PetroSkills®
PetroAcademy™

2017 Skill Module Catalog

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Definitions of Skill Module Levels

Core = Awareness Competency Level, completely self-paced online activities, no instructor-led component.

Fundamental = Fundamental Competency Level, mixture of both self-paced online activities and instructor-led virtual sessions. See "Instructor-Led Virtual Sessions" for schedule.

Workshop = Skilled Application Competency Level, primarily instructor-led virtual sessions with online activities designed to teach skills necessary for a specific work product.

v.3 June 7, 2017

Gas Processing

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
GAS-HCP-1	Hydrocarbon Components and Physical Properties Core	Coming Soon	Core	4		This skill module describes the basic terminology, and hydrocarbon nomenclature commonly used in the oil and gas industry. This skill module also explains methods used to determine hydrocarbon fluid composition, and approaches to and implications of the characterization of heavy hydrocarbons (C6+) in mixtures. This module also demonstrates how to estimate hydrocarbon physical properties (density and viscosity) for both liquids and vapors, including their purpose and use as applied in facilities engineering calculations.
GAS-IGC-1	Introduction to Production and Gas Processing Facilities Core	Coming Soon	Core	4		This module provides an overview of production and gas processing facilities. The concepts addressed in this module include: 1) the crude oil and natural gas value chains, 2) common contaminants in production streams, 3) crude oil, produced water and natural gas quality specifications, 4) typical production facility and gas processing schemes, and 5) NGL products the economics of their recovery. Knowledge of these basic concepts is critical to understanding the selection and specification of processing facilities between the wellhead and product markets.
GAS-QPB-1	Qualitative Phase Behavior and Vapor Liquid Equilibrium Core	Released	Core	4.5	Gas-IGC-1	This skill module describes the phase or phases that exist at given conditions of pressure and temperature of single and multi-component systems. The skill module also explains the concepts of critical point, cricondentherm, cricondenbar, dense phase, and retrograde condensation. In addition, the module explains how to perform bubble point, dew point, and flash calculations, and describes how to stabilize hydrocarbon liquids using stage separation.
GAS-WHP-1	Water/Hydrocarbon Phase Behavior Core	Released	Core	6	GAS-QPB-1	This skill module describes hydrates, explores conditions favoring hydrate formation, and discusses how to prevent hydrates from forming. The skill module also describes how to estimate the hydrate formation temperature of a natural gas stream and the key differences between low dosage hydrate inhibitors and thermodynamic inhibitors.
GAS-TAE-1	Thermodynamics and Application of Energy Balances Core	Coming Soon	Core	4		You will learn how to: • State the first law of thermodynamics, and how it is applied to facilities • Understand the second law of thermodynamics, and how it is applied to facilities. • Write the energy balance equations for a heat exchanger, valve, separator and compressor. • Calculate the duty of a heat exchanger where no phase change occurs and also for an exchanger where a phase change does occur. • List methods used to estimate enthalpy and entropy. • Describe a P-H diagram and use it to perform calculations on a simple refrigeration system.
GAS-FFC-1	Fluid Flow Core	Coming Soon	Core	4		This module discusses the flow of fluid through a pipe segment. Single phase and multiphase flow are explored. In addition, simple correlations are used to estimate important fluid flow parameters.
GAS-SEP-1	Separation Core	Coming Soon	Core	4		This skill module describes separators, their use and application in the oil and gas industry. The principle of gas-liquid and oil-water separations are discussed along with separator sizing. This module also explains what are emulsions, how they form and their influence on separator design. Also discussed are methods and equipment to destabilize and eliminate emulsions.
GAS-HTE-1	Heat Transfer Equipment Overview Core	Coming Soon	Core	4		This module provides an overview of the heat transfer equipment and mechanisms commonly used in the oil and gas industry. The module also provides an overview including advantages, disadvantages and applications of different types of heat exchangers.

Discipline: Gas Processing

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
GAS-PCC-1	Pumps and Compressors Overview Core	Coming Soon	Core	4		You will learn how to: • Identify types of pumps and common applications in oil and gas processing facilities. • Describe how a pump selection chart can be used to select pump type. • Explain the relationship between head and pressure. • Calculate the pump power requirement. • Describe cavitation and define NPSHR and NPSHA. • Describe the differences in performance characteristics of centrifugal and positive displacement pumps. • Explain the principle of operation of a single stage centrifugal pump and identify the main pump components. • Explain the principle of operation of plunger pumps, common configurations and identify the main pump components. • Identify types of compressors and common applications in oil and gas processing facilities. • Describe how a compressor selection chart can be used to select compressor type. • Explain the relationship between head and pressure. • Calculate the compressor power requirement. • Estimate the compressor discharge temperature. • Explain the principle of operation of a centrifugal compressor and identify the main compressor components. • Describe a centrifugal compressor performance curve and identify and describe the surge line and stonewall. • Explain the principle of operation of a reciprocating compressor and identify the main compressor components. • Explain the principle of operation of a rotary screw compressor and identify the main compressor components. • List common drivers used for each compressor type including advantages and disadvantages.
GAS-RNG-1	Refrigeration, NGL Extraction and Fractionation Core	Coming Soon	Core	4		This module explains the concepts of mechanical refrigeration, valve and turbine expansion, and NGL extraction systems. The module also explains the process of fractionation in oil and gas operations.

Discipline: Gas Processing

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
GAS-CRD-1	Contaminant Removal - Gas Dehydration Core	Coming Soon	Core	4		You will learn how to: • List the three most common gas dehydration options used in oil and gas processing, identify typical applications and describe advantages and disadvantages of each. • Describe the components and process flow in a typical glycol dehydration unit. • State typical TEG circulation ratios for a glycol dehydration system. • Calculate the volumetric TEG circulation rate based on a given water removal requirement. • Determine the minimum lean TEG concentration required for a given water removal requirement. • Describe the effect of the number of trays or height of packing on the contactor performance. • Describe BTEX co-absorption in the TEG and list methods used to prevent BTEX emissions. • Explain the process of adsorption and list common adsorbents used in gas dehydration. • Describe the typical adsorption dehydration and regeneration cycle for a molecular sieve unit used to dehydrate natural gas. • Describe the factors that cause the useful capacity of the desiccant to be less than the equilibrium capacity.
GAS-PCO-1	Contaminant Removal - Acid Gas and Mercury Removal Core	Coming Soon	Core	4		You will learn how to: • Explain why mercury is removed from a natural gas stream, and list two common mercury absorbents • List the process options for acid gas removal from a natural gas stream. • Describe a basic amine process flow diagram. • Estimate the amine circulation rate, regenerator reboiler duty and circulation pump power for an AGRU • State the conditions where a physical solvent may be advantageous over an amine solvent for acid gas removal. • List examples where it may be advantageous to selectively remove H2S from a gas stream but leave some or all of the CO2 in the gas. • Describe the process flow diagram for a standard Claus sulfur recovery unit (SRU). · Explain why a tail-gas-clean-up unit (TGCU) may be required, and list processes that may be applied. • Describe why liquid product treating may be required, and provide examples of common processes used. • List the advantages of acid gas injection over installation of an SRU and TGCU.

