



# NAIZAK TRAINING CENTER



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# ABOUT US

Naizak Global Engineering Systems was established in 1998 as a part of Al-Abdulkarim Holding (AKH), and specializes in Laboratory Systems, Technology Solution, and Process Automation & Energy. At Naizak, we are committed to excellence, and we are very proud to serve our customers in the areas of automation, Food and Beverage, Industrial, Oil & Gas, Power Transmission Systems, Petrochemicals, Electrical, Education, Research, Medical, Life Sciences and Information Technology. Our headquarter is in Khobar, in Kingdom of Saudi Arabia.

# NAIZAK LAB SYSTEMS

Naizak Lab Systems (NLS), a division of Naizak Global Engineering Systems, was established in 2006. Naizak is well-known as laboratory technologies solution provider. Through its network of regional offices in Saudi Arabia and other Gulf countries, NLS provides services to Educational Institutes, Research and Development Centers, Oil and Gas industry, Government laboratories, Municipalities and Ministries, Food Safety and Environmental, Life Sciences, Hospitals, Medical research Centers, local manufacturing industries and other private sectors. Naizak Lab Systems is a leading supplier of a complete and comprehensive range of laboratory and scientific and medical instrumentation for QC, diagnostics and research.



# OUR DIVISIONS

- Analytical Instrumentation
- Laboratory Technologies
- Mass Spectrometry & Nanotechnologies
- Oil & Gas
- Industrial Technologies
- Life Sciences
- Medical & Diagnostics
- Educational Technologies
- Material Testing
- Lab Informatics (LIMS)
- Projects (PMT & Execution)
- Lab Furniture & Caseworks
- Lab Operation & Maintenance
- Training Center & Demo Lab





# NAIZAK TRAINING CENTER

Naizak lab systems is a technology transferring company that recognizes experiential training to emphasize the knowledge theoretically and practically. We, Naizak Training Center, offer comprehensive, professional training and certification through a complete course portfolio that can help you achieve the most from your instrumentation and results with state-of-the-art equipped laboratories and lecture rooms. Our core goal is making sure you, as a trainee, will benefit the most by expanding the horizon of your professional growth and area of expertise.

Naizak training center is also pleased to customize training that meets your organization expectations by preparing a curriculum and facility with well-equipped laboratories. With our partners, we are able to showcase variety of equipment for training and demonstration purposes. This aids in providing you with total solutions for your analytical needs on instrument operation, hardware, instrument maintenance, software and applications. We provide courses in analytical, oil & gas, life sciences, safety and many more aspects.



# BASICS OF GAS CHROMATOGRAPHY (GC)

Are you working with gas chromatography systems and looking to develop your skills on the analysis technique?

Gas chromatography is an analytical technique used to separate compounds by injecting gaseous or liquid samples carried by an inert gas through specialized column into a detection device. It is used in many applications such as food and beverage, oil & gas, environmental, industrial, and pharmaceutical and forensics. This basic course would benefit lab technicians and lab professional in practical and theoretical aspects of gas chromatography to optimize analytical performance in the laboratory.





Location : Khobar, KSA  
Duration : 5 days

# COURSE CONTENT

- Basics of the chromatographic process
- Column theory
- Stationary phases
- Extraction techniques
- Operating principles
- Injection modules (SSL, PVT, Helium Saver, and Cold-on Column)
- Autosamplers and Headspace
- Detectors FID / ECD / TCD / PFD and Measuring & Optimizing Chromatographic Parameters
- Setting up the system, tuning, optimizing
- Trouble shooting & basic instrument service and safety



# GAS ANALYZER FOR OIL & GAS

We offer comprehensive training course for Oil & Gas users that cover the fundamental theory of Gas Chromatography along with the operation, maintenance and troubleshooting, from sample introduction through to data analysis. Instrument components are described and presented, along with their underlying theories as they apply to guiding best practices and effective method optimization and troubleshooting & safety. This course is ideal for technicians working in refinery, petrochemical laboratories, gas plants and R&D centers.



