GPC
مركز أبحاث الغاز
Gas Processing Center

كلية الهندسة
College of Engineering
QATAR UNIVERSITY جامعة قطر

GPC Professional Development Training Courses

GPC Professional Training List:

Contents

About the Gas Processing Center (GPC)

The GPC is a state-of-the-art Centre with combined high-level academic and Industrial expertise and facilities. The Center conducts research, training and consultation of interest to the industrial partners and provides pilot plants testing for numerous processes. The overriding objective is to become a center of excellence of international standing offering leading edge research and development work in the area of natural gas production and processing. In doing so, the Center aims to play a key role in realizing the 2030 vision of moving Qatar from a hydrocarbon economy to a knowledge based economy. The Research Center, by virtue of its presence at Qatar University, focuses on enhancing the educational experience of engineering students at the University and addressing challenges facing the gas industry. The center enjoys excellent relationships with local and international companies that have presence in Qatar. In addition to its research activities, the center offers periodic technical training programs, information products and organizes a regular International Gas Processing Symposium.

GPC Training

Gas Processing Center (GPC) at Qatar University was launched in March of 2007 to be the main research center in the State of Qatar addressing challenges and opportunities in the field of gas processing. The Center enjoys an excellent relationship with local and international companies that have presence in Qatar. Its consortium has attracted major players in the gas industry. In addition to the research activities, the center is offering periodic technical training programs and is organizing an annual international symposium on gas processing starting January 2009. The Center is collaborating with world leading universities and institutes to provide the best quality training sessions (the list of some of the courses are summarized below). Our Training Program is designed for engineers, chemists, and technologists within the Qatari Industries.

Gas Processing

1- Gas Conditioning

About the Course:

The purpose of this course is to provide a comprehensive understanding of natural gas treatment processes, operation and troubleshooting. Gas sweetening is the process employed to remove acidic components (primarily H_2S and CO_2) and other impurities from natural gas or other industrial hydrocarbon streams. This is necessary to meet the specifications set for pipelines or LNG and customers demand. A variety of methods are available and may be broadly classified as those depending on chemical reaction, physical absorption, adsorption or membrane processes. Processes employing each of these techniques are briefly presented in the course. However, a special attention is given to chemical reaction based processes where

they are described in more details. Participants will be exposed to the state-of-the-art CO_2 capturing pilot plant at the GPC.

Course Content:

- Identify natural gas characteristics and the need to process it to meet the required commercial specifications.
- Introduce gas hydrates formation conditions and how to prevent their formation (changing conditions, use of inhibitors).
- How to face the problems associated with the presence of certain compounds (H_2O, H_2S, CO_2, Condensate …) and the amount of water content in saturated gas under given conditions.
- Introduce the different treatments processes required for the removal of those compounds.
- Safe Monitoring of the different processes, identify the observed deviations and rectify them.
- Introduce the importance of different chemicals used in these processes.
- Major technologies applied in gas sweetening; sulfur (H_2S) conversion: (CLAUS process) and tail gas processing.
- Natural Gas Liquids (NGL) extraction; case studies and general discussions.

You Will Learn:

- Natural gas composition.
- Fundamentals of gas treatment technologies.
- Chemical processes, Physical processes.
- Membrane processes.
- Basis of amine based processes used in gas treatment technology design and operation, including process optimization and troubleshooting.

Who Should Attend?

The course is designed for engineers, chemists, operators and other stakeholders within gas treatment industry and other industries employing carbon capture technology.

2- Introduction to Application of ASPEN HYSYS Simulations in Gas Processing

About the Course:

This is a 3-day course that covers gas processing, using Aspen HYSYS commercial process simulator. The course covers basic introductory material on process simulation. In addition, the course will cover different simulation modules that are designed to cover the basic gas processing units such as absorption, stripping, flash columns, distillation, and gas-liquid separations. The participants will be trained to develop process units for gas conditioning such as gas condition for removal of carbon dioxide, hydrate inhibition and dew point of gas mixtures. In addition, participants will be trained on how to modify the process conditions to get the desired product. Hands-on-experience on the simulation software will be provided.

Course Content:

- Physical properties of hydrocarbons.
- Qualitative phase behavior.
- Vapor-liquid equilibrium.
- CO_2 Absorption and stripping.
- Crude distillation.
- Separation equipment.
- Glycol dehydration.
- Hydrate inhibition.