Discipline: Geology

Geology

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
GEO-TSC-1	Time and Stratigraphy Core	Released	Core	4		This module describes how geologic time is represented by the presence of rock intervals in the geologic column or by the absence of equivalent rocks in the correlative columns in adjacent or distant locales. We will examine the concepts of Laws of Stratigraphy, geologic time and stratigraphy and sequence stratigraphy.
GEO-MMD-1	Marginal Marine Depositional Environments Core	Released	Core	3		This module will look at depositional processes and the resultant sedimentary rocks that occur in the Marginal Marine settings. These will include deltas as well as beaches and barrier islands. It is designed for petroleum industry personnel in need of basic geological training, including engineering, geophysical, technical support, and administrative personnel.
GEO-MDE-1	Marine Depositional Environments Core	Released	Core	4.5		This module covers depositional processes and the resultant sedimentary rocks that occur in the Clastic Marine and the Carbonate Marine settings. These include Offshore Bars, Deepwater Submarine Canyons and Fans, Carbonate Margins, and Carbonate Diagenesis.

Geophysics

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
GEP-NSI-1	Nature of Seismic Image Core	Coming Soon	Core	4		This introductory module is an overview of the nature of seismic data, and how it is constructed and displayed. The purpose of the module is to familiarize learners with the nature of the seismic data that is presented to them. You will learn: • What's propagating that we can record • Forming an image by compositing or "stacking" • Reflections at a geologic interface • The problem with stacking • An introduction to seismic migration • Seismic displays in both depth or time
GEP-GAS-1	Geological Association with Seismic Reflections Core	Coming Soon	Core	4		The key to using or interpreting seismic data is to relate it to the geology and prospectivity. This module is designed to explain the basics of what is called the seismic process. You will learn: • Changes in lithology • Velocity and density • The influence of porosity and pore filling material
GEP-SDA-1	Seismic Data Acquisition Core	Coming Soon	Core	4		The goal of this module is to present stacking in 3D for both land and marine data. The point here is that the seismic image is heavy composited from several hundred reflections off of the same point in 3-dimensional space. You will learn: • Marine acquisition • Land acquisition • Making a 3D data cube • The concept of bin gathering
GEP-WSD-1	Wavelet in the Seismic Data and Limits on Resolution Core	Coming Soon	Core	4		The vertical resolution of the seismic data is a critical issue because reservoirs are at or below the limit of resolution of the seismic data. The resolution is controlled by the propagating wavelet that is generated by the acquisition parameters. This concept is key to understanding the nature of seismic data. You will learn: • Generating a propagating energy package • The wavelet and it's resolution
GEP-SVC-1	Seismic Velocities Core	Coming Soon	Core	4		The purpose of this module is to understand seismic velocities and how they are used to construct the seismic image. This is probably one of the biggest variables in seismic data. You will learn: • The velocity family, the relationship between depth and time • Well velocities • Vertical seismic profiles (VSP's) • Overpressure and seismic velocities

Discipline: Geophysics

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
GEP-OSD-1	Overview of Seismic Data Processing Core	Coming Soon	Core	4		This module gives a very general overview of the processes used to create the seismic image. The objective is to clarify the jargon. This consists of “pre-conditioning” the data, and then forming the image by seismic migration. You will learn: • Data conditioning, deconvolution • Imaging with seismic migration in depth and time
GEP-SMC-1	Seismic Migration Core	Coming Soon	Core	4		The concept of seismic migration is so simple that it is a “hard sell”. It simply relies on the compositing of many thousands of migrated traces in the data set in 3 dimensions. You will learn: • Forming an image in 2D and 3D • Building a seismic data cube
GEP-DHI-1	Direct Hydrocarbon Indicators Core	Coming Soon	Core	4		The effect of hydrocarbons as a pore filling material in our seismic data is at the core of seismic interpretation. This module includes a section on rock physics. You will learn: • The effects of hydrocarbons in the seismic image • Some rock physics • Pore filling materials
GEP-AVO-1	Amplitude vs. Offset Core	Coming Soon	Core	4		Amplitude variation with offset is used to modify risk in hydrocarbon prospects. This module introduces the concept, process and application of the technology. You will learn: • The “family” of prestack gathers • What do we expect to see in them • The effect of hydrocarbons • A clear understanding of AVO (amplitude vs offset) • The Rutherford and Williams classification • Seismic data as seen before stacking • Looking at offset gathers
GEP-VTC-1	Velocity Tomography Core	Coming Soon	Core	4		For both AVO and verification of prestack migration velocities, we us image point gathers. These are not complicated, but they take a little explanation. You will learn: • The challenge of building a velocity model • Shallow velocities and the depth image • Anisotropy
GEP-SIC-1	Seismic Inversion Core	Coming Soon	Core	4		What is done to the data is very simple, but the impact on our interpretation has become a huge issue. We have literally turned the seismic data into a rock property, specifically impedance. This is probably how we will view our seismic data in the future. Don’t forget about the importance of density. You will learn: • Rock parameters (Impedance) from seismic data • Inversion in a nutshell

Discipline: Geophysics

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
GEP-ATC-1	Attributes Core	Coming Soon	Core	4		Attributes Core This introductory section is a quick overview of some of the rather puzzling attributes that are often shown, and ae usually poorly explained. We do not typically view our seismic data in the frequency or phase domain, but they are becoming popular displays. You will learn: • Where seismic imaging is going • Getting down to rock properties • A bit of an interpretation enigma • How to solve the resolution problem • An attribute list
GEP-SMF-2	Seismic Mapping Fundamentals	Coming Soon	Fundamentals	8		This module walks the participant through the process of 3D mapping that is carried out on a workstation. You will learn: • The layout of a 3D seismic survey • How to turn the interpretation into a data reduction process resulting in an interpretation and a structural map originally in time • The relationship between the data acquired in time, and the presentation of the map in depth.

