



Global Professionals Institute for Training
معهد المحترفون العالميون للتدريب الأهلي

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Oil & Gas Sampling and Product Quality – Advanced



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Course Description:

- This course covers the procedures and equipment for oil, water & gas sampling and sampling hazards and mitigate them
- This course will cover detailed Laboratory Safety Equipment & Personal Protection Equipment to be able to use hazard chemicals.
- This course will discuss how to prepare all standard solution required for chemical analysis.
- Review Laboratory Techniques and Principles
- This course will cover detailed explanation for Standard Test methods for Laboratory Determination of oil & gas analysis.

Course Objectives:

- ✓ Explain the techniques to obtain representative samples.
- ✓ Describe type of samples, sample methods, containers and cylinders.
- ✓ Understand the sampling requirements of the facility.
- ✓ Perform safety inspections of sample points and equipment before use.



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- ✓ Follow safety procedures such as wearing correct PPE, handling, labelling and storing hazardous material and equipment in accordance with MSDS, manufacturer instructions and KOC procedures and regulations, PTW procedures for safe sampling of Oil, Oily Water, Condensate, Gas and Chemicals.
- ✓ Identify sampling hazards and mitigate them.
- ✓ Explain the different types of sampling containers and their uses.
- ✓ Follow the flow path of different sample point arrangements.
- ✓ Manage the risk of static electricity when sampling.
- ✓ Prepare the site and sampling points for sampling.
- ✓ Obtain representative samples (Oil/ Water /Gas / Condensate / Liquid / Chemicals (injection chemicals, glycol, and methanol) / Lubricant Oils) for analysis.
- ✓ Create the labelling information specification in accordance with KOC requirements
- ✓ Access sample results through Lab Information Management System (LIMS).
- ✓ Interpret lab results by comparing those with standards and in consultation with appropriate personnel.
- ✓ Explain the importance and application of International Standards with regard to oil, gas and chemicals sampling.





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- ✓ Select sampling equipment and conditions to achieve representative samples and preserve sample integrity during collection, storage and transit.
- ✓ Select sampling schedule, sampling points and sampling schemes to ensure the collection of the right samples.
- ✓ Perform Analysis Specific to Crude Oil
- ✓ Perform Gas analysis using gas chromatograph device

Who should attend?

- laboratory technicians responsible for collect & analyzing crude oil& gas samples
- Oil and Gas fields Engineers and Operators



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Program Syllabus

First Day

1. Laboratory Safety Guideline:

- Laboratory Safety Equipment
- Safe Lab Environment
- Personal Protection Equipment (PPE)
- Identification of hazardous chemicals
- Safe work practices and procedures
- Handling gases and flammable liquids
- Laboratory waste disposal
- Spill and hazard waste management
- Occupational Safety and Health Regulations
- Chemical Packaging and Labeling
- Chemical handling and preparation
- Chemical Storage – material compatibility
- High Pressure Gas Cylinder
- Hazardous Waste handling

2. Sampling: Health and Safety Precautions

- General
- Sample Handling
- Sample Point Safety



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- Static Electricity Hazards
- Pipeline/Line Sampling
- General Health Hazards and Precautions

Second Day

3. 1 Oil & gas Sampling

- General Requirements
- Types of Samples - Handling
 - Grab samples
 - Composite samples
 - Integrated (discharge-weighted) samples
- Sampling Methods
 - Manual sampling
 - Automatic sampling
 - Sorbent sampling
- Sample Containers
- Number of Samples
- Sample Volumes
- Sampling Tools - Labeling
- Safety Precautions - Preparation



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- Sample Storage and Preservation
 - Sample Storage before Analysis
 - Time interval between collection and analysis
 - Preservation Techniques

4. Crude Oil samples

- Obtaining Crude Oil Samples
 - Crude Oil Sediment and Water Component
 - Volatile Light Ends
 - High Pour Point and High Viscosity Crude Oil
 - Crude Oil Stratification
 - Closed System Crude Oil Sampling Issues
 - Sampling Small Crude Oil Lease Tanks
 - Obtaining Large Sample Volumes of Crude Oil
 - Obtaining Spot Line Samples of High Pour Point Crude Oils from Shore Tanks or Pipelines.
 - Obtaining Spot Line Samples of Crude Oil for Volatility Measurement from Shore Tanks or Pipelines
 - Obtaining Spot Samples of Crude Oil Production Flowing Pipelines
- Handling of Crude Oil Samples
 - Sequence of Test Methods
 - Crude Oil Sample Transportation





- Heating of Crude Oil Samples
- Crude Oil Mixing and Homogeneity
- Representative samples (Oil/ Water /Gas / Condensate / Liquid / Chemicals (injection chemicals, glycol, and methanol) / Lubricant Oils)

Third Day

5. Chemical Preparation

- Introduction to Analytical Chemistry
- Classifications of Analysis
- Methods of Expressing Concentrations
- Normality
- Molarity
- Molality
- Percent Solution
- Parts per Million (PPM)

6. Characterization of Crude Oil

- What is Crude oil?
- Characterization
- Crude Oil Constituents





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- Hydrocarbons
- Sulphur content
- Nitrogen Compounds
- Oxygen compounds
- Metallic Compounds
- Asphaltenes

7. Analysis Specific to Crude Oil

- Density, Specific gravity and API
- Salts in Crude Oil (Electrometric Method)
- Distillation of crude oil.
- Reid vapour pressure (automatic & manual)
- Pour point.
- Basic Sediment & Water (BS&W)
- Water content by dean stark distillation
- Moisture content by using Karl Fisher titration
- Viscosity testing using the viscometer



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Forth Day

8. Water Analysis

- pH & Turbidity
- TDS & TSS
- Chloride
- Total hardness, Ca. Hardness, Mg. Hardness
- Alkalinity, Iron & Sulphate
- Chlorine
- Dissolved Oxygen (DO)
- Chemical Oxygen Demand (COD)
- Bacteriological Analysis of Water

Fifth Day

9. Gas analysis using gas chromatograph device

- Introduction to Chromatography
- Gas supply and handling
- Injection system /Injecting samples
- Detecting Components



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Program Methodology

A highly interactive combination of lecture and discussion sessions will be managed to maximize the amount and quality of information, knowledge and experience transfer. The sessions will start by raising the most relevant questions, and motivate everybody finding the right answers. The attendants will also be encouraged to raise more of their own questions and to share developing the right answers using their own analysis and experience. Course material through power point equipped with necessary animation, learning videos, and general discussion to provide participants with full understanding concerning the subject course will be provided.

Percentage of Delivery Methodologies

50% Presentation

20% Group & Individual Exercises

20% Case Studies

10% Active Movies and Videos

العرض المالي

السعر	مكان الانعقاد	تايخ الانعقاد	مدة البرنامج
1200kd	Dubai	02- 06 February 2025	5 days

تفاصيل التكلفة :

- المحاضرة العلمية ❖
- المادة العلمية ❖
- الشهادات ❖
- بوفيه خفيف ❖



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