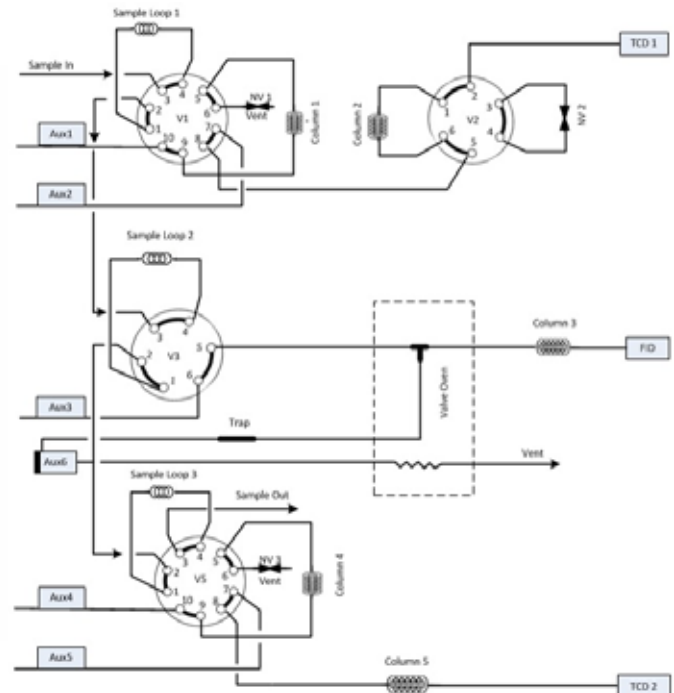


# COURSE CONTENT

- Basic Petroleum Value Chain. Midstream and crude oil refining processes
- Principle and fundamentals of Gas analyzers
- NG/NGL and Refinery Components
- Trace 1310 GC, Auxiliary Valve Oven, and Compact Valve Oven differences

## Applications covered:

- UOP 539 is a standard test to help determine the composition of refinery gas streams or vaporized liquefied petroleum gas (LPG) by Refinery Gas Analyzer (RGA)
- ASTM D 6730 is a well-know standard test method for individual components in spark ignition engine fuels by Detailed Hydrocarbon Analyzer (DHA)
- Oxygenate Analyzer helps in determination of benzene and toluene in finished motor and aviation spark ignition fuels by gas chromatography in ASTM D3606 & 5580 , 4815
- Natural Gas Analyzer (NGA) supports ASTM D 1945, GPA 2286, and 2186 to determine the chemical composition of natural gas streams where precise physical property data of the hexanes and heavier.



Location: Khobar, KSA  
Duration: 5 days



# BASICS OF ION CHROMATOGRAPHY (IC)

## Do you want to Learn More about Ion Chromatography?

Unlike liquid and gas chromatography, ion chromatography measures concentration of ions by separating them based on differences in ion-exchange affinities. Naizak provides basic training course for ion chromatography covering the principles and components of ion chromatograph, the purpose and principles of different sampling techniques that can be used, Columns Theory and data analysis. The course will provide exposure to the advances in the field of IC to the experienced analyst and both basics and practical aspects.

# COURSE CONTENT

- Theoretical & foundations of ion chromatography
- Retention models
- Detection system - types and design features of the detectors
- Stationary phases of ion chromatography
- Eluents in ion chromatography
- Practical sessions in operating ion chromatographic system
- Software usage and data interpretation
- Sampling, sample preparation
- System trouble shooting techniques and safety



Location : Khobar, KSA  
Duration : 5 days



# BASICS OF HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)

High Performance Liquid Chromatography (HPLC) is applied to separation and quantitation of components of mixture of compounds that may not be stable at higher temperatures encountered in Gas chromatographic separations. The technique has gained wide acceptance in the field of pharmaceuticals, foods & beverages, oil & Gas, agricultural products, cosmetics, polymers and synthetic materials and environmental studies.