Introductory and Multi-Discipline

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
IAM-EIA-1	E&P Industry and Asset Life Cycle Core	Released	Core	4		In this module you will learn about asset life cycle economics and the phases of the asset life cycle, including: exploration, appraisal, development and production, including mature production and enhanced oil recovery. You will also learn about the historical, geographical, and modern context of the petroleum industry; its organization, the petroleum value chain, and economic drivers.
IAM-PEC-1	Petroleum Geology Core	Released	Core	2.5		In this module you will learn about Earth structure and plate tectonics; types of rocks, the rock cycle, clastic, biogenic, and chemical source sedimentary rocks. Historical geology depositional environments and global vs. regional stratigraphy.
IAM-HRC-1	Hydrocarbon Reservoirs Core	Released	Core	2		In this module you will learn about basins and plays, unconventional resources, and petroleum systems. You will also learn about structural stratigraphic traps and reservoir mapping
IAM-RFP-1	Rock and Fluid Properties Core	Released	Core	3.5		In this module you will learn about reservoir rock properties: porosity and permeability, grain size, distribution, and sorting. You will also learn about reservoir fluids, physical and chemical properties, and the impact on these properties at reservoir and surface conditions. Reservoir classification and phase diagrams are also discussed. In the Hydrocarbon Recovery section you will learn about primary recovery drives such as dissolved gas (solution gas) drive, water drive, gas cap expansion drive, and combination drives. You will also learn about enhanced oil recovery, including secondary and tertiary recoveries such as water flood, miscible flood, steam cycle, and steam drive, along with expected recovery efficiencies.
IAM-SSE-1	Surface/Subsurface Exploration Core	Released	Core	3		In this module you will learn about basins, plays and risk analysis, mineral ownership and contracts; surface exploration technologies, such as gravity, magnetic and geochemical surveys, and seismic imaging and interpretation. Subsurface technologies such as mud logging, appraisal wells, coring, well logging, and drill stem testing.
IAM-DOW-1	Drilling Operations and Well Completions Core	Released	Core	3.5		In this module you will learn about well function, onshore and offshore drilling, drilling programs, drilling rig components, and drilling systems; including drilling, rotating, fluid, and blowout prevention systems. You will also learn about casing and cementing, wellhead installation, types of well completions, formation damage, well perforation, sand control strategies, and well stimulation.
IAM-POC-1	Production Operations Core	Released	Core	2		In this module you will learn about production roles; artificial lift, including beam pumps, gas lift, and submersible pumps. Production logging and workover operations. You will also learn about the integrated production system, fluid separation, emulsion breaking, crude products, gas separation and natural gas processing, NGL usage, and natural gas conversion to LNG and GTL.

Petrophysics

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
PPH-PDO-1	Petrophysical Data and Open Hole Logging Operations Core	Released	Core	4		This module is an introduction to a specialized area of E&P called Petrophysics. The field operations and technologies required to identify and quantify oil and gas resources are introduced. Topics include Well Logging, MWD/LWD, and an introduction to Petrophysics and petrophysical data acquisition. The material presented is at the most basic competency level.
PPH-MLC-1	Mud Logging, Coring and Cased Hole Logging Operations Core	Released	Core	4		This module continues the introduction to a specialized area of E&P called Petrophysics. The field operations and technologies required to identify and quantify oil and gas resources are introduced. Topics include Mud Logging, Coring, and Cased Hole Logging. The material presented is at the most basic competency level.
PPH-GRS-1	Gamma Ray and SP Logging Core	Released	Core	3		This module continues the introduction to Petrophysical well logging tools and data interpretation. Topics include the physics and practical applications of Gamma Ray and the Spontaneous Potential log data. The material presented is at the core knowledge level.
PPH-PLC-1	Porosity Logging (Density, Neutron and Sonic) Core	Released	Core	4		This module is an introduction to Petrophysical well logging tools and data interpretation. Topics include Density, Neutron and Sonic “Porosity” Logs. The material presented is at the core knowledge level.
PPH-FTC-1	Formation Testing Core	Released	Core	4		The Formation Testing Core course is designed to teach the fundamental aspects of formation testing; increase familiarity with basic formation testing applications; increase understanding of the objectives, techniques, and equipment associated with reservoir fluid sampling; and explicate the role formation testing plays in assessing formation producibility.
PPH-RLT-1	Resistivity Logging Tools and Interpretation Core	Released	Core	4		This module continues the introduction to petrophysical well logging tools and data interpretation. Resistivity logging tools including Induction logs, Laterologs, EWR tools and Microresistivity devices and resistivity data are covered. Topics include depth of investigation and bed resolution, types of resistivity logs, and the effects of different mud systems.
PPH-PEC-1	Petrophysical Evaluation Core	Released	Core	4		This module is an introduction to Petrophysical Evaluation which integrates the concepts and data covered in the previous modules. Basic petrophysical evaluation that incorporates Gamma Ray, SP, porosity and resistivity data is covered, as well as the parameters required for saturation determination, the Archie Equations and water saturations, the effect of clay minerals on formation resistivity, the shaly sand equations, and how to conduct an integrated formation evaluation.
PPH-CAC-1	Core Analysis Core Knowledge	Released	Core	3		This module introduces the purpose of, processes and tools for basic core measurements and special core measurements; overviews Petrography and Mineralogy Data from cores as well as unconventional core analysis.
PPH-SPT-1	Special Petrophysical Tools: NMR and Image Logs Core	Released	Core	2		This module introduces Nuclear Magnetic Resonance (NMR) Logging, interpretation of Borehole Images and Dip Meter Data and how permeability is measured in both logs and cores. The module covers NMR logging principles and interpretation, and the importance and application of borehole image and dipmeter data.