You Will Learn:

- How to use the process simulator to obtain physical properties of different fluids.
- How to use the process simulator to obtain vapor-liquid equilibria data.
- How to remove CO_2 from a gas mixture and identify the amount of solvent needed.
- How to use short-cut distillation calculations to provide input to rigorous distillation simulations.
- Which thermodynamic property correlations are appropriate for various gas-processing systems?
- Limitations associated with commercial simulation packages and how the results can be quickly checked for relative accuracy.
- Techniques to inhibit hydrate formation, including injection of inhibitors such as methanol.
- Process design used to control the hydrocarbon dew point of sales gas streams.

Who Should Attend?

Engineers that require practical in-depth training on natural gas processing and NGL recovery processes, with emphasis on the use and benefits of a simulation package.

3- Advanced Application of ASPEN HYSYS Simulations in Gas Processing

About the Course:

This course will teach attendees how to design of NGL fractionation processes, using Aspen HYSYS, and will demonstrate how to utilize rigorous column and heat exchanger design features, to conduct effective process design assessments. The course will familiarize the trainees with ASPEN spreadsheet features and how to utilize case study tools for performing complex calculation. Moreover, this course will also introduce participants to the basics of Aspen Dynamic simulation and Safety and Pressure Analysis. Relevant examples from the Oil and Gas industry in Qatar will be utilized.

Course Contents

- Introduction/Overview to Gas Conditioning Processes
- Design of NGL Fractionation Train
- Using Aspen spreadsheet and case study tools to perform complex calculations and analysis
- Rigorous Column and Exchanger design features using Aspen HYSYS
- Introduction to Dynamic Simulation using Aspen HYSYS
- Aspen Safety and Pressure Analysis

Attendees receive guided instruction on all essential simulation topics. Instructors provide live demonstrations of Aspen HYSYS features. Detailed course notes and workshop solutions are provided to attendees.

Eligibility Criteria:

The course is designed for engineers, chemists, operators and technologists dealing with oil and gas operations.

4- Plant Engineering

About the Course:

This course is intended to introduce Plant Operators to Plant Engineering fundamentals, such as calculation of thermal and physical properties of fluids; basic mass and energy balance; fluid mechanics and flow in pipes; heat transfer equipment and basic calculations and phase behavior and separations.

Course Content:

- Mass and energy balances and utilize these balances in the evaluation of operating facilities.
- Fluid flow calculations using the Bernoulli equation, process parameters, and mechanical parameters.
- Heat loss from uninsulated and insulated equipment and calculation of pressure drop om shell and tube exchangers using TEMA manual, Maxwell's Data book on hydrocarbons, GPSA Engineering Data Book, SAES-E-001, SADP-E-001, SAES-L-043, SAES-N-001, heat exchanger specifications, process parameters and related equations.
- Separation processes including distillation and absorption.

You Will Learn:

- Calculate hydrocarbon physical properties
- Use hydrocarbon thermal properties in calculations.
- Fundamentals of mass and energy balances.
- Basics of fluid mechanics
- Basics of heat and mass transfer
- Fundamentals of separation processes.

Who Should Attend?

The course is designed for operators and chemists working in chemical plants in the oil and gas industry.

5- Gas Sweetening

About the Course:

The purpose of this course is to provide a comprehensive understanding of natural gas treatment processes, operation and troubleshooting. Gas sweetening is the process employed to remove acidic components (primarily H2S and CO2) and other impurities from natural gas or other industrial hydrocarbon streams. This is necessary to meet the specifications set for pipelines or LNG and customers demand. A variety of methods are available and may be broadly classified as those depending on chemical reaction, physical absorption, adsorption or membrane processes. Processes employing each of these techniques are briefly presented in the course. However, a special attention is given to chemical reaction based processes where they are described in more details. Participants will be exposed to the state-of-the-art CO2 capturing pilot plant at the GPC.

Course Content:

Identify natural gas characteristics and the need to process it to meet the required commercial specifications.

Introduce gas hydrates formation conditions and how to prevent their formation (changing conditions, use of inhibitors). How to face the problems associated with the presence of certain compounds (H2O, H2S, CO2, Condensate ...) and the amount of water content in saturated gas under given conditions. Introduce the different treatments processes required for the removal of those compounds. Safe Monitoring of the different processes, identify the observed deviations and rectify them; introduce the importance of different chemicals used in these processes; major technologies applied in gas sweetening; sulphur (H2S) conversion: (CLAUS process) and tail gas processing; Natural Gas Liquids (NGL) extraction; case studies and general discussions.

You Will Learn:

Natural gas composition, Fundamentals of gas treatment technologies, Chemical processes, Physical processes, Membrane processes. Basis of amine based processes used in gas treatment technology design and operation, including process optimization and troubleshooting

Eligibility Criteria:

The course is designed for engineers, chemists, operators and other stakeholders within gas treatment industry and other industries employing carbon capture technology.

