters, route selection, environmental concerns and protection, followed by design requirements, strength requirements, construction activities through commissioning. The course then covers the operating life of the pipeline, including maintenance and leak detection, monitoring and integrity, repair, replacement and alteration activities, leading to retirement and abandonment.

The design aspect of the course focuses on meeting the pipeline capacity requirements while complying with all strength code requirements and environmental protection codes and regulations. For offshore pipelines, these include on-bottom stability, spanning requirements and shore crossing design, applying the most suitable construction methods for the challenge encountered.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Pipeline O&M, Leak Detection, Repairs, Alterations and Abandonment Core (U.S. Focus) (PIP-POM-1)
- Pipeline Routing and Geomatics Core (U.S. Focus) (PIP-PRG-1)
- Compliance and Pollution Events and Environmental Impacts and Assessments Core (U.S. Focus) (PIP-CPE-1)
- Pipeline Hydraulics and Flow Assurance Core (PIP-PHF-1)
- Pipeline Strength, Stability and Environmental Considerations Core (U.S. Focus) (PIP-PSS-1)
- Pipeline Pump and Compressor Stations and Terminals Core (U.S. Focus) (PIP-PCS-1)
- Pipeline Construction Core (U.S. Focus) (PIP-PIC-1)

DESIGNED FOR

Pipeline project managers and engineers, operations and maintenance supervisors, regulatory compliance personnel, and other technical professionals with 1-3 years of experience in natural gas, crude oil, refined petroleum products, LPGs, NGL, chemical, carbon dioxide pipeline engineering, construction, operations, or maintenance. This course is intended for participants needing a broad understanding of the planning, development, construction, start-up, and operating and asset integrity management of onshore pipelines.

COMING SOON

Introduction to Refining Operations for Engineers

ABOUT THIS COURSE

This course has been designed for early and mid-career Refining Engineers and includes a variety of topics of great interest for supporting the refining operation activities. Subject matters as supervision skills, crude and products movement operations, corrosion control, electrical topics for non-electrical engineers, QA/QC Lab management, and routine maintenance and turnaround planning are discussed under a friendly platform with the most modern learning tools to ensure the knowledge basis creating for ensure a safety and continuous refining operations.

This course is comprised of the following eight (8) PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Refining and Petrochemical Operation Supervisory Skills Core (REF-SUP-1)
- Refining Oil Movement and Storage Operation Skills Core (REF-OMS-1)
- Refinery Corrosion Control and Monitoring Core (REF-CCM-1)
- Electrical Topics for Non-Electrical Engineers Core (REF-ELE-1)
- Refining and Petrochemicals QA/QC Laboratory Management Core (REF-QAC-1)
- Refining and Petrochemicals Turnaround Planning and Control Core (REF-RPT-1)
- Refining and Petrochemicals Routine Maintenance, Planning, and Control Core (REF-RMP-1)
- Reliability Centered Maintenance (RCM) Core (REF-RCM-1)

DESIGNED FOR

Process Engineers, Planning and Economics Engineers, Inspection Engineers, HSE Engineers, Maintenance Engineers and Supervisors, Laboratory Managers and Supervisors, Turnaround Planners and Operation Supervisors.

Net-Zero and Renewables

COMING SOON

Foundations of Electrochemical Engineering

ABOUT THIS COURSE

Globally there is an ongoing shift in energy production away from fossil fuels and towards energy sources that have lower carbon footprints. The primary objective of this course is to provide an overview of electro chemical engineering concepts, principles and applications.

The initial modules in this course provide the foundational aspects and definitions associated with science and technology of Electrochemical Engineering. This is followed by the remainder of modules covering the practical aspects of fuel cells and electrolyzers that are key components of the emerging hydrogen industry.

This course is comprised of the following PetroAcademy® Skill Modules™. Each skill module averages approximately 1-2 hours of self-paced online learning activities.

- Basics of Electrochemistry Core (HYD-BEL-1-N)
- Differences Between Electrochemical and Thermochemical Systems Core (HYD-DIF-1-N)
- Electrochemical Processes Core (HYD-ELP-1-N)
- Galvanic Cells, Electrolysis Cells, Fuel Cells, and Standard Electrode Potentials Core (HYD-GAL-1-N)
- Basic Analytical Electrochemical Techniques Core (HYD-BAN-1-N)
- Electrochemistry of Fuel Cells Core (HYD-EFC-1-N)
- Electrochemistry of Electrolyzers Core (HYD-EEL-1-N)
- Industrial Electrochemical Systems Design Core (HYD-PES-1-N)

DESIGNED FOR

This course is useful for process engineers, non-electrical engineers, technical subject matter experts and technical managers interested in electro chemical engineering, electrolyzers and fuel cells.

Introduction to Greenhouse Gas Management, Accounting, and Reporting

ABOUT THIS COURSE

Climate change is a key sustainable development issue, and transitioning to a low-carbon economy is now imperative. Most governments are taking steps to reduce Greenhouse Gas (GHG) emissions through national policies that include the introduction of emissions trading programs, voluntary programs, carbon or energy taxes, and regulations and standards on energy efficiency and emissions.

Organizations must be able to understand and manage their GHG risks if they are to ensure long-term success and be prepared for future national or regional climate policies. A well-designed and maintained corporate GHG inventory (carbon footprint) is essential to manage these risks effectively.