Process Safety

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
PRS-PSR-1	Process Safety Risk Analysis and Inherently Safer Design Core	Released	Core	4		This module provides basic concepts and definitions needed to better understand and utilize Process Safety and Inherently Safer Design. This module also includes various models, strategies and examples to better analyze and reduce risk and apply Inherently Safer Design. You will learn: • How to analyze and assess different types of risk analyses • How to utilize models that are associated with risk management • The importance of building safety into processes • How Inherently Safer Design can be applied
PRS-PHA-1	Process Hazards Analysis and Layers of Protection Analysis Techniques Core	Released	Core	3		This module addresses Process Hazards Analysis (PHA) and Layer of Protection Analysis (LOPA). It will cover PHA definitions, concepts, and techniques, as well as the definition and purpose of LOPA and the LOPA procedure. You will learn: • The purpose, premise and scope of a PHA • PHA methodology, including HAZOP and API14C • The differences between methods, including benefits and disadvantages • The purpose and steps of a LOPA procedure • The role of independent protection layers and conditional modifiers in LOPA
PRS-LDH-1	Leakage and Dispersion of Hydrocarbons Core	Released	Core	2		This skill module covers accidental leaks and calculating concentration and dispersion of those leaks. This module also discusses how calculations can be made to keep people safe from exposure to leaks and what the risks are when working around hazardous materials. You will learn how to: • Detect the conditions in which accidental release can occur, and identify the factors that affect the amount of release • Assess gas and liquid leak rate equations • Estimate vapor cloud size • Describe the factors associated with gas dispersion • Analyze the risks of Hydrogen Sulfide and oxygen deficiency on people • Estimate downwind concentration of a leaked gas • Estimate probability of fatality from exposure to a material • Assess probit function and estimate probability of fatality using the function
PRS-CBH-1	Combustion Behavior of Hydrocarbons Core	Released	Core	3		This module covers Combustion Behavior of Hydrocarbons. It will review vocabulary, concepts, and the factors that drive calculations regarding combustion behavior. You will learn: • The fundamentals of flammability and flammable limits typical of hydrocarbons • The characteristics of hydrocarbon fires and explosions • Essential variables in calculations of typical fire and explosion scenarios

Discipline: Process Safety

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
PRS-SIH-1	Sources of Ignition and Hazardous Area Classification Core	Released	Core	3		The Sources of Ignition and Hazardous Area Classification Core module covers two main sections; Sources of Ignition, and Hazardous Area Classification. The Sources of Ignition section looks at electrical and non-electrical sources along with their controls. Non-power ignition is also included as an independent section regarding the sources of ignition. The Hazardous Area Classification section illustrates the fundamental purposes of HAC and the standards that are available. You will learn: • Identify the ignition characteristics of fuel • Explain the probability of leak ignition by release rate • Identify common non-electric sources of ignition • Indicate the primary controls for non-electric sources of ignition • Describe how electrical equipment can become a source of ignition • Describe Hazardous Area Classification and design • Identify the purpose of Hazardous Area Classification • Compare IEC and US standards of Gas groups • Describe the correlation between area classification and risk assessment • Identify and describe non-power electrical ignition sources • Identify non-power ignition controls
PRS-SPS-1	Specific Plant Systems and Equipment Core	Released	Core	3.75		The Specific Plant Systems and Equipment Core skill module covers several sections including, piping systems, storage facilities, pumps and compressors, heat exchangers, and pressure vessels. You will learn how to: • Define the piping system and identify the components associated with it • Explain why piping systems have a high incident rate and identify its failure modes • Identify different types of flanges and their main types of failures • Analyze an incident to determine its failure modes and how they could have been eliminated • Discuss the main issues that arise from storage tanks • Classify the different types of storage facilities • Explain the vapor recovery system from roof tanks and issues that can arise with floating roof tanks • Classify the different types of atmospheric storage tanks and the potential types of fires that can arise from each type • Identify the types of pressurized storage and the main issues associated with it • Illustrate how loading trucks and rail cars are used to prevent loss of containment • Identify the causes of pump release • Classify and analyze the two main types of pumps and their issues • Discuss mechanical single seals and tandem seals and explain their functions • Identify the three main types of compressors and issues that can arise • Identify the main types of fired • Discuss the issues that can occur with direct fired heaters • Explain how furnace tube failure can occur • Compare firetube and furnace fired heaters in regards to ignition and explosion • Identify the main types of heat exchangers and issues that can arise • Identify types of equipment within pressure vessels

Discipline: Process Safety

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
						• List and explain the causes of pressure vessel release
PRS-RFS-1	Relief and Flare Systems Core	Released	Core	3		In this skill module you will learn about causes of overpressure, the different types of relief valves and their applications, depressurization and flare systems. You will learn: • Understand the typical causes of overpressure • Identify the different types of relief devices and their applications • Describe the purpose and operation of a depressurization system • Identify major components of a flare system and describe their purpose
PRS-HID-1	Historical Incident Databases, Plant Layout and Equipment Spacing Core	Released	Core	3		This skill module deals with Historical Incident Databases, Process Safety Metrics, and the layout of operating facilities at the Core level. You will learn: • Terminology related to historical incident databases (HIDs) and process safety metrics • How process safety metrics are related to HIDs • Why and how HIDs are used • Findings from a few readily-available HID sources, including Duguid and UKHSE • Where site selection and layout fit into the normal design sequence • The main safety considerations and other criteria in site selection and layout • Application of industry spacing guidelines
PRS-SIS-1	SIS, Monitoring and Control Core	Released	Core	4		This skill module is comprised of two sections; Safety Instrumented Systems, and Monitoring and Control. Within this module, you will find multiple control method examples, the concepts of SIL and SIF, along with a case study that highlights the module. You will learn how to: • Define and explain process control • Identify the process safety instrumentation goals • Identify and discuss the methods of control • Describe the elements of feedback, cascade, and feedforward control • Explain control modes and the elements of alarm • Discuss the application of SCADA, DCS, MVC, MIS • Describe what Safety Instrumented Systems are • Illustrate when and why Safety Instrumented systems are used with reference to some key aspects of IEC 61511/ISA S84 • Define Safe Integrated Levels (SIL) and its assessment • Discuss the effects of Test Frequency on Risk Reduction and Safe Integrated Levels

Discipline: Process Safety

Code	Skill Module Name	Status	Level	Hrs	Pre-Req	Description
PRS-FPS-1	Fire Protection Systems Core	Released	Core	4		In this skill module, you will learn about the main fire protection strategies, passive and active protection, fire water and foam applications, fireproofing materials, and the use of drainage, containment, and remote impounding in prevention and mitigation of fire and explosion. You will learn how to: • Describe the main fire protection strategies • Discuss the elements of passive and active fire protection • Explain the application of commonly used fireproofing materials • Identify areas of application for fire and blast walls Discuss the application of drainage, containment, and remote impounding • Discuss applications for firewater and foam • Explain the reasons for typical firewater loop design requirements • Discuss the role of remotely operated isolation and depressuring valves in prevention and mitigation of fire and explosion • Discuss the objectives and applications of fire and gas alarm systems

