



# AL046: Laboratory Equipment Performance & Analysis in Oil Field Lab



## Training Description:

This intensive training course is designed to provide participants with the knowledge, experience and confidence needed to understand and effectively use different laboratory equipment and perform effective analysis in oil and gas laboratories.

Through the course participants will be exposed to a wide range of equipment used in the oil and gas laboratories and their use including Flash point and RVP apparatus, API hydrometer, Calcimeter, Pipette apparatus, Wet Sieving Apparatus, Permeameter, Sandbox set for pf determination, Weight Boats, Centrifuge, Micro centrifuge Tubes, Micro centrifuge Tube Racks, Micropipettors, Pipettes, Pipette Bulbs, Mixers & Stir Bars, Vortexers, Water Baths, Beakers, Flasks, Media Bottles, PH Meters, Spectronic and Spectrophotometer.

The participants will learn the standard test procedures and learn how to test and analyze samples of crude oil and petroleum products during processing stages and use different laboratory equipment effectively.

## Training Objective:

**By the end of the training, participants will be able to:**

- ✓ Test and analyze samples of crude oil and petroleum products during processing stages, using laboratory apparatus, testing equipment
- ✓ Follow standard test procedures to determine physical and chemical properties and ensure products meet quality control standards
- ✓ Test samples of crude and blended oils, gases, asphalts, and pressure distillates to determine characteristics, such as boiling, vapor, freeze, condensation, flash and aniline points, viscosity, specific gravity, penetration, distillation, and corrosion, using test and laboratory equipment, such as hydrometers, fractionators, distillation apparatus, and analytical scales
- ✓ Analyze content of products to determine presence of gases, such as propane, isobutane, butane, isopentane, and ethane
- ✓ Determine hydrocarbon composition of gasoline's, blending stocks and gases, using fractional distillation equipment, gas chromatography, and mass spectrometer
- ✓ Operate fractionation column to separate crude oil into oils with different boiling points to determine their properties
- ✓ Analyze composition of products to determine quantitative presence of gum, sulfur, aromatics, olefins, water, and sediment
- ✓ Compare color of liquid product with charts to determine processing factors measurable by color

## Training Designed for:

This course is intended for all Lab Technicians, Laboratory Supervisors, Laboratory Engineers, Chemists, Laboratory Analysts and other Laboratory Personnel and Technical Staff.

## Training Program:

### DAY ONE:

- ❖ PRE-TEST
- ❖ Introduction
- ❖ Crude oil lab equipment





- ❖ Water content
- ❖ Salt content
- ❖ Distillation
- ❖ Viscosity
- ❖ Flash point and RVP apparatus
- ❖ API hydrometer
- ❖ Centrifuge

**DAY TWO:**

- ❖ Crude oil glassware
- ❖ Crude oil sample collection analysis
- ❖ Preparation chemicals
- ❖ Analytical techniques
- ❖ Qualitative vs. quantitative tests and the need for accuracy and precision
- ❖ Specifications, Standard operating techniques and test methods
- ❖ Good weighing practice
- ❖ Use of laboratory glassware
- ❖ Use of chemicals and reagents

**DAY THREE:**

- ❖ Documentation including writing up of reports
- ❖ Laboratory instrumentation and the use thereof
- ❖ Calibration and maintenance of equipment
- ❖ Safety in the laboratory
- ❖ Standard solutions used for analysis
- ❖ Methods of analysis
- ❖ Basic laboratory technique
- ❖ Sample preparation

**DAY FOUR:**

- ❖ Analytical measurement
- ❖ Fundamental concepts
- ❖ Chemical equation
- ❖ Acidity of solution
- ❖ Buffers
- ❖ Preparation of chemicals
- ❖ Titration methods
- ❖ Validation of analytical methods

**DAY FIVE:**

- ❖ Laboratory accreditation
- ❖ Laboratory standard safety guideline
- ❖ Identification of hazardous chemicals
- ❖ Safe work practices and procedures
- ❖ Management of compressed gases
- ❖ Transporting of chemicals
- ❖ Guidelines for good laboratory practices
- ❖ Storage and handling of flammable and combustible liquids





- ❖ Laboratory waste disposal
- ❖ Spill and hazard waste management
- ❖ Laboratory First Aid
- ❖ Course Conclusion
- ❖ POST-TEST and EVALUATION

### Training Requirements:

“Hands-on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”

Please note that the above topics can be amended as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

### Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Software & General Discussions
- Pre and Post Test

### Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

### Training Fees:

**As per the course location** - This rate includes participant’s manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

### Training Timings:

#### Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Prayer Break & Lunch)
13:30 - 15:00	Last Session

**For training registrations or in-house enquiries, please contact:**

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Training & Career Development Department