This course will provide fundamental knowledge about GHG emissions, including identification, management, mitigation, and reduction; quantification; consolidation into different scopes and inventories; and reporting.

This course is comprised of the following PetroAcademy® Skill Modules™. Each skill module averages 1-2 hours of self-paced online learning activities.

- Introduction to Greenhouse Gas Emissions Core (GHG-GGE-1-N)
- Organizational Boundaries for Greenhouse Gas Inventories Core (GHG-ORB-1-N)
- Operational Boundaries for Greenhouse Gas Inventories Core (GHG-ORP-1-N)
- Greenhouse Gas Emissions Sources and Quantification Core (GHG-QUA-1-N)
- Greenhouse Gas Emissions Tracking Over Time Core (GHG-TRA-1-N)
- Greenhouse Gas Emissions Inventory Quality Management Core (GHG-INV-1-N)
- Climate Change Risk and Opportunities Assessment Core (GHG-CCR-1-N)
- Greenhouse Gas Emissions Reporting Requirements Core (GHG-REP-1-N)
- Scope 1 and 2 Greenhouse Gas Emissions – An Introduction Core (GHG-SCO-1-N)
- Scope 3 Greenhouse Gas Emissions – An Introduction Core (GHG-SC3-1-N)

DESIGNED FOR

This course is for anyone wanting to commence their learning or further consolidate their fundamental knowledge and competence regarding Greenhouse Gas (GHG) management.

COMING SOON

Introduction to Hydrogen

ABOUT THIS COURSE

Globally there is an ongoing shift in energy production away from fossil fuels and towards energy sources that have lower carbon footprints. The primary objective of this course is to give an overview of the fundamentals of Hydrogen and how it can be used as an energy carrier.

This course introduces Hydrogen, from its history to properties and characteristics, and current use. Production methods, carbon intensity, storage, and distribution to potential use cases. Also important are the safety aspects - how Hydrogen can be produced, stored, distributed, and used safely. This course is useful for anyone in the Hydrogen industry, transitioning towards a renewable energy future or with an interest in gaining an awareness of this energy carrier as the energy transition takes shape.

This course is comprised of the following PetroAcademy® Skill Modules™. Each skill module averages approximately 3-4 hours of self-paced online learning activities.

- Hydrogen Overview Core (HYD-HOV-1-N)
- Safety Aspects of Hydrogen Core (HYD-SAF-1-N)
- Hydrogen Production Core (HYD-PRO-1-N)
- Hydrogen Compression and Storage Core (HYD-COS-1-N)
- Distribution Methods of Hydrogen Core (HYD-DIS-1-N)
- Introduction to Fuel Cells Core (HYD-IFC-1-N)
- Hydrogen Use Cases and Derivatives Core (HYD-HUC-1-N)
- Hydrogen Process Safety Core (HYD-HSP-1-N)

DESIGNED FOR

This course is useful for anyone interested in an awareness of what Hydrogen is and how it can be used in the energy and transport industries to assist in the energy transition to a lower carbon emitting future.

Overview of Net-Zero and Renewables

ABOUT THIS COURSE

Globally there is an ongoing shift in energy production away from fossil fuels and towards energy sources that have lower carbon footprints. The primary objective of this course is to give an overview of the various available technologies with their pros and cons.

This course covers the political and business drivers for reduction in CO2 emissions as well as an introduction to the various technologies being introduced and researched. This course is useful for anyone involved in the strategic planning and implementation of strategies that satisfy national and international and company requirements for reductions in greenhouse gas emissions in power generation environments.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- The Drivers Behind Net-Zero Core (GHG-DBN-1-N)
- Business Aspects of Global Warming and Alternative Energies Core (ALL-BAR-1-C)
- Existing Power Generation Technologies with Alternative Energies Core (ALL-EPG-1-C)
- Carbon Capture, Utilization and Storage Core (CCP-CCU-1-N)
- Alternative Fuels Core (ALL-AFC-1-C)
- Solar Power Generation Core (SOL-SPG-1-R)
- Wind Power Generation Core (WND-WPG-1-R)
- Energy Storage Core (EST-ESC-1-R)
- Coherent Planning for the Future Core (ALL-CPF-1-C)

DESIGNED FOR

This course is useful for senior and middle management and for anyone involved in the integration of low carbon power generation technologies into existing and future infrastructure.

COMING SOON

Understanding Geothermal and Uses

ABOUT THIS COURSE

Geothermal energy is a renewable energy source that encompasses two major energy sectors: heat production and electricity generation. Unlike other intermittent renewable energy sources, geothermal energy is continually generated through natural geological processes. Consequently, it serves as a base load resource with zero carbon emissions and minimal land use impact.

This course introduces the primary applications of geothermal energy, outlines the fundamental principles of heat transfer mechanisms in the Earth's crust, and describes geothermal plays and reservoirs associated with various geological settings.

This course is comprised of the following PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Geothermal Energy Benefits and Applications Core (GEO-EBA-1-R)
- Nature and Dynamics of Geothermal Systems Core (GEO-NDG-1-R)
- Direct Use Applications of Geothermal Core (GEO-DUA-1-R)
- Geothermal Electricity Production Core (GEO-ELP-1-R)

DESIGNED FOR

Professionals seeking to acquire fundamental knowledge in geothermal energy and its primary applications (awareness level) will find this course particularly valuable.