6- Natural Gas Processing

About the Course:

To gain a detailed understanding of gas processing operations including gas fractionation, glycol and desiccant dehydration, gas sweetening (physical and chemical solvents, LNG operations, including an overview of operational issues.

Course Content:

1. Introduction (Worldwide outlook, composition, pipeline specifications, LPG, LNG, Overview of gas sweetening)
2. Properties and EOS [density, VLE review, EOS]
3.Water-HC Phase Behavior (water content, Hydrate Equilibrium, Hydrate Prediction, Inhibition)
4. Fractionation and Absorption Review (Fractionation, Absorption)
5.Glycol Dehydration (Glycol Unit, Operating Problems, Batch Processes)
6. Adsorption Dehydration (Desiccants, Molecular Sieve design)
7. Acid Gas Removal (Introduction, Physical, Chemical, Mixed Solvents, Operational issues: Degradation, Corrosion, Foaming)
8. Research: Solubility, Kinetics and Calorimetry (Solubility, Kinetics and Mass transfer, Acid-Gas Solubility Models- Calorimetry)

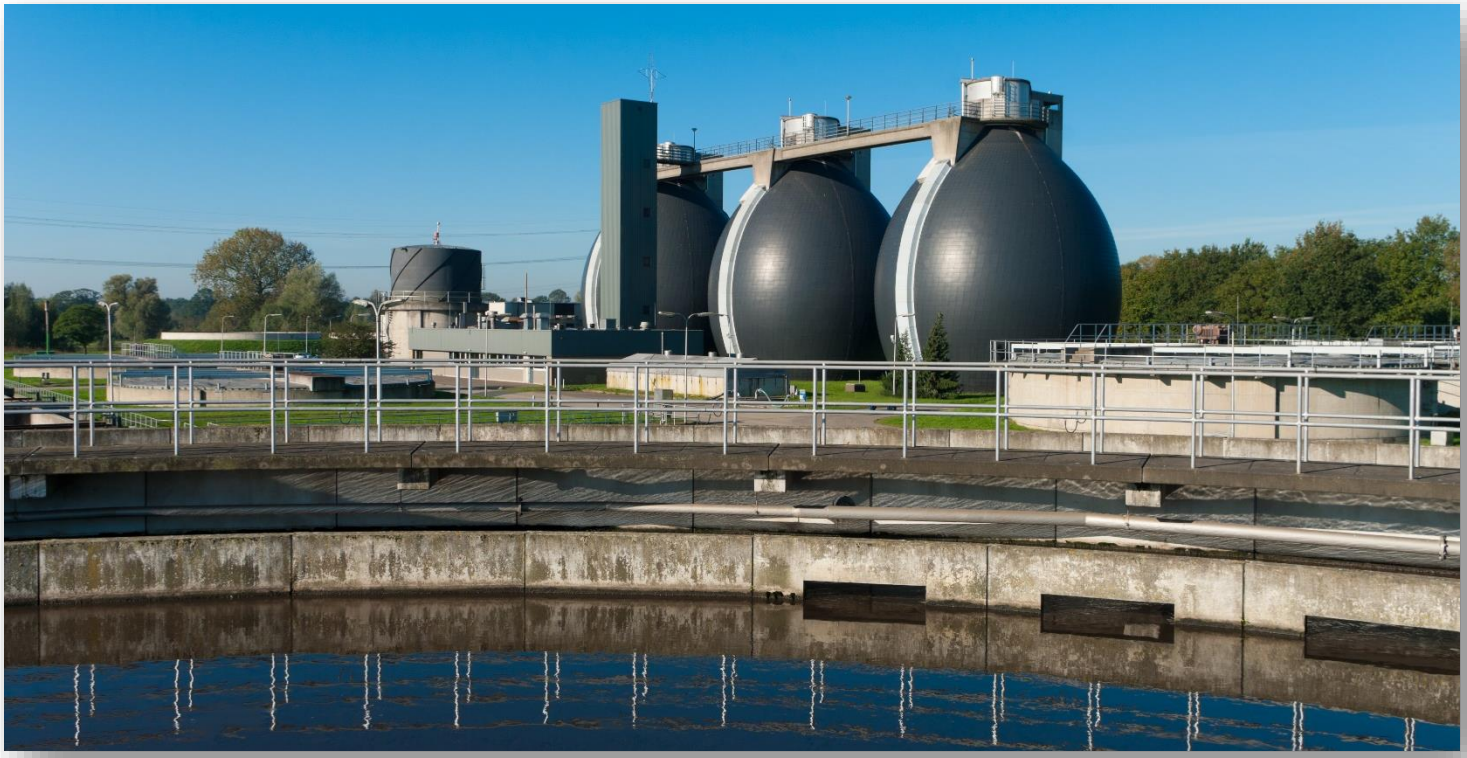
You Will Learn:

The main objective of this course is to provide attendees (senior students from Department of Chemical and Mechanical engineering) with an in-depth knowledge of natural gas processing operations. A brief overview will be given of operational issues and current research trends.