Naizak is proud to offer new courses that will provide exposure to the new lab technicians and lab professionals in HPLC basics and applications. The training course will cover theoretical and fundamentals concepts of HPLC operations, as well as, hands-on training on the system to help the trainees for the day to day laboratory operations.

# COURSE CONTENT

- Theoretical & foundations of liquid chromatography
- General Introduction to Chromatography Types of Stationary Phases
- Types of Mobile Phases
- Detection system - types and design features of the detectors
- Types of High Performance Liquid Chromatography Injectors
- Types of Pumps
- Software usage and data interpretation
- System trouble shooting techniques and safety



Location : Khobar, KSA  
Duration : 5 days



# MOLECULAR SPECTROSCOPY

Naizak is inviting you in a molecular spectroscopy course covering Fourier Transform Infrared Spectroscopy (FTIR) and Ultraviolet and visible spectroscopy (UV-VIS) basic training course. Molecular spectroscopy are qualitative and quantitative analytical technique which measures interactions between electromagnetic waves and matter. These techniques are widely spread from small educational class rooms to R&D centers. Molecular spectroscopy course will give newly technicians and lab professionals the support in understanding its fundamentals.





Location : Khobar, KSA  
Duration : 5 day

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# COURSE CONTENT

- FTIR theory and basic operation principle
- Working with different spectral Range: Mid-IR / Far-IR / Near-IR
- Choosing the right sampling techniques: Transmission / Reflection (ATR)
- Choosing the right detector, DTGS / MCT
- FTIR Accessories with relation to different fields applications
- fundamental principle of UV-VIS and Beer-Lambert's Law
- Beam configurations: Single, double, and dual beam
- Introduction of Light source, Monochromator, Sample Holder, Beam Splitter, Mirror, Photodetector & Measuring Device
- Overview on Method, Parameters, Applications & Software
- Overview on Instrument operation, maintenance, troubleshooting, and safety

# LIQUID CHROMATOGRAPHY MASS SPECTROMETRY (LC/MS)

Liquid chromatography mass spectroscopy (LC/MS) is a technique that separate compounds in liquid form through mass-based detection. A course focused in LC-MS would boost your knowledge and productivity for your analytical needs in pharmaceutical, clinical, environmental, food, forensics, toxicology, research and industries. This course will combine theoretical and practical sessions on the instrument usage and applications for more experienced lab technicians, researchers and scientists, R&D personnel in advanced laboratories.



# COURSE CONTENT

- Principles of Liquid Chromatography
- fundamentals of Mass Spectrometer
- Single mass spectrometry technique
- Ionization techniques
- Applications of liquid chromatography mass spectroscopy
- Instrument tuning and calibration
- Setting up the methods
- Data acquisition and processing
- Software usage and data interpretation
- Instrument operation, maintenance, troubleshooting and safety



Location : Al-Khobar, KSA  
Duration : 5 day



# GAS CHROMATOGRAPHY MASS SPECTROMETRY (GC/MS/MS)

Gas chromatography mass spectrometry (GC/MS/MS) is a selective technique that separates gases and identifies them at a molecular level. A course focused in GC-MS/MS would boost your knowledge and productivity for your analytical needs in pesticide, toxicology, petrochemical, research, pharmaceutical, food, and hydrocarbon applications. This course will combine theoretical and practical sessions on the instrument usage and applications for more experienced lab technicians, researchers, scientists and R&D personnel in advanced laboratories.





Location: Khobar, KSA  
Duration: 5 days

# COURSE CONTENT

- Principles of Gas Chromatography
- Fundamentals of Mass Spectrometer
- Single Vs. Triple mass spectrometry technique
- Applications of gas chromatography mass spectroscopy
- Instrument tuning and calibration
- Setting up the methods
- Data acquisition and processing
- Software usage and data interpretation
- Instrument operation, maintenance, troubleshooting and safety

# PHYSICAL TESTING OIL AND GAS BASIC TRAINING

Are you working in Petroleum, Petro-Chemical, Pharma or Food Industry.  
You do physical testing and interested in developing your skills on such analysis technique?