Given that numerous skills used in the oil and gas industry, such as exploration, drilling, and reservoir engineering, directly translate to geothermal projects, this course will be especially beneficial for professionals in these fields.

Facilities Project Management

ABOUT THIS COURSE

This course addresses Conventional and Unconventional (Shale) project management principles and practices as they relate to engineering design, procurement, and construction activities. Upon completion of this course, the participant will know what the engineering, procurement and construction phases entail and how to identify and organize project teams. You will also be able to use fit-for purpose project management techniques and project control tools to facilitate successful project outcomes. The specific training received in schedule and cost management will help the project manager make the best decisions possible. Participants will understand how the project management, drilling and completion, HSE, land, production and transportation disciplines relate to one another and what tools are available for the project manager to use to ensure interfaces among key stakeholders are managed.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Onshore Field Development Programs and Projects Core (PRJ-OFD-1)
- Project Governance Core (PRJ-PGC-1)
- Project Resources and Organization Core (PRJ-PRO-1)
- Scope Delivery Core (PRJ-SDC-1)
- Design Engineering Management Core (PRJ-DEM-1)
- Acquiring Goods and Services Core (PRJ-AGS-1)
- Construction Management Core (PRJ-CMC-1)
- Project Risk Management Core (PRJ-RMC-1)
- Cost Estimating for Facility Projects Core (PRJ-CEC-1)
- Scheduling Core (PRJ-SCC-1)
- Progress Measurement Core (PRJ-PMC-1)

DESIGNED FOR

Early career project managers, project engineers, facility engineers, production engineers, project controls representatives, and purchasing personnel who plan, manage, or participate on multi-discipline shale field development project teams. Conventional and Unconventional (Shale) projects ranging from $5 MM to $50 MM, including well flow lines, tank batteries, booster compressors, short pipelines and meter stations, that are a part of a larger field development program.

Energy Business

Basic Petroleum Economics

ABOUT THIS COURSE

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

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 2 hours of self-paced online learning activities.

- Production Forecasting Core (PEB-PFC-1)
- Oil and Gas Pricing Core (PEB-OGP-1)
- Cash Flow Core (PEB-CFC-1)
- Economic Decision Tools Core (PEB-EDT-1)
- Risk and Uncertainty Core (PEB-RUC-1)
- Financing and Ownership Core (PEB-FOC-1)
- Petroleum Industry Accounting Core (PEB-PIA-1)
- Budgeting Core (PEB-BUC-1)

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. Participants will benefit from taking this course if they have no previous experience in the how and why of project economics, how project sanction and funding decisions are made and understanding oil and gas project decision making.

COMING SOON

Petroleum Risk and Decision Analysis

ABOUT THIS COURSE

Good technical and business decisions are based on competent analysis of project costs, benefits and risks. Participants learn the decision analysis process and foundation concepts so they can actively participate in multi-discipline evaluation teams. The focus is on designing and solving decision models. About half the problems relate to exploration. The methods apply to R&D, risk management, and all capital investment decisions. Probability distributions express professional judgments about risks and uncertainties and are carried through the calculations. Decision tree and influence diagrams provide clear communications and the basis for valuing each alternative. A hand-calculation exercise delivers detailed experience in Monte Carlo simulation. Project modeling fundamentals and basic probability concepts provide the foundation for the calculations. The mathematics is straightforward and mostly involves only common algebra. The emphasis is on practical techniques for immediate application.

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Decision Analysis Process Core (PEB-DAP-1)
- Value of Control Fundamentals (PEB-VCC-2)
- Value of Information and Bayes' Rule Fundamentals (PEB-BRC-2)
- Decision Policy and Value Calculations Fundamentals (PEB-DPV-2)
- Monte Carlo Simulation and Distributions Fundamentals (PEB-DIS-2)
- Judgments and Biases Fundamentals (PEB-JBC-2)

DESIGNED FOR

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

Data Science and Analytics

The Impact of Data Analytics on the New Digital Oilfield

ABOUT THIS COURSE

It is not “breaking news” that the oil and gas industry is interested in emerging digital technology advances and that many, if not most, operators and oilfield service companies are embracing the strategy of digital transformation. This course doesn’t begin at the beginning but is a mid-term examination of the progress, successes, and challenges the industry is facing. Here are a few of the mid-term exam questions:

How does “digital” help the industry cope with the headwinds of economic (lower prices) and greater regulatory expectations? Can “digital” help the industry create a niche in a “green” new order?

How is the industry faring in adopting new “digital” technologies and more efficient ways of doing business? Are we finally overcoming the challenges of a poor data foundation and resistance from an old-school organizational culture?

Do we understand the impact the new generation of workers will have in digitally transforming the business and the technologies and business changes they will want to implement? Are the best and brightest next generation talent attracted to the oil patch these days?

How is the industry doing in shaking off its image of slow adopters and “digital laggards” from the tech community? Have we finally broken out from a long list of pilots and reached enterprise scale?

Is the industry finding value from “digital” investments? Can we tell a good “digital” story to our investors, CFO, supply chain partners and show them a return on our projects? Is the story in dollars, not just barrels?

This course is comprised of these PetroAcademy® Skill Modules™. Each skill module averages approximately 3 hours of self-paced online learning activities.