Eligibility Criteria:

Fresh Graduate from Chemical and Mechanical Engineering department

Produced Water



7- Produced Water Treatment Technology

About the Course:

Produced water (PW) generated by the oil and gas industry represents the largest volume by-product of petroleum production, with a water: oil ratio that increases with the age of the well. The increased volumes of water pumped as the well ages along with the increasingly stringent environmental standards required for its safe discharge impose ever-greater challenges regarding treated water quality.

The course is intended to provide an insight into the technologies currently available for produced water treatment both onshore and offshore, and to stimulate a discussion amongst the participants based on ongoing and projected developments in meeting the produced water management challenge. The underpinning unit process fundamentals, physical characteristics and overall performance in terms of water purification, along with other key facets such as system robustness, are provided for a range of treatment technologies. In the case of offshore technologies an analysis of the unit process footprint is also included, with reference to estimated hydraulic residence time.

The physicochemical characteristics of produced water are outlined, and key differences between water from gas and oil fields briefly explained. Treatability of the water both in terms of its physico-chemistry and biodegradability (using classical aerobic biological treatment processes is considered). The limitation of particle and droplet size is specifically considered for the classical physical separation processes.

Unit processes considered range from the classical off-shore produced water treatment technologies based on enhanced gravitational separation (hydrocyclones), gas-assisted separation (induced gas flotation and compact flotation units) and media filtration (nut shell filters) to more advanced and novel processes such as membrane filtration. On-shore technologies include less spatially intensive processes such as classical aerobic biological treatment for removal of dissolved organic carbon. Onshore and offshore reuse opportunities are identified, with case studies outlined.

Course Content:

- Produced water sources, quality and treatment objectives.
- Primary and secondary processes.
- Separators, hydrocyclones, CPIs, IGFs, CPUs.
- Tertiary processes and integrated systems.
- Media and membrane filtration.
- Offshore and onshore water treatment challenges.
- Biological treatment Principles (aerobic vs anaerobic; fixed film vs suspended growth) TFs, RBCs, MBRs, etc...
- Water reuse opportunities and case studies.

You Will Learn:

Upon the successful completion of the course, the participants should be able to:

- Be familiar with technologies employed for produced water treatment on and off shore.
- Understand main characteristics and sources of produced water.
- Know the fundamentals of primary and secondary processes.
- Be familiar with Applications of separators, hydrocyclones, CPIs, IGFs, CPUs.
- Understand the operation of the mains units of tertiary processes and integrated systems.
- Discuss case studies and examples of existing installations.

Who Should Attend?

Managers, engineers, chemists, and senior operations personnel responsible for designing, operating, and maintaining facilities that process and manage produced water. This course will provide participants with an understanding of the technical aspects required to select, design, maintain, and troubleshoot produced water equipment.

8- Membrane Bioreactors

About the course:

Membrane bioreactor (MBR) technology was originally commercialized in the early 1970s, with the immersed configuration introduced in the 1990s. Since that time, their implementation has grown in number and size, such that there are currently over 40 plants of over 100,000 m3/d capacity, with more at the planning stage, and over 20,000 installations globally with a total capacity of over 20 gigalitres per day. The technology offers widely recognized advantages over classical treatment of higher treated water quality, decreased footprint and reduced sludge production. However, its implementation in Qatar has been very limited, with the first installation for industrial effluent treatment commissioned only in 2016. This three-day course sets out to demystify MBR technology, providing general information about the design and operational aspects of the technology supported by hard data from commercial technologies and existing reference sites. The course is presented in a way to promote interaction with the delegates and address their specific concerns through using the most relevant examples.

Course Content:

The course will provide:

- An understanding of the underlying basic governing principles of membrane separation as applied to MBRs and ultrafiltration/ microfiltration generally, including membrane types and configuration, key process parameters and operating principles.
- It will highlight the fundamentals of biological treatment, including process configurations, biochemistry and key process parameters.
- MBR process design and operation principles, including troubleshooting will be discussed. The course will also review commercial MBR membranes as well as real-world effluent reuse applications.