Production and Completion

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
PCE-PPC-1	Production Principles Core	Released	Core	5		This module introduces four characteristics of optimum oil and gas depletion production principles, namely: Effects of Geological and Reservoir Properties · Inflow and Outflow Performance; Tubing Strings, Outflow, and Lift Mechanics; and Field Development Planning. Each is examined to illustrate the importance of up front data acquisition to perform studies to understand target design objectives for conventional oil and gas reservoirs and unconventional shale oil and shale gas reservoirs and unconventional coal bed methane reservoirs.
PCE-WPN-2	Well Performance and Nodal Analysis Fundamentals	Released	Fundamentals	10	PCE-PPC-1	This module explains the key principles in analyzing well performance parameters of any production (or injection) well using the principles and practices of NodalTM analysis, also referenced as system analysis. Inflow and outflow equations are developed, multiphase hydraulics are reviewed, the building blocks of NodalTM analysis are expanded, and several exercises are worked.
PCE-OCW-1	Onshore Conventional Well Completion Core	Released	Core	4	PCE-WPN-2	This module describes the major tools, techniques, and processes for completing wells in conventional situations. Topics include: basic operational aspects of wellhead, flow control equipment, drilling practices, common subsurface equipment, steps for implementing completion procedures, and well flows.
PCE-OUW-1	Onshore Unconventional Well Completion Core	Released	Core	4	PCE-OCW-1	In the last 15-20 years, with the development of shale drilling and completion methodologies, Unconventionals have become front page news. This skill module addresses both the completion process and the physical completion design of unconventional shale wells at the core level. The strongest focus of the module is on horizontal shale wells but also includes a section on Coalbed Methane and one on Heavy Oil as well.
PCE-PRC-1	Primary and Remedial Cementing Core	Released	Core	4	PCE-OUW-1	This module presents an overview of the planning and execution required to achieve the quality primary cementing of well casing strings to successfully isolate a wellbore's geological column, including the well's productive zone(s). Equipment and cement displacement practices are illustrated and described as well as methods to assess the resultant cement sheath. Preliminary lab work to formulate primary cement blends is described. Several cement squeeze techniques are explained and recommended practices are described.
PCE-PEC-1	Perforating Core	Released	Core	3	PCE-OUW-1	This module illustrates the tools and processes for establishing communication between a well and the productive formation(s) accessed by the well. The evolution of shaped charges is presented and the means for delivering perforating charges into a well using various gun configurations is illustrated. The importance of understanding charge performance to select the appropriate charge for a particular set of well conditions is discussed.
PCE-RPJ-1	Rod, PCP, Jet Pump and Plunger Lift Core	Released	Core	5	PCE-PRC-1 PCE-PEC-1	This module will specifically describe the engineering design and operational requirements of Rod Pump, Progressing Cavity Pump (PCP), Jet Pump, and Plunger Lift well completions types. How to evaluate reservoir and well conditions to choose the appropriate artificial lift system for each set of conditions is also covered.
PCE-RRP-2	Reciprocating Rod Pumps Fundamentals	Released	Fundamentals	9	PCE-RPJ-1	This module focuses upon the three main components of a rod pump well completion, namely, the surface unit, the rod string, and the downhole pump. Each component is examined and investigated to define the rod pump completion loading parameters. Related rod pump design considerations necessary for optimizing rod pump design and operation are presented.

Discipline: Production and Completion

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
PCE-GLE-1	Gas Lift and ESP Pump Core	Released	Core	4	PCE-PEC-1	This module describes when best to use gas lift, run inflow performance analysis sensitivity cases, and select optimum tubing size to achieve production rate targets in wells in conventional and unconventional resources plays. It describes the gas lift theory, equipment and covers the best practices of gas lift design, surveillance and optimization.
PCE-GLF-2	Gas Lift Fundamentals	Released	Fundamentals	7	PCE-GLE-1	This module describes when best to use gas lift, run inflow performance analysis sensitivity cases, and select optimum tubing size to achieve production rate targets in wells in conventional and unconventional resources plays. It describes the gas lift theory, equipment and covers the best practices of gas lift design, surveillance and optimization.
PCE-ESP-2	Electrical Submersible Pumps Fundamentals	Released	Fundamentals	6	PCE-GLE-1	This module explains how to conduct inflow performance analysis, and select the appropriate electrical submersible pump (ESP) configuration to achieve production rate targets in wells in conventional and unconventional resources plays, and document equipment failure data when required.
PCE-FDC-1	Formation Damage and Matrix Stimulation Core	Released	Core	3	PCE-PEC-1	Unexpected loss of production following initial completion or a well intervention job is not always due to the same set of circumstances. Topics covered include: the basic causes of oilfield formation damage and how they are recognized; the concept of “True Formation Damage” and the principles of formation remediation; how “pseudo” damage and differs from True Formation Damage; limestone matrix acidizing; and sandstone matrix acidizing.
PCE-FDF-2	Formation Damage and Matrix Acidizing Fundamentals	Released	Fundamentals	9	PCE-FDC-1	The module addresses the complex oilfield phenomena that studies and attempts to resolve the varied causes of oil and gas production shortfalls. Topics covered include: the impact of formation damage upon production; the reasons, sources, depositional environments, and routine operations’ activities that result in production limitations; formation damage “skin” values; production rate calculations with and without formation damage; how TFD and PD are recognized and the characteristics and elements of each; method to stabilize negatively charged clays to limit clay migration, hydration, and other damaging mechanisms.
PCE-FAP-1	Flow Assurance and Production Chemistry Core	Released	Core	5	PCE-FDC-1	This module examines typical oilfield "flow assurance" issues and problems and the identification and remediation, and preventive aspects of common wax, asphaltene, scale, and corrosion problems common to most hydrocarbon production scenarios in one manner or another. Each of these problems requires the application of varied principles and practices of production chemistry. Pictures, illustrations, and examples of typical field problems and challenges faced present proven, least cost, safe remedies to return production to its initial, expected rate.
PCE-SCC-1	Sand Control Core	Released	Core	3	PCE-FDC-1	This module illustrates various causes of sand production and its related effect upon producing systems. Alternatives that range from simply tolerating minimal sand production volumes to complex downhole and surface equipment and practices to mitigate the negative effects of sand production are presented. Basic gravel pack design is discussed and a design problem is presented. Expandable sand screens are illustrated.
PCE-SCF-2	Sand Control Fundamentals	Released	Fundamentals	7	PCE-SCC-1	This module develops skills necessary to design a basic tip screen-out fracpack treatment. A common computer model is used to perform specific calculations. Data analysis during and after the treatment for optimization purposes is also covered.