- Introduction to the Digital Oilfield Core (DSA-IDO-1)
- Operational Technology and Field Networks Core (DSA-OTF-1)
- Digital Oilfield Challenges, Barriers to Adoption, and Risks Core (DSA-DOC-1)
- Data Foundation for the Digital Oilfield Core (DSA-DFD-1)
- The Future of the Digital Oilfield Core (DSA-FDO-1)

DESIGNED FOR

This is not a course for new data scientists but focuses on the rest of the engineers, geoscientists and data analysts who want to and need to understand how this field is evolving.

Introduction to Machine Learning/Data Analytics for Subsurface Engineering and Geoscience Applications

ABOUT THIS COURSE

The interpretation of rich, heterogeneous, and even real-time data has become possible because of recent advances in machine learning and the democratization of computational power. The oil and gas industry are investing in this data-driven revolution to create actionable insights from diverse data streams. These include geophysical measurements, geological interpretation, real-time production and drilling data streams, and newer data types such as image data and distributed fiber optic sensing. as DTS/DAS measurements.

Learning how to synthesize the ingredients of a machine learning workflow requires an incremental step-by-step approach that this blended course provides. Beginning with the concepts of exploratory data analyses, followed by a discussion of learning algorithms for clustering, classification and regression, this course explores several data analytics and machine learning use cases for subsurface applications and prepares participants to analyze machine learning workflows.

This course is comprised of the following PetroAcademy® Skill Modules™. Each skill module averages approximately 4 hours of self-paced online learning activities.

- Introduction to Data-driven Workflows Core (DSA-IDW-1)
- Supervised Machine Learning Core (DSA-SML-1)
- Unsupervised Machine Learning and Clustering Core (DSA-ULC-1)

DESIGNED FOR

Geoscientists, petrophysicists, engineers, or anyone interested in subsurface engineering and geoscience applications of machine learning and data analytics.

Skill Modules by Discipline

Subsurface

Introductory and Multi-Discipline

IAM-BHC-1	Bits and Hydraulics Core	Released
IAM-DWO-1	Defining Well Objectives Core	Released
IAM-DDC-1	Directional Drilling and Trajectory Design Core	Released
IAM-DSB-1	Drill String and BHA Core	Released
IAM-DFS-1	Drilling Fluids and Solids Control Core	Released
IAM-DOW-1	Drilling Operations and Well Completions Core	Released
IAM-EIA-1	E&P Industry and Asset Life Cycle Core	Released
IAM-HRC-1	Hydrocarbon Reservoirs Core	Released
IAM-PGC-1	Petroleum Geology Core	Released
IAM-POC-1	Production Operations Core	Released
IAM-RFP-1	Rock and Fluid Properties Core	Released
IAM-SSE-1	Surface/Subsurface Exploration Core	Released

Geology

GEO-FGC-1	Foundation Geological Concepts Core	Released
GEO-GOC-1	Basic Petroleum Geology – Introduction Core	Released
GEO-EXC-1	Petroleum System – Examples Core	Released
GEO-RFS-1	Petroleum System – Overview and Source Core	Released
GEO-RSC-1	Petroleum System – Reservoir and Seal Core	Released
GEO-TTC-1	Petroleum System – Trap and Timing Core	Released
GEO-PCE-1	Phases of Conventional Exploration and Development Core	Released
GEO-SGD-1	Sedimentary Geology – Depositional Controls for Carbonate Reservoir Rocks Core	Released
GEO-SGC-1	Sedimentary Geology – Depositional Controls for Clastic Reservoir Rocks Core	Released
GEO-GTT-1	Tools and Techniques Core	Released
GEO-UPR-1	Unconventional Petroleum Resources Core	Released
GEO-ISE-1	Interpreting Siliciclastic Environment of Deposition (EOD) for Deltaic Systems Core	Released
GEO-IDG-1	Introduction and Overview of Development Geology Core	Released
GEO-IGE-1	Introduction to Geosteering Core	Released
GEO-IGC-1	Introduction to Gridding for Computer-based Subsurface Mapping Core	Released
GEO-STI-1	Structural Interpretation Techniques and Concepts Core	Released

Geophysics

GEP-DHI-1	Direct Hydrocarbon Indicators and Amplitude versus Offset Core	Released
GEP-SAP-1	Seismic Acquisition, Processing and Migration Core	Released
GEP-SEM-1	Seismic Mapping Core	Released
GEP-SIA-1	Seismic Inversion and Attributes Core	Released

Geophysics *(continued)*

GEP-SIG-1	Seismic Image and Geological Association with Seismic Reflections Core	Released
GEP-SUR-1	Seismic for Unconventional Reservoirs Core	Released
GEP-WSV-1	Wavelet and Seismic Velocities Core	Released

Fundamentals

GEP-DEP-2	Depth Conversion Fundamentals	Coming soon
GEP-EXB-2	Extensional Basins Interpretation Fundamentals	Released
GEP-SEI-2	Seismic Interpretation Fundamentals	Released