# COURSE CONTENT

## ● **Topic: Basics of Viscosity Measurement**

Basics of theory and concept of Viscosity, Density, Rotational Rheometer for Quality Control and Distillation. The principles, traditional to technically advanced methods. How the SVM Viscometer™, Rotational Rheometer and Density Works. Viscosity Index: VI and Viscosity-Temperature behavior of oil. Viscosity Table: for Acetone to Crude oil to whole blood, the official Viscosity table. Viscosity calculators: Dynamic Viscosity, Kinematic Viscosity, ASTM standard, Saybolt Furol and Saybolt Universal Viscosity Index. How to measure viscosity.

## ● **Topic: Improve your ASTM D86 distillation**

Theory and Principle of Petroleum Distillation D-86. Testing and results technique with ASTM D86 (Group 0, 1, 2, 3, 4), D850, D1078, ISO 3405, IP 123, IP 195. Cleaning, Sample Handling, Volume measurements. Innovative Software study. Copying the program and activating “use manual heating curve” Safety Procedure and handling such instruments.

## ● **Who should attend:**

- Laborator Chemist.
- Newly Graduate students interested to start their career as chemists.
- Laborators Technician.
- Persons involved in Physical Petroleum testing laboratories and need to enhance their skill and improve their knowledge.



Location: Khobar, KSA  
Duration: 5 Days





# BASICS OF BIO-PRINTING

Bio-printing is an additive manufacturing process similar to 3D printing – it uses a digital file as a blueprint to print an object layer by layer. Unlike 3D printing, bio-printers print with cells and biomaterials, creating organ-like structures that let living cells multiply. Bio-printing is a pretty new technology, and it has huge potential to benefit life sciences, medicinal, pharmaceutical, clinical and cosmetic researches.

Naizak is glad to offer a basic course to introduce one of the latest and most fascinating technologies. The course will cover theoretical and practical aspects of bio-printing, the different types of printers, and the applications of this technology.

# COURSE CONTENT

1. Pre-bioprinting.
2. Bioprinting
3. Post-bioprinting.

The training will cover applications related to bio-printing such as culture cells in 3D, perform high-throughput drug screening, and print human tissues for the medical, pharmaceutical and cosmetic industries.

## Who should attend?

- Researchers in Biotechnologies and Life Sciences
- Researchers interested in Bio-printing on a Chip, Regenerative Skin and Tissue, Food printing Pharmaceuticals/ Biotech Company Research centers



Location: Khobar, KSA  
Duration: 5 Days

# SAFETY IN THE LABORATORY

Many laboratories contain significant risks, and the prevention of laboratory accidents requires great care and constant vigilance. Measures to protect against laboratory accidents include safety training. Naizak is glad to offer comprehensive safety training that helps our customers taking the right choices and understand the consequences while working in a lab environment.



# COURSE CONTENT

- OSHA Lab Standard
- Accidents
- Fire Control
- Planning for Emergencies
- Electrical Safety
- Inspection of Laboratories
- Safety Program Planning
- Labeling
- Eye and Face Protection
- Handling Chemicals
- Storage of Chemicals
- Disposal of Chemicals
- Safety Equipment Display
- Employee or Student Involvement
- Legal Aspects
- Biological and Animal Hazards
- Recordkeeping
- Compressed Gases
- Three Cs of Safety
- Handling Glassware
- Ventilation
- Your Worst Problem
- Radiation
- Bloodborne Pathogens
- Needs Assessment
- A Condition of Employment or Acceptable Behavior



## FOR REGISTRATION

For further register information or  
any more details on the courses please contact us at:

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