Discipline: Production and Completion

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
PCE-HFC-1	Hydraulic Fracturing Core	Released	Core	4	PCE-FDC-1	The hydraulic fracturing core module covers basic rock mechanics, stimulation design considerations, and optimum fracture length at the core level. It covers both fracture acidizing and propped hydraulic stimulations. It reviews propped hydraulic fracturing for both the conventional sandstone reservoirs and unconventional shale reservoirs and explains why the techniques are different.
PCE-PPD-1	Production Problem Diagnosis Core	Released	Core	3	PCE-FDC-1	This module describes the causes and effects of most common well problems and remediation approaches. Topics include: field collected data; conventional and unconventional resources plays; drill stem and production tests; validating collected data; pressure buildup analysis; the effect of pressure on fluid flow, Inflow Performance Relationship analysis principles, and the best tubing correlations when modeling vertical and horizontal wells; and the importance of applying and complying with all requirements to ensure integrity throughout life cycle of a well.
PCE-PLC-1	Production Logging Core	Released	Core	3	PCE-PPD-1	This module describes purpose of running cased-hole production logs, the type of data collected, how a logging tool is run in a well, and recognize data obtained from running the most common logging tools in conventional and unconventional resources plays.
PCE-PLF-2	Production Logging Fundamentals	Released	Fundamentals	7	PCE-PLC-1	This module develops skills necessary to validate and interpret data from the most common production logging tools, supervise logging operations onsite, and identify programs and instrumentation used in common situations.
PCE-NAW-3	Nodal Analysis Workshop	Released	Workshop	38	PCE-WPN-2	Well Inflow/ Outflow (NODALTM) Analysis is an integral part of a production or completion engineer's work scope. This workshop is a comprehensive overview of this technique, emphasizing real world application through multiple problems from different perspectives. Upon completion, participants will be able to approach a problem recognizing potential solution methods, prepare data for analysis, identify sources of error, perform an analysis with industry software, and present a holistic recommendation.
PCE-SIR-3	Scale Identification, Remediation, and Prevention Workshop	Released	Workshop	16		Scale Identification, Remediation and Prevention is an essential part of a production or workover engineer's scope of work. This workshop provides a comprehensive overview of dilemmas in operating producing and injection wells relating to the presence of a variety of oilfield scale types – primarily reduction in pipe carry capacity and localization of corrosion attack – deposition mechanisms, identification methods, various removal techniques and methodologies for its prevention. Upon completion, participants will be aware of the scale problem, understand ways to remediate it and prevent it subsequent deposition. Specific mathematical scale prediction methods are presented and numerous preventive methods, both chemical and unique approaches, are covered.
PCE-DEC-1	Design Process for Completion and Workovers Core	Coming Soon	Core	3		This module focuses upon the three main work products of a typical completion or workover design - the proposed well sketch, the proposed procedure, and then the underlying basis of design. In addition, field/ rig morning reports are introduced, and reviewed in view of the original design plans. In this core module, participants are exposed to these three design work products, and will learn how to interpret each of the individual components. And, once executed, participants will learn how to read and assess the daily morning reports

Discipline: Production and Completion

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
PCE-WIC-1	Well Intervention Core	Coming Soon	Core	3		This module covers standard equipment used in several common well types to a fundamental level. Packers, frac plugs, frac sleeves, toe sleeves, tubing (including tubing connections), safety valves, landing nipples, circulating devices, flow couplings and blast joints are discussed. Several example wells are reviewed such that participants can see how multiple pieces of equipment are combined into a robust well design. The course will consider a typical plug and perf well, a typical completion for an offshore platform well, and a typical land conventional well with a selective completion. Although not a specific target of this course, an overview of injectors, subsea wells, and conventional HZ wells is included.
PCE-DEF-2	Design Fundamentals	Coming Soon	Fundamentals	6		This module discusses many of the critical design considerations that go into completion or workover planning. This module covers selection of a well/ reservoir interface, recognition of the various sand face completions options that exist, selection of a flow conduit up the well, tubing size selection, metal selection, elastomer selection, generalized equipment selection and position, and a more detailed review of well barriers.
PCE-WOF-2	Workover Fundamentals	Coming Soon	Fundamentals	6		This module builds on elements of the Production Problem Diagnosis Core (what is wrong with the well) and elements of the Well Intervention core (what are available tools to re-enter the well) to look at a variety of well intervention options. We cannot cover all the various workovers in a specific class, so instead we build out a framework for categorizing well problems, and then we consider specific workover examples for a selection of common objectives, including: repair a tubing leak, shut off increased water production, abandon a zone, bypass a stuck sliding side door
PCE-WCF-2	Well Completions Fundamentals (+ Main Course Problem)	Coming Soon	Fundamentals	6		This module covers standard equipment used in several common well types to a fundamental level. Packers, frac plugs, frac sleeves, toe sleeves, tubing (including tubing connections), safety valves, landing nipples, circulating devices, flow couplings and blast joints are discussed. Several example wells are reviewed such that participants can see how multiple pieces of equipment are combined into a robust well design. The course will consider a typical plug and perf well, a typical completion for an offshore platform well, and a typical land conventional well with a selective completion. Although not a specific target of this course, an overview of injectors, subsea wells, and conventional HZ wells is included.

Reservoir Engineering

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
RES-TRE-1	This is Reservoir Engineering	Released	Core	3		This skill module is an introduction to the blended version of the Applied Reservoir Engineering course. You will learn: • About the Principal Tasks of a Reservoir Engineer • About the Principal Tools of a Reservoir Engineer • How this course is organized to cover these topics
RES-RRP-1	Reservoir Rock Properties Core	Released	Core	3		You will learn: • Different types of rocks • Primary rock properties from a reservoir engineering point of view • How rock properties are measured • How rock property values are interpolated/extrapolated throughout the reservoir
RES-RRP-2	Reservoir Rock Properties Fundamental	Released	Fundamentals	8	RES-RRP-1	This module introduces the concepts or wettability, capillary pressure and relative permeability, and discusses how they are measured and modeled for reservoir behavior description. You will learn how to: • Describe the concept of fluid contacts • Describe how saturations change when crossing • Describe wettability • Describe interfacial tension • Describe how residual oil saturation is controlled by the interplay of different forces • Define capillary pressure • Explain how capillary pressure is a combination of several related phenomena • Describe how capillary pressure can be used to explain macroscopic reservoir phenomena • Show how collecting capillary pressure data can actually save money • Discuss the various choices available for measuring relative permeability in the laboratory • Discuss the various choices available for measuring capillary pressure in the laboratory • Discuss the various choices available for measuring capillary pressure in the laboratory • Show how reservoir engineers model relative permeability • Show how reservoir engineers model capillary pressure • Describe how reservoir engineers define saturations • Apply concepts discussed in the module to build relative permeability and capillary data datasets
RES-RFC-1	Reservoir Fluid Core	Released	Core	4		You will learn how to: • Describe how fluids change in response to changes in pressure and temperature • Define the engineering properties of reservoir fluids • Describe the make-up of reservoir fluids • Describe how fluids are sampled • Describe how fluid properties are measured in the laboratory