You Will Learn:

Upon the completion of the course, participants will learn more about:

- Industrial effluent treatment using MBRs.
- Municipal wastewater treatment using MBRs.
- Comparative costs with conventional treatment.
- Membrane separation process fundamentals.
- MBR membrane technology configurations.
- MBR process design, operation and maintenance.
- Commercial MBR membrane products and process technologies.
- Case studies of MBR applications.

Who Should Attend?

The course is aimed at a broad section of stakeholders, including end users (oil companies and water utilities), consultants, contractors, regulators, technology providers and researchers in wastewater treatment technology for both industrial and municipal effluents.

9- Membranes for Industrial Wastewater Recovery and Reuse

About the course:

The issues surrounding water reuse are well known and have been debated at length. Their nature changes according to the specific application, i.e. domestic, municipal or industrial. Recovery and reuse of industrial effluents are generally governed by economics, which may then be driven by regulation. Increasingly stringent environ-mental legislation and generally enhanced intensity, efficiency and diversity of treatment technologies has made reuse of water more viable in many industrial processes. Water reuse can take a number of forms: recycling within the process itself on individual process streams, end of pipe treatment of combined effluent streams. Whether applied to the domestic or industrial environment, membrane processes inevitably play a key role in water recycling since they can produce water of a reliable quality, the permeate product water quality varying little with feedwater quality. On the other hand, they are susceptible to certain constraining phenomena, principally membrane fouling, and are generally considered to be costly. Key issues in the application of membrane technology to water recycling are thus capability, reliability and cost.

Course Content:

This course is designed to extend the knowledge of those who are interested in industrial wastewater recycling, including problem holders and membrane suppliers as well as students and academics studying in this area. It is intended to provide a practical aid towards actually selecting, installing and/or designing membrane-based systems for recovering and reusing industrial effluent.
Topics covered on the course comprise:

- Membrane technology: Parameter definition; Process fundamentals.
- Industrial processes and wastewaters: Wastewater and process water quality across different industrial sectors.
- Introduction to Pinch analysis.
- Case studies: Data from reference sites across different industrial sectors.
- CAD demonstration for process design.

You Will Learn:

Upon the completion of the course, participants will learn more about:

- The Basic governing principles of membrane separation as applied to porous and dense membrane processes.
- Membrane types and configuration.
- Key process parameters and operating principles.
- Process and effluent water quality.
- Reuse opportunities afforded across different industrial sectors The application of Pinch analysis to assessing water reuse options.

Who Should Attend?

The course is aimed at a broad section of stakeholders, including end users (oil companies and water utilities), consultants, contractors, regulators, technology providers and researchers in wastewater treatment technology for both industrial and municipal effluents.

10- Industrial Wastewater Treatment in Practice

About the course:

The course focuses on the management of industrial wastewater and addresses topics, such as cleaner production, industrial water management, toxicity, physical chemical processes, anaerobic industrial wastewater treatment, and sludge management and treatment.

Course Content:

Topics covered on the course comprise:

- Industrial Water Management: i) Impact of industry on water resources; ii) Industrial water quality; iii) Waste minimization; iv) Treatment options; v) Appropriate technology.
- Physical Chemical Processes: i) Contaminants/classes and process selection; ii) Physical-chemical transformation processes; iii) Physical-chemical separation processes; and iv) Coagulation/flocculation.
- Anaerobic Industrial Wastewater Treatment: i) Anaerobic high-rate treatment of industrial wastewater.
- Testing and sampling for operational control.
- Sludge Management: i) Sludge conditioning; ii) Sludge thickening; iii) Sludge stabilization; and iv) Sludge dewatering.
- Case studies: i) Produced water treatment; ii) Desalter effluent treatment; iii) Boiler Feed Water Treatment for Industrial Boilers & Power Plants; iv) Industrial Laundry Wastewater Treatment; v) Metal Plating Wastewater; vi) Surface Water Treatment for Ultrapure Water Production; viii) Sludge drying and incineration.

You Will Learn:

Upon the completion of the course, participants will learn more about:

- Water characterization and water quality.
- Main approaches for industrial wastewater management.
- Physical and Chemical water treatment processes.
- Biological treatment of industrial wastewater (aerobic and anaerobic).
- Sludge management (conditioning, thickening, stabilization and dewatering).
- Specific case studies related to industrial wastewater treatment.

Who Should Attend?