Petrophysics

PPH-CIC-1	Characterization of In-situ Stresses Core	Released
PPH-CAC-1	Core Analysis Core Knowledge	Released
PPH-FTC-1	Formation Testing Core	Released
PPH-GRS-1	Gamma Ray and SP Logging Core	Released
PPH-IOP-1	Introduction and Overview of Petrophysics Core	Released
PPH-IPG-1	Introduction to Reservoir Geomechanics and its Application Core	Released
PPH-IUR-1	Introduction to the Petrophysical Interpretation of Unconventional Reservoirs Core	Released
PPH-LFM-1	Laboratory and Field Measurement of Special Rock Mechanical Properties Core	Released
PPH-LMB-1	Laboratory Measurements of Rock Mechanical Properties	Released
PPH-MLC-1	Mud Logging, Coring and Cased Hole Logging Operations Core	Released
PPH-OPI-1	Overview of Petrophysical Interpretation Core	Released
PPH-PEC-1	Petrophysical Evaluation Core	Released
PPH-PPM-1	Pore Pressure Measurement and Prediction Core	Released
PPH-PLC-1	Porosity Logging (Density, Neutron and Sonic) Core	Released
PPH-RLT-1	Resistivity Logging Tools and Interpretation Core	Released
PPH-FRM-1	Rock Mechanics Core	Released
PPH-RMS-1	Rock Mechanics for Shale Plays Core	Released
PPH-SPT-1	Special Petrophysical Tools: NRM and Image LogsCore	Released

Fundamentals

PPH-CIC-1	Characterization of In-situ Stresses Fundamentals	Coming soon

Reservoir Engineering

RES-RSA-1	Decline Curve Analysis and Empirical Approaches Core	Released
RES-EOR-1	Enhanced Oil Recovery Core	Released
RES-IUR-1	Introduction to Unconventional Reservoirs Core	Released
RES-PTA-1	Pressure Transient Analysis Core	Released
RES-RTA-1	Rate Transient Analysis Core	Released

Reservoir Engineering *(continued)*

RES-RRC-1	Reserves and Resources Core	Released
RES-RFP-1	Reservoir Flow Properties Core	Released
RES-RFC-1	Reservoir Fluid Core	Released
RES-RFD-1	Reservoir Fluid Displacement Core	Released
RES-RMC-1	Reservoir Management Core	Released
RES-RMB-1	Reservoir Material Balance Core	Released
RES-RRP-1	Reservoir Rock Properties Core	Released
RES-RSI-1	Reservoir Simulation Core	Released
RES-RSC-1	Reservoir Surveillance Core	Released
RES-URA-1	Unconventional Reservoir Analysis Core	Released
RES-URP-1	Unconventional Reservoir Properties Core	Released
RES-WFO-1	Waterflood Forecasting Overview Core	Released
RES-WOV-1	Waterflood Overview Core	Released
RES-WPC-1	Waterflood Planning Core	Released
RES-WRO-1	Waterflood Reservoir Optimization Core	Released
RES-WSC-1	Waterflood Surveillance Core	Released
RES-WWS-1	Waterflood Water Sources Core	Released

Fundamentals

RES-RSA-2	Decline Curve Analysis and Empirical Approaches Fundamentals	Released
RES-IOR-2	Improved Oil Recovery Fundamentals	Released
RES-PVI-2	Producing vs. Injecting Wells Fundamentals	Released
RES-RFP-2	Reservoir Flow Properties Fundamentals	Released
RES-RFD-2	Reservoir Fluid Displacement Fundamentals	Released
RES-RFF-2	Reservoir Fluid Fundamentals	Released
RES-RMF-2	Reservoir Management Fundamentals	Released
RES-RMB-2	Reservoir Material Balance Fundamentals	Released
RES-RRP-2	Reservoir Rock Properties Fundamentals	Released
RES-RSF-2	Reservoir Surveillance Fundamentals	Released
RES-URA-2	Unconventional Reservoir Analysis Fundamentals	Released
RES-URP-2	Unconventional Reservoir Properties Fundamentals	Released
RES-WAF-2	Waterflood Analytical Forecasting Fundamentals	Released
RES-WRH-2	Waterflood Reservoir Heterogeneity Effects Fundamentals	Released
RES-WRP-2	Waterflood Reservoir Property Effects Fundamentals	Released

Production and Completions

PCE-DEC-1	Design Process for Completion and Workovers Core	Released
PCE-ESP-1	Electric Submersible Pumps (ESP) Core	Released
PCE-FAP-1	Flow Assurance and Production Chemistry Core	Released
PCE-FDC-1	Formation Damage and Matrix Stimulation Core	Released
PCE-GLC-1	Gas Lift Core	Released
PCE-HFC-1	Hydraulic Fracturing Core	Released
PCE-OCW-1	Onshore Conventional Well Completions Core	Released

Production and Completions *(continued)*

PCE-OUW-1	Onshore Unconventional Well Completions Core	Released
PCE-PEC-1	Perforating Core	Released
PCE-PRC-1	Primary and Remedial Cementing Core	Released
PCE-PLC-1	Production Logging Core	Released
PCE-WDH-1	Production Logging Wellsite and Downhole Environment Core	Released
PCE-PPC-1	Production Principles Core	Released
PCE-PPD-1	Production Problem Diagnosis Core	Released
PCE-PTA-1	Production Technology Applications Core	Released
PCE-RPJ-1	Rod, PCP, Jet Pumps and Plunger Lift Core	Released
PCE-SCC-1	Sand Control Core	Released
PCE-TRP-1	The Role of Production Technology Core	Released
PCE-WIC-1	Well Intervention Core	Released