Discipline: Reservoir Engineering

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
RES-RFF-2	Reservoir Fluid Fundamentals	Released	Fundamentals	7		Reservoir Fluid Fundamentals explores the calculation fluid properties such as formation volume factors, viscosities and densities for a wide range of fluids under reservoir conditions. You will learn how to calculate fluid properties needed for: • Volumetrics • Material Balance • Fluid Flow using Darcy's Law • Pressure Transient Analysis • Rate Transient Analysis • Fluid Displacement • Many other types of analysis
RES-RFP-1	Reservoir Flow Properties Core	Released	Core	4		This Reservoir Flow Properties Core module discusses the extensions and limitations of Darcy's Law. This module also includes the application of Darcy's Law to gas an oil and how the law can be applied to homogenize to calculate effective permeability. You will learn how to: • Explain the origin of Darcy's law and how it evolved • State the difference between gravity and the pressure gradients, and how they play a role in determining the rate of which fluid could flow in the porous medium • Identify the differences between the equations of Linear versus radial flow when calculating the flow • Explain how do heterogeneities affect the flow in porous medium, and how Darcy's law can be applied to homogenize to calculate effective permeability • Differentiate between oil and gas flow • Apply Darcy's law to gas and oil • Calculate the amount of fluid that is flowing when you have single cell phase vs single phase oil • Describe the Importance of non-Darcy effect on well performance • Apply Darcy's law when calculating the rate of the of oil and gas well • Identify the differences between layers in parallel and layers in series • Discuss the effective permeability of both layers in parallel and layers in series • State limitations of Darcy's law • Assess the differences between gas and oil reservoirs • Describe the effect of non-Darcy flow

Discipline: Reservoir Engineering

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
RES-RFP-2	Reservoir Flow Properties Fundamentals	Released	Fundamentals	6	RES-RFP-1	This Reservoir Flow Properties Fundamentals Module covers multiple basic and advanced levels of topics. The topics include but are not limited to, Darcy's law, Flow Regimes, Fractured Wells, and Heterogeneous systems and Skin factor. This module also includes an interactive virtual phase where the learner works with the instructor virtually to analyze and solve problems. You will learn how to: • Apply Darcy's law for radial flows • Differentiate between oil and gas flows • Solve simple problems for radial flow across porous medium • Define and calculate productivity index • Predict the inflow performance relationship for oil and gas wells • Calculate the flow rate under different flow regimes • Understand why productivity index changes for transient flow • Calculate the flow rates for both oil wells and gas wells • Understand the difference between boundary pressure and average pressure • Understand the application of both pseudo-real pressure and pressure squared methods for gas wells in calculating the rates • Evaluate the end of transient and the beginning of pseudo-steady state flows for circular as well as non-circular reservoirs • Understand the importance of vertically fractured and horizontal wells • Calculate the rates and productivity indices for vertically fractured and horizontal wells using the concept of effective well bore radius • Understand different flow regimes encountered by vertically fractured and horizontal wells • Evaluate efficacy of horizontal wells and compare the performance to vertically fractured wells • Calculate the effective permeability for parallel layers • Calculate the effective permeability for layers in series • Evaluate the difference under linear and radial flows • Calculate the value of skin factor using damaged zone permeability • Evaluate the performance of a well in the presence of skin factor • Evaluate the performance of the well with limited amount of production data • Understand the conditions under which non-Darcy flow is important • Evaluate the performance of gas wells in the presence of non-Darcy flow using both pressure squared and pseudo-pressure equations • Understand the concept multi-rate test and why it is important • Evaluate the oil well performance when the well is producing below bubble point • Analyze and solve basic and advanced level problems

Discipline: Reservoir Engineering

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
RES-RMB-1	Reservoir Material Balance Core	Released	Core	4		This Reservoir Material Balance Core module covers the basics of material balance. The topics included are drive mechanisms, principles of material balance, how to develop equations, and application of the material balance equation. You will learn how to: • Describe the purpose of the material balance technique to estimate the initial hydrocarbons in place • Differentiate between volumetric analysis and material balance technique • State the basic principle of material balance analysis • Describe the principles behind material balance equation • Identify the data that is needed to apply the material balance equation and the uncertainties associated with collecting such data • Identify the purpose of the modified black oil model in material balance equation • State the assumptions involved in applying the material balance equation • Identify the limitations of material balance technique • Develop the material balance equations from the first principle • Identify and explain the different mechanisms influencing the production of hydrocarbons and how they are incorporated in the material balance equation • Understand the necessary equations to be used depending on the type of reservoir from which hydrocarbons produce • Develop appropriate equations for dry gas, wet gas, condensate, volatile oil and black oil reservoirs • Describe modifications of material balance equations to estimate the initial oil and gas in place • Explain the Havlena and Odeh method and the appropriate way to linearize the material balance equations • Express the importance of water influx and how to detect the presence of aquifer based on production data • Recognize the uncertainties associated with predicting the water influx as a function of time
RES-RMB-2	Reservoir Material Balance Fundamentals	Released	Fundamentals	6	RES-RMB-1	You will learn how to: • Calculate volumetric estimates. • Adjust volumetric estimates for transition zones and calculate recovery factors. • Perform material balance analysis. • Leverage straight-line expressions of material balance equations to analyze gas reservoirs. • Leverage straight-line expressions of material balance equations to analyze oil reservoirs
RES-RSA-1	Decline Curve Analysis and Empirical Approaches Core	Released	Core	3		This course introduces the use of statistical methods in reservoir engineering. A range of applications are described, concentrating on decline curve analysis. You will learn how to: • Perform Basic Statistics • Calculate Decline Curve Analysis • Estimate Recovery Factors