The course is suitable for engineers, chemists, technologists and lab specialists working in the area of water treatment and purification for industrial effluents.

Upstream Oil and Gas Production

11- Fundamentals of Exploration and Production

About the Course:

This course is tailored to acquaint the participants with the full scope and basic knowledge related to petroleum exploration and production business. It covers the subject from hydrocarbon origin and migration, geological surveys, drilling engineering, production engineering, hydrocarbon processing, hydrocarbon transportation, petroleum economics, and petroleum exploration agreements.

Course Content:

- Introduction to oil and gas.
- Oil and gas exploration.
- Drilling and completion.
- Well logging.
- PVT and phase behavior of petroleum fluids.
- Reservoir simulation and enhanced recovery methods.
- Petroleum economics.

You Will Learn:

At the end of this course, you should be able to:

- Describe the origin and nature of petroleum reservoirs.
- Discuss the basic principles of seismic, magnetic, and gravity surveys.
- Identify parts of a drilling rig, discuss drilling and completion procedures, and select appropriate stimulation techniques.
- List common well logs and describe how they are interpreted.

Who Should Attend?

This course is designed for non-technical management and administrative staff, economists, accountants, in-house lawyers, geologists, geophysicists, and other non-technical staff.

12- Oil and Gas PVT and Phase Behavior

About the Course:

Study of the phase behavior of hydrocarbon systems as related to petroleum recovery. Ideal and real gas behavior, single and multicomponent two-phase systems, properties of reservoir fluids under various conditions of pressure and temperature. To enable the participants to understand the behavior of reservoir fluids under different operating conditions and to be able to determine or estimate PVT properties of oil, gas and water.

Course Content:

- Introduction.
- Petroleum fluid composition.
- Phase behavior.
- Reservoir types.
- Equations of state.
- Properties of gases.
- Properties of black oils – Definitions.
- Properties of black oils – Fluid studies.
- Properties of black oils – Correlations.
- Gas-liquid equilibrium.
- Properties of oilfield waters.

You Will Learn:

- Physical properties of petroleum fluids.
- Phase behavior of different petroleum fluids.
- Equations of state.
- Oil-Gas equilibria.

Who Should Attend?

This course is designed for geologists, geophysicists, young petroleum engineers, and other non-technical staff.

13- Petroleum Engineering for non-Petroleum Engineers

About the Course:

This course is intended to provide inexperienced technical professionals working in the oil and gas industry with an overview of the fundamental of petroleum engineering such as exploration and production, drilling, production equipment, reservoir engineering, reservoir fluid properties, enhanced oil recovery, stimulation, and petroleum economics.

Course Content:

- Origin and nature of petroleum reservoirs.
- Basic principles of seismic, magnetic, and gravity surveys.
- Drilling and completion procedures, including stimulation methods.
- Well logs, their interpretation and use in subsurface maps.
- Production equipment, artificial lift methods, production monitoring techniques, and

workovers.
- Primary reservoir drive mechanisms and improved recovery processes.
- Economic analysis of oilfield investments.

You Will Learn:
- Fundamentals of oil and gas industry.

Who Should Attend?
This course is designed for geologists, geophysicists, young engineers, and other non-technical staff.

14- Stimulation of Oil and Gas Wells

About the Course:
There is a fundamental need by the oil and gas industry in Qatar to enhance the knowledge and provide continuing education for their technical staff. This need is a consequence of the rapid growth and expansion of the industry. This course provides such education and training for engineers working in the production of oil and gas.

Course Content:
The course is concerned with stimulation of oil and gas wells. The course is designed to provide young engineers and technologist working in the oil and gas industry with a background on well stimulation and link the fundamentals to real field examples. This 3 days course will cover the sources of formation damage in oil and gas wells related to fluid/fluid and rock/fluid interactions. The course will provide field examples and practical cases along with the lessons learned from field applications. In addition, it will cover the removal of damage from different types of wells (oil and gas producers, water injectors, gas injectors, and water disposal wells). The course will cover formation and removal of different oilfield scales with field examples from the Middle East reservoirs. Acidizing of carbonate and sandstone reservoir and the design of real field process will be fully covered in details with case studies. The course will also discuss acid and hydraulic fracturing.

You Will Learn:
The 3 days will include the following:
- Formation damage in carbonate and sandstone reservoirs (real field cases and the causes will be covered from different oil and gas fields).

- Formation damage mitigation and removal. Then, Carbonate acidizing design and scaling up from lab to field practice (the design will include the real field practice and how to design a complete acid treatment recipe for actual carbonate reservoirs in the Middle East).
- Finally, Sandstone acidizing design and real time job evaluation (case histories will be studied to enhance the knowledge about sandstone acidizing); Acid and hydraulic fracturing fluids will be discussed.