Fundamentals

PCE-ANP-2	Advanced Nuclear Production Logging Fundamentals	Released
PCE-DEF-2	Completion Design Fundamentals	Released
PCE-TSE-2	Conventional Production Logging: Temperature and Single-Element Spinners Fundamentals	Released
PCE-TPF-2	Conventional Production Logging: Two-Phase Flow Fundamentals	Released
PCE-ESP-2	Electric Submersible Pumps (ESP) Fundamentals	Released
PCE-FDF-2	Formation Damage and Matrix Acidizing Fundamentals	Released
PCE-GLF-2	Gas Lift Fundamentals	Released
PCE-PLF-2	Production Logging Fundamentals	Released
PCE-PLH-2	Production Logging in High Angle/Horizontal Wells Fundamentals	Released
PCE-RRP-2	Reciprocating Rod Pump Fundamentals	Released
PCE-SCF-2	Sand Control Fundamentals	Released
PCE-SPP-2	Special Purpose Production Logging Fundamentals	Released
PCE-WCF-2	Well Completions Fundamentals	Released
PCE-WPN-2	Well Performance and Nodal Analysis Fundamentals	Released
PCE-WOF-2	Workover Fundamentals	Released

Well Construction and Drilling

IAM-BHC-1	Bits and Hydraulics Core	Released
WCD-CRO-1	Casing Running Operations Core	Released
WCD-CDE-1	Characterizing the Drilling Environment Core	Released
IAM-DWO-1	Defining Well Objectives Core	Released
IAM-DDC-1	Directional Drilling and Trajectory Design Core	Released
IAM-DSB-1	Drill String and BHA Core	Released
IAM-DFS-1	Drilling Fluids and Solids Control Core	Released
WCD-OCC-1	Oilfield Casing Core	Released
WCD-SPP-1	Stuck Pipe Prevention Core	Released
WCD-WCS-1	Well Construction Supply Chain Management Core	Released
WCD-WPM-1	Well Performance Management Core	Released

Well Construction and Drilling *(continued)*

WCD-WSM-1	Well Site Management Part 1 – Logistics, Communication, and Safety Core	Released
WCD-WS2-1	Well Site Management Part 2 – Planning, Operations, and Continuous Improvement Core	Released

Unconventional Resources

PCE-HFC-1	Hydraulic Fracturing Core	Released
PPH-IPG-1	Introduction to Reservoir Geomechanics and its Application Core	Released
PPH-IUR-1	Introduction to the Petrophysical Interpretation of Unconventional Reservoirs Core	Released
RES-IUR-1	Introduction to Unconventional Reservoirs Core	Released
PCE-OUW-1	Onshore Unconventional Well Completions Core	Released
RES-URA-1	Unconventional Reservoir Analysis Core	Released
RES-URA-2	Unconventional Reservoir Analysis Fundamentals	Released
RES-URP-1	Unconventional Reservoir Properties Core	Released
RES-URP-2	Unconventional Reservoir Properties Fundamentals	Released
GEO-UPR-1	Basic Petroleum Geology – Unconventional Petroleum Resources Core	Released
GEP-SUR-1	Seismic for Unconventional Reservoirs Core	Released

Facilities

Gas Processing

GAS-CRA-1	Contaminant Removal - Acid Gas and Mercury Removal Core	Released
GAS-CRD-1	Contaminant Removal - Gas Dehydration Core	Released
GAS-FFC-1	Fluid Flow Core	Released
GAS-HTE-1	Heat Transfer Equipment Overview Core	Released
GAS-HCP-1	Hydrocarbon Components and Physical Properties Core	Released
GAS-IGC-1	Introduction to Production and Gas Processing Facilities Core	Released
GAS-PCC-1	Pumps and Compressors Core	Released
GAS-QPB-1	Qualitative Phase Behavior and Vapor-Liquid Equilibrium Core	Released
GAS-RNG-1	Refrigeration, NGL Extraction and Fractionation Core	Released
GAS-SEC-1	Separation Core	Released
GAS-TAE-1	Thermodynamics and Application of Energy Balances Core	Released
GAS-WHP-1	Water Hydrocarbon Phase Behavior Core	Released

Process Facilities

PRS-CBH-1	Combustion Behavior of Hydrocarbons Core	Released
PRS-FPS-1	Fire Protection Systems Core	Released
PRS-GOW-1	Gas, Oil, and Water Composition and Properties Core	Released
PRS-HID-1	Historical Incident Databases, Plant Layout and Equipment Spacing Core	Released
PRS-LDH-1	Leakage and Dispersion of Hydrocarbons Core	Released
PRS-REF-1	Overview of Reservoir Engineering for Facilities Operations Core	Released
PRS-PHA-1	Process Hazards Analysis and Layers of Protection Analysis Techniques Core	Released
PRS-PSR-1	Process Safety Risk Analysis and Inherently Safer Design Core	Released
PRS-RFS-1	Relief and Flare Systems Core	Released
PRS-SIS-1	SIS, Monitoring and Control Core	Released
PRS-SIH-1	Sources of Ignition and Hazardous Area Classification Core	Released
PRS-SPS-1	Specific Plant Systems and Equipment Core	Released

