

**Training Title**

**CHEMICAL LABORATORY: OPERATIONS, EQUIPMENT, INSTRUMENTS, QUALITY & SAFETY**

**Training Duration**

**5 days**

**Training Dates & Venue**

REF LM028	Chemical Laboratory: Operations, Equipment, Instruments, Quality & Safety	5	04 -08 October 2020	\$4,500	Dubai, UAE
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Training will be held at any of the 5 star hotels. The exact venue will be informed once finalized.

**Training Fees**

- 4,500 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

**Training Certificate**

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

**TRAINING OVERVIEW**

**TRAINING DESCRIPTION**

The need for ensuring consistent and high quality products requires continuous measurements and control of processes. Much of this measurement takes place in laboratories through the use of standardized tests and methods. Similarly the development of new products and processes often requires the use of laboratories and of course laboratory equipment. Understanding the principles of operation and the field of application of such equipment is very important for the laboratory operator and the researcher. But even the most sophisticated equipment is no guarantee for reliable results. The equipment operator must understand and employ the correct procedures for calibration, validation of methods and statistical treatment of measurement uncertainty. Of course laboratories must also be safe places to work in as they often handle materials which are hazardous and toxic to the environment and to humans. This course brings all these diverse elements close together and presents a complete picture of chemical laboratory, equipment selection, installation, operation, quality control system and safety in laboratory.

**TRAINING OBJECTIVES**

- To give the principles of operation of key laboratory equipments and instruments.

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- To give the principles of reliable laboratory measurements.
- To outline key laboratory safety issues and safety measures.

### WHO SHOULD ATTEND?

Laboratory managers, Laboratory operators, quality managers, laboratory staff, chemists, chemical engineers and technicians.

### TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course. All presentations are made in excellent colorful power point. Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

### DAILY OUTLINE

- Introduction.
- The laboratory and its purpose.
- The laboratory environment.
- Types of equipment: an overview.
- Laboratory layout and construction.
- Wet chemistry.
- Instrumental Chemistry.
- Principles of instrumental chemistry.
- Balances.
- Titration.
- Petroleum Laboratory equipment.
- Calibration.
- Correlations.
- Reference materials.
- The Quality Control System.
- Statistical principles for Laboratory measurements.
- Reporting of analytical results.
- Why is safety important?

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- Safety Policy.
- Laboratory Safety.
- Handling of toxic and hazardous materials.
- Spills and spill control.
- Good laboratory practice.
- Material safety data sheets.
- Emergency preparedness.
- Emergency planning.
- Handling of Compressed Gases (Cylinders).
- Destruction of hazardous chemicals in the laboratory.

**NOTE:**

**Pre & Post Tests will be conducted**

**Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.**



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P.O BOX 45304  
ABU DHABI, U.A.E

T +971 2 6264455  
F +971 2 6275344

[www.definettraining.com](http://www.definettraining.com)