Who Should Attend?
The course is designed for engineers, chemists, and technologists working in the area of production and drilling.

15- Basic Petroleum Economics

About the Course:
The course addresses the most common three questions about any new project: What will it cost? What is it worth? Will it earn sufficient profit? Before undertaking any project, these questions should be answered, and this course will provide the fundamentals necessary to enable you to do so. Contractual arrangements, which can significantly affect the economic viability of a project, are covered. Participants practice cash flow techniques for economic evaluations and investigate frequently encountered situations.

Course Content:
- Introducing the time value of money concept.
- Understanding the cash flow analysis and the capital expenditure in the petroleum projects.
- Investment Decision in the petroleum industry including the uncertainty and the use of probability tree.
- Identifying the main operating cost and the main factors that affect these operating cost.
- Does inflation matter in the petroleum industry?
- The impact of the fiscal systems on the investment decision in the petroleum industry.
- Analysis of the role of the demand side in the petroleum industry.
- Oil price forecast (Historical, Technical and econometrics analysis).

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

Who Should Attend?
Anyone requiring an introduction to Petroleum Economics. Non-financial professionals of all levels from technical and non-technical backgrounds.

16- Fundamentals of International Oil and Gas Law

About the Course:
The objective of this course is to provide the technical and non-technical participants from the oil and gas industry with the fundamentals of the distinctive relationship between the owners of the resource and the companies exploiting the reserves. A vast array of legislation, policy documents, contractual forms and dispute resolutions has developed around the fundamental point of wealth sharing agreements. The knowledge of the petroleum industry and its constituent law, policy and environmental issues, together with an ability to understand and analyze actions of governments and companies, is becoming increasingly important. This course covers most aspects of the international oil and gas laws & agreements with special emphasis on environmental issues.

Course Content:

- Is there a Petroleum Law?
- The Lawyer's Role in Oil Industry.
- World Petroleum Regimes (civil/common and Islamic).
- Types of Petroleum Agreements.
- Stability, Variations and Breach of Petroleum Agreements, measure of loss.
- Frustration, Force Majeure and Hardship in the Oil Industry Context.
- Jurisdiction and Extraterritoriality.
- Litigation and Arbitration.
- Legal Aspects of Gas as a Commodity.
- The Transportation of oil and gas.
- Legal aspects of oil trading.
- OPEC, its constitution and relevant legalities.
- IEA and ECC Emergency Measures.

You Will Learn:
How to:

- Recognize differences between international legal systems and transactions.
- Understand legal fundamentals behind international transactions.

Who Should Attend?
This course is designed for managers and senior staff of natural resource and oil companies involved in constructing or negotiating petroleum agreements. It is particularly important for the staff of petroleum ministries, environmental agencies, law firms, and consulting companies.

Safety and Environment

17- Risk and Environmental Impact Assessment

About the Course:

The safety and well-being of staff and visitors is the number one priority of every company or institution, and it should be the number one priority of every single individual in that company or institution. This course introduces the participants to two important topics for practicing engineers or operators in their area of work or managers and decision makers in their offices. These are Risk Assessment (RA) and Environmental Impact Assessment (EIA). RA is a systematic process for estimating the quantitative or qualitative risks related to a potential hazards or a recognized threat. Risk assessment centers around the individual's ability to identify hazards and the risks associated with those hazards and outline an effective plan for eliminating those risks or reducing the potential of their harmful effects. EIA is an important topic in the Oil and Gas industry, as it offers a systematic approach to assess the potential environmental impact of any proposed project.

The course will focus on performing risk assessment and will involve hands-on experience on preparing risk assessment reports. It will also include EIA cases studies and EIA reporting.

Course Content:

- Identification of Hazards and associated risks.
- Understanding the need for risk assessment.
- Risk assessment steps and risk assessment matrix.

- Risk assessment in practice (Hands-on approach).
- The purpose and role of EIA in decision making.
- International laws and treaties pertaining to EIA.
- The EIA process (public involvement, screening, scoping, impact analysis).
- Mitigation options and EIA reporting.

You Will Learn:

Upon the successful completion of the course, the participants should be able to:

- Recognize and understand the need for risk and environmental impact assessment.
- Identify hazards and associated risks.
- Carry out a risk assessment and prepare a risk assessment report.
- Recognize the main international laws and treaties dealing with EIA.
- Appreciate the importance of EIA in the decision-making process.
- Understand the main steps of the EIA process.
- Prepare an Environmental Management Plan and EIA report.