Fundamentals

PRS-CSI-2	Controls and Safety Instrumented Systems Fundamentals	Released
PRS-FLA-2	Flow Assurance Fundamentals for Surface Facilities	Released
PRS-GLS-2	Gas-liquid Separation Fundamentals	Released
PRS-HID-2	HID and Metrics, Bad Actors (Specific Systems) Fundamentals	Released
PRS-LDC-2	Leakage and Dispersion, Combustion Behavior, Sources of Ignition Fundamentals	Released
PRS-OGS-2	Oil Gathering Systems Fundamentals	Released
PRS-OSV-2	Oil Stabilization, Sweetening, Storage, and VRU Crude Fundamentals	Released
PRS-OTR-2	Oil Treating and Desalting Fundamentals	Released
PRS-OWS-2	Oil-Water Separation Fundamentals	Released
PRS-OSG-2	Overview of Solution Gas Handling Fundamentals	Coming soon
PRS-PHA-2	PHA Techniques and LOPA Fundamentals	Released

Process Facilities *(continued)*

PRS-PWT-2	Produced Water Treatment Fundamentals	Coming soon
PRS-RFD-2	Relief, Flare, and Depressurization Fundamentals	Released
PRS-RAI-2	Risk Analysis and Inherently Safer Design Fundamentals	Released
PRS-SLF-2	Spacing and Layout, Fire Protection Fundamentals	Released
PRS-TCO-2	Transportation of Crude Oil Fundamentals	Released
PRS-WIS-2	Water Injection Fundamentals	Coming soon

Mechanical Engineering

MEC-CCC-1	Corrosion Control and Protection Core	Released
MEC-FHB-1	Fired Heaters and Boilers Core	Released
MEC-GST-1	Gas and Steam Turbines Core	Released
MEC-MDM-1	Machinery Design, Materials, and Subsystems Core	Released
MEC-MEC-1	Mechanical Equipment Core	Released
MEC-MEI-1	Mechanical Equipment Inspection, Operation and Maintenance Core	Released
MEC-PSW-1	Piping Systems and Welding Core	Released
MEC-PMC-1	Properties of Materials Core	Released
MEC-REC-1	Reciprocating Engines for Process Facilities Core	Released
MEC-STC-1	Storage Tanks Core	Released
MEC-UPV-1	Unfired Pressure Vessels Core	Released

Instrumentation & Controls

INC-CS1-1	Control Systems for Oil and Gas Applications Core (Part 1)	Released
INC-CS2-1	Control Systems for Oil and Gas Applications Core (Part 2)	Released
INC-CVO-1	Control Valves for Oil and Gas Applications Core	Released
INC-ISA-1	Instrumentation Selection for Oil and Gas Applications Core (Analysis)	Released
INC-ISF-1	Instrumentation Selection for Oil and Gas Applications Core (Flow)	Released
INC-ISO-1	Instrumentation Selection for Oil and Gas Applications Core (General)	Released
INC-ISL-1	Instrumentation Selection for Oil and Gas Applications Core (Level)	Released
INC-ISP-1	Instrumentation Selection for Oil and Gas Applications Core (Pressure, Temp)	Released

Electrical Engineering

ELE-DIV-1	Division-based Equipment Selection and Installation in Oil and Gas Facilities Core	Released
ELE-MOT-1	Electric Motors and Motor Control in Oil and Gas Core	Released
ELE-SAF-1	Electrical Safety in Design for Oil and Gas Facilities Core	Coming soon
ELE-HAZ-1	Hazardous Area Classification in Oil and Gas Facilities Core	Released
ELE-EDI-1	NEC-based Electrical Design, Installation, and Safety Codes Core	Released
ELE-PR1-1	Principles of Power Systems in Oil and Gas Applications Core (Part 1)	Released
ELE-PR2-1	Principles of Power Systems in Oil and Gas Applications Core (Part 2)	Released
ELE-ZON-1	Zone-based Equipment Selection and Installation in Oil and Gas Facilities Core	Released

Pipeline Engineering

PIP-PIC-1	Pipeline Construction Core (U.S. Focus)	Released
PIP-PHF-1	Pipeline Hydraulics and Flow Assurance Core	Released
PIP-POM-1	Pipeline O&M, Leak Detection, Repairs, Alterations, and Abandonment Core (U.S. Focus)	Released
PIP-PCS-1	Pipeline Pump and Compressor Stations and Terminals Core (U.S. Focus)	Released
PIP-PRG-1	Pipeline Routing and Geomatics Core (U.S. Focus)	Released
PIP-PSS-1	Pipeline Strength, Stability, and Environmental Considerations Core (U.S. Focus)	Released

Downstream

REF-ELE-1	Electrical Topics for Non-Electrical Engineers Core	Coming soon
REF-CCM-1	Refinery Corrosion Control and Monitoring Core	Coming soon
REF-SUP-1	Refining and Petrochemical Operation Supervisory Skills Core	Coming soon
REF-QAC-1	Refining and Petrochemicals QA/QC Laboratory Management Core	Coming soon
REF-RMP-1	Refining and Petrochemicals Routine Maintenance, Planning, and Control Core	Coming soon
REF-RPT-1	Refining and Petrochemicals Turnaround Planning and Control Core	Released
REF-OMS-1	Refining Oil Movement and Storage Operations Core	Coming soon
REF-RCM-1	Reliability Centered Maintenance (RCM) Core	Coming soon