Discipline: Reservoir Engineering

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
RES-RSA-2	Decline Curve Analysis and Empirical Approaches Fundamentals	Coming Soon	Fundamentals	6	RES-RSA-1	This module describes the application statistical methods to solve reservoir engineering challenges. The emphasis will be on decline curve analysis and curve fitting measured data such as relative permeability.
RES-RRC-1	Reserves and Resources Core	Released	Core	4		This module brings your attention to reserves management and the difference between resources and reserves at a core competency level. You will learn: • The importance of integration with other disciplines • Calculations using the volumetric formulas for gas and oil • The importance of dividing into flow units for dynamic reserves in reservoir simulation • Reserves management: what it is and how to do it • The Reservoir Engineer's input to reserves and resources (R & R) • How a Geoscientist and Reservoir Engineer work together on reserves • The risk and uncertainty that drive reserves • Other non-technical factors that influence R & R • The standardized process between reserve estimates • The ethical basis underlying R & R estimations
RES-PTA-1	Pressure Transient Analysis Core	Released	Core	4		This module brings your attention to pressure transient analysis concepts, equations, and terminology. These will get you started in the process of understanding and using this key technology for understanding oil and gas reservoir architecture and near-well parameters. You will learn: • Pressure transient analysis concepts, terminology, equations and objectives • Pressure transient analysis in buildup and drawdown tests • Time period analysis - challenges and objectives • Semi-log and log-log analysis
RES-RTA-1	Rate Transient Analysis Core	Coming Soon	Core	4		You will learn how to: • Describe the relationship between 'rate transient analysis' and 'pressure transient analysis'. • Describe the situations under which rate transient analysis would be preferred to pressure transient analysis.
RES-RFD-1	Reservoir Fluid Displacement Core	Released	Core	3		This covers immiscible, linear displacement, as dispersed and segregated flow. It also discusses aquifers, coning, and vertical layering. You will learn: • Fluid displacement as immiscible, linear, and vertical (overcoming gravity) • Dispersed and segregated flow • Aquifers models • Coning in oil/water systems, including when it is most likely to occur, and how to prevent it

Discipline: Reservoir Engineering

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
RES-RFD-2	Reservoir Fluid Displacement Fundamentals	Coming Soon	Fundamentals	6	RES-RFD-1	You will learn how to: • Model aquifers using analytical expressions. • Calculate mobility ratios, heterogeneity indices and sweep efficiencies. • Calculate the movement of flood fronts through the reservoir. • Plot saturation vs. distance plots. • Calculate how concentrations change spatially.
RES-EOR-1	Enhanced Oil Recovery Core	Coming Soon	Core	4		You will learn how to: • Discusses the modification of rock and fluid properties in tertiary recovery • Describes (at a high level) the range of secondary and tertiary recovery techniques currently available (and relates them back to rock & fluid properties)
RES-IOR-2	Improved Oil Recovery Fundamentals	Coming Soon	Fundamentals	6		You will learn: • Different types of waterfloods • Waterfloods vs. pressure maintenance • Patterns vs. peripheral • Different kinds of patterns • Horizontal vs. vertical wells vs. hydraulic fracs in waterfloods • Planning waterfloods • Application of material balance • Application of simulation • Calculation of heterogeneity indices • Pilots vs. staged developments • Flooding fractured reservoirs
RES-RSI-1	Reservoir Simulation Core	Coming Soon	Core	4		You will learn how to: • Describe the physical basis, use and limitations of reservoir simulation models. • Describe the kind of data required to perform a simulation study. • Describe the issues and requirements for making rate and recoverable predictions for unconventional reservoirs with simulation tools. (UC) • Describe the issues and requirements for making rate and recoverable predictions for heavy-oil reservoirs with simulation tools. (HO)
RES-RSC-1	Reservoir Surveillance Core	Coming Soon	Core	4		You will learn how to: • Explain that collecting data has value and cost. • Describe the different kinds of errors that appear during a measurement event. • Describe the kinds of measurements which can be used to monitor producing wells. • Describe the kinds of measurements which can be used to monitor injecting wells. • Describe the kinds of measurements which can be used to monitor the relationships between wells. • Outline the use of data integration methods. • Describe the difference between 'data-driven' and 'model-driven' reservoir surveillance

Discipline: Reservoir Engineering

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
RES-RSF-2	Reservoir Surveillance Fundamentals	Coming Soon	Fundamentals	6	RES-RSC-1	You will learn how to: • Calculate the value of a particular type of data to your asset. • Calculate how the value of a particular type of data varies with the frequency of collection and the quality of the measurement. • Use the analysis of measurement data to identify reservoir and well problems. • Apply data integration methods, such as montages. • Integrate surveillance data with forecasting methods.
RES-RMC-1	Reservoir Management Core	Coming Soon	Core	4		You will learn how to: • Describe the inter-relationship between reservoir engineering and other disciplines, and how integration helps optimize the value of corporate assets. • Describe how the value of an asset is defined. Explain the roles of risk and uncertainty in that valuation. • Describe types of wells, and the conditions under which each is most advantageous, describe how facilities affect field development. • Describe different intervention techniques that may improve well performance. • Describe the types of enhanced oil and enhanced gas recovery techniques available.
RES-RMF-2	Reservoir Management Fundamentals	Coming Soon	Fundamentals	6	RES-RMC-1	You will learn how to: • Integrate technologies from multiple disciplines to optimize asset value. • Calculate asset value, explain contingency planning. • Identify the geologic and reservoir parameters critical for optimal well spacing and orientation. • Compare actual performance to expected performance to determine if intervention is required. • Conduct analysis to determine the most appropriate EOR technique (if any) for a particular reservoir situation. • Estimate number of annual abandonments, and plan workover activities accordingly.

Well Construction / Drilling

Code	Skill Module Name	Status	Level	Hr	Pre-Req	Description
WCD-CDW-3	Casing Design Workshop	Released	Workshop	37		Casing design is an integral part of a drilling engineer's work scope. This workshop provides a comprehensive overview of the design process, emphasizing the working stress approach currently used in the industry. Upon completion, participants will be able to select casing points, identify tubular requirements, loads, and present a design which incorporates life cycle considerations. Estimation of standard and special loads is covered in detail. Standard theories of strength and failure are discussed as well as advanced considerations for combined loads. Topics related to safe handling, running and hanging practices will also be covered.
WCD-CRO-1	Casing Running Operations Core	Released	Core	5		This modules covers the steps of running casing, from the rig to the borehole. Topics include: safe working practices while running casing on a rig; responsibilities and organization of wellsite personnel for normal casing operations; the purpose of basic running casing equipment and the key steps used to run casing.
WCD-OCC-1	Oilfield Casing Core	Released	Core	4		This module covers the purpose of casing in an oilfield well. Topics included are: how joints of casing are connected; the steps in the process for drilling and cementing casing; awareness of API/ISO casing naming conventions; advantages and disadvantages to casing produced with seamless and ERW properties; casing descriptions and dimensions and their correlation; identifying casing in a wellbore schematic.