Who Should Attend?

The course is suitable for managers and decision makers, practicing engineers, chemists, technologists and lab specialists working in the area of oil and gas industry.

18- Safety and Risk Assessment

About the Course:

The health, safety, and well-being of all staff, visitors, and contractors is the number one priority of every single company or institution, and it should be the number one priority of every single individual of that company or institution. This course introduces the participants to an important topic for practicing employees in their area of work or managers and decision makers in their offices. It is Risk Assessment. It is a systematic process for estimating the quantitative or qualitative risks related to a potential hazards or a recognized threat. Risk assessment centers around the individual's ability to identify hazards and the risks associated with those hazards and outline an effective plan for eliminating those risks or reducing the potential of their harmful effects. Risk assessment is needed in almost every work place where the health and safety of individuals may be compromised.

This course introduces the participants to safety principles and approaches for managing safely in the workplace. The course will focus on performing risk assessment and will involve hands-on experience on preparing risk assessment reports.

Course Content:

- Introducing safe practice and managing safely
- Assessing and Controlling Risks

- Identifying Hazards and associated risks
- Investigating Accidents and Incidents
- Measuring Performance
- Understanding the need for risk assessment
- Risk assessment in practice (Hands-on approach)
- Understand the reporting requirements of certain accidents and incidents

You Will Learn:

Upon the successful completion of the course, the participants should be able to:
Recognize and understand the need for managing health and safety
Apply basic management principles and practices to safety and health issues
Set achievable safety and health objectives and plan and implement courses of action to achieve those objectives
Investigate accidents or incidents to determine the causes, identify trends and take appropriate actions
Understand the reporting requirements of certain accidents and incidents
Identify hazards and associated risks
Carry out a risk assessment and prepare a risk assessment report
Day 1:
Introduction to Occupational Health and Safety (OH&S) including terms, definitions and terminologies used in the Health and Safety Sector; setting achievable safety and health objectives and plans; and OH &S management systems and policies. Hazard identification and risk management systems; Hazard & Operability Studies; investigating accidents or incidents, identifying trends and taking appropriate actions.
Day 2
Risk assessment and risk management; principles and stages of risk management; quantitative and qualitative risk assessment.
Risk assessment steps and risk assessment matrix; Risk Assessment in practice and preparing Risk Assessment reports. Participants will do hands-on training and carry out a Risk Assessment case study.

Eligibility Criteria:

The course is suitable for engineers, chemists, technologists and lab specialists working in the area of oil and gas industry.

Others:

19- Gas Chromatography for Oil & Gas Industries

About the course:

This course will introduce the theory and basic principles of gas chromatography in addition to a practical hands-on-experience on chromatography instruments. This course will cover the gas supplies, liquid autosampler, split and splitless injections, the analytical column and detection by FID, TCD, PFPD, SCD and MS. Practical applications include analysis of natural gas, sulfur compounds, reformed gas and methanizer effluents.

Course Content:

Familiarization with the GC instrumentation.

How to Choose a Procedure for a Particular analysis?

Operation of the individual GC components.

Practical experience of adjusting the parameters for each GC component.

Troubleshooting.

Eligibility criteria

The course is designed for engineers, chemists, lab technicians and technologists dealing with polymers and plastics.

You Will Learn:

- Gas and liquid sampling
- Type of detectors
- Hands on experience on chromatographic analysis
- Analysis of different hydrocarbons
- Analysis of sulfur containing compounds.
- Gas effluents

Eligibility Criteria:

The course is suitable for engineers, chemists, technologists and lab specialists working in the area of oil and gas industry.

20-Maintenance Planning and scheduling

About the course

safe facilities operations require effective maintenance work control. ISO 55000 (PAS 55) is the asset management standard everyone is moving towards. This course is designed to build competency in Work Control as a primary skill set required to achieve these new standards. It will focus on the six phases of work management: work identification, planning, prioritization, scheduling, execution, and history capture. These essential skills are the key components of integrity management, safety, efficient resource utilization, and reliable operation. A pre and post self-assessment will be used to measure competency improvement. In order to improve facility asset management, each participant will develop an action plan to help their organizations in the long-term effort to become more efficient and safe.

Course content

Work identification
Planning prioritization
Scheduling execution
History records
Optimizing preventive maintenance
Predictive maintenance planning
Critical equipment focus
Emergency response

Eligibility criteria

Maintenance managers, superintendents, supervisors, team leaders, and planners engaged in work management, planning, and scheduling.

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