Net-Zero and Renewables

ALL-AFC-1-C	Alternative Fuels Core	Released
HYD-BAN-1-N	Basic Analytical Electrochemical Techniques Core	Coming soon
HYD-BEL-1-N	Basics of Electrochemistry Core	Coming soon
ALL-BAR-1-C	Business Aspects of Global Warming and Alternative Energies Core	Released
CCA-CCU-1-N	Carbon Capture, Utilization, and Storage Core	Released
GHG-CCR-1-N	Climate Change Risk and Opportunities Assessment Core	Released
ALL-CPF-1-C	Coherent Planning for the Future Core	Released
GEO-DUA-1-R	Direct Use Applications of Geothermal Core	Coming soon
HYD-DIS-1-N	Distribution Methods of Hydrogen Core	Coming soon
HYD-ELP-1-N	Electrochemical Processes Core	Coming soon
HYD-EEL-1-N	Electrochemistry of Electrolyzers Core	Coming soon
HYD-EFC-1-N	Electrochemistry of Fuel Cells Core	Coming soon
EST-ESC-1-R	Energy Storage Core	Released
ALL-EPG-1-C	Existing Power Generation Technologies with Alternative Energies Core	Released
HYD-GAL-1-N	Galvanic Cells, Electrolysis Cells, Fuel Cells, and Standard Electrode Potentials Core	Coming soon
GEO-ELP-1-R	Geothermal Electricity Production Core	Coming soon
GEO-EBA-1-R	Geothermal Energy Benefits and Applications Core	Coming soon
GHG-INV-1-N	Greenhouse Gas Emissions Inventory Quality Management Core	Released

Net-Zero and Renewables *(continued)*

GHG-REP-1-N	Greenhouse Gas Emissions Reporting Requirements Core	Released
GHG-QUA-1-N	Greenhouse Gas Emissions Sources and Quantification Core	Released
GHG-TRA-1-N	Greenhouse Gas Emissions Tracking Over Time Core	Released
HYD-COS-1-N	Hydrogen Compression and Storage Core	Coming soon
HYD-HOV-1-N	Hydrogen Overview Core	Released
HYD-HPS-1-N	Hydrogen Process Safety Core	Coming soon
HYD-PRO-1-N	Hydrogen Production Core	Coming soon
HYD-HUC-1-N	Hydrogen Use Cases and Derivatives Core	Coming soon
HYD-PES-1-N	Industrial Electrochemical Systems Design Core	Coming soon
HYD-IFC-1-N	Introduction to Fuel Cells Core	Coming soon
GHG-GGE-1-N	Introduction to Greenhouse Gas Emissions Core	Released
GEO-NDG-1-R	Nature and Dynamics of Geothermal Systems Core	Coming soon
GHG-OPB-1-N	Operational Boundaries for Greenhouse Gas Inventories Core	Released
GHG-ORB-1-N	Organizational Boundaries for Greenhouse Gas Inventories Core	Released
HYD-SAF-1-N	Safety Aspects of Hydrogen Core	Released
GHG-SCO-1-N	Scope 1 and Scope 2 Greenhouse Gas Emissions – An Introduction Core	Released
GHG-SC3-1-N	Scope 3 Greenhouse Gas Emissions – An Introduction Core	Released
SOL-SPG-1-R	Solar Power Generation Core	Released
GHG-DBN-1-N	The Drivers Behind Net-Zero Core	Released
WIN-WPG-1-R	Wind Power Generation Core	Released

Project Management

PRJ-AGS-1	Acquiring Goods and Services Core	Released
PRJ-CMC-1	Construction Management Core	Released
PRJ-CEC-1	Cost Estimating for Facility Projects Core	Released
PRJ-DEM-1	Design Engineering Management Core	Released
PRJ-OFD-1	Onshore Field Development Programs and Projects Core	Released
PRJ-PMC-1	Progress Measurement Core	Released
PRJ-PGC-1	Project Governance Core	Released
PRJ-PRO-1	Project Resources and Organization Core	Released
PRJ-RMC-1	Project Risk Management Core	Released
PRJ-SCC-1	Scheduling Core	Released
PRJ-SDC-1	Scope Delivery Core	Released

Energy Business

PEB-BUC-1	Budgeting Core	Released
PEB-CFC-1	Cash Flow Core	Released
PEB-DAP-1	Decision Analysis Process Core	Released
PEB-EDT-1	Economic Decision Tools Core	Released
PEB-FOC-1	Financing and Ownership Core	Released

Energy Business *(Continued)*

PEB-OGP-1	Oil and Gas Pricing Core	Released
PEB-PIA-1	Petroleum Industry Accounting Core	Released
PEB-PFC-1	Production Forecasting Core	Released
PEB-RUC-1	Risk and Uncertainty Core	Released

Fundamentals

PEB-DPV-2	Decision Policy and Value Calculations Fundamentals	Coming soon
PEB-JBC-2	Judgments and Biases Fundamentals	Released
PEB-DIS-2	Monte Carlo Simulation and Distributions Fundamentals	Released
PEB-VCC-2	Value of Control Fundamentals	Released
PEB-BRC-2	Value of Information and Bayes' Rule Fundamentals	Released

Data Science and Analytics

DSA-DFD-1	Data Foundation for the Digital Oilfield Core	Released
DSA-DOC-1	Digital Oilfield Challenges, Barriers to Adoption, and Risks Core	Released
DSA-IDW-1	Introduction to Data-driven Workflows Core	Released
DSA-IDO-1	Introduction to the Digital Oilfield Core	Released
DSA-OTF-1	Operational Technology and Field Networks Core	Released
DSA-SML-1	Supervised Machine Learning Core	Released
DSA-FDO-1	The Future of the Digital Oilfield Core	Released
DSA-UML-1	Unsupervised Machine Learning and Clustering Core	Released