

Welcome to GSC Training

As pioneers of analytical science in the MENA region, GSC is a unique and focused resource.

Gulf Scientific Corporation (GSC) offers a variety of specialised training courses and workshops designed to enhance the technical knowledge and practical skills of professionals working in the analytical instrumentation field.

GSC training programmes have been developed to meet the needs of various sectors including oil and gas, agriculture and food science, clinical and pharmaceutical, environmental, research and educational institutions.

Clients are able to select in-house or onsite training programmes that cover specific analytical science applications and needs. GSC’s state-of-the-art, training centre in Dubai, United Arab Emirates allows trainees to develop their abilities by providing practical ‘hands on’ experience and operating the actual equipment and machines used in working scenarios. GCS’ custom built premises include dedicated laboratories for HPLC, GC and spectroscopy with capacity for up to 45 delegates.

In-house training can prove to be a cost effective and time efficient solution if a large number of professionals require training.

Each GSC course can be adapted and customised to suit specific requirements and circumstances. Please contact us to discuss your requirements in further detail.

GSC training courses and workshops meet the highest international standards and cover a wide range of analytical topics including Gas Chromatography (GC), Liquid Chromatography (HPLC), Spectroscopy (OSI), Mass Spectroscopy, Polymer Sciences and chemistry including the fields of Atomic Absorption, Sample Preparation, Inductively Coupled Plasma (ICP) and more.

In addition to health entities, regional municipalities and forensic laboratories, GCS has successfully conducted training programmes for highly reputed organisations in the region including Saudi Aramco, Saudi Basic Industries Corporation (SABIC), Saudi Pharmaceutical Industries & Medical Appliances Corporation (SPIMACO), Abu Dhabi National Oil Company (ADNOC), Qatar Petroleum (QGPC), Abu Dhabi Gas Liquefaction Company (ADGAS), Dubai Natural Gas Co. Ltd. (DUGAS) and Oman Refinery.

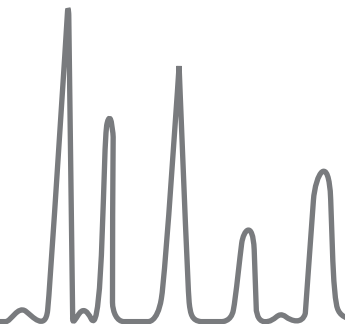
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This overview is divided into the following course sections.

Gas Chromatography	06
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Dr. Wahib Afyouni
Managing Director

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General Manager

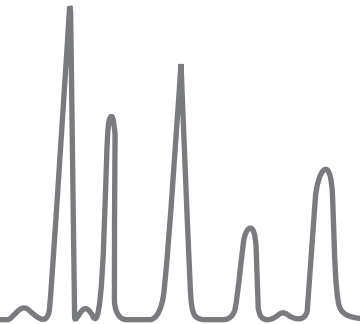


Course Calendars

2008 Year	Date	Duration (Days)	Fees (USD)
Gas Chromatography			
Principles of Gas Chromatography	October 12 – 16	5	3650
GC Troubleshooting	October 19 – 23	5	3650
Advanced Gas Chromatography	November 2 – 6	5	3850
Liquid Chromatography			
Fundamentals of HPLC	December 13 – 17	5	3000
Advanced HPLC in Pharmaceutical	October 26 – 28	3	2450
Spectroscopy			
Fundamentals of Atomic Absorbtion	November 16 – 18	3	1500
Graphite Furnace	November 19 – 20	2	1500
Fundamentals of ICP-OES	November 23 – 27	5	4000
Mass Spectrometry			
Fundamentals of GC/MS	November 9 – 13	5	4000
Sample Preparation			
Microwave Based Technique	October 29 – 30	2	2000

2009 Year	Date	Duration (Days)	Fees (USD)
Gas Chromatography			
Principles of Gas Chromatography	January 5 – 8	4	4000
	October 5 – 8	4	4000
GC Troubleshooting	February 2 – 5	4	4000
	November 2 – 5	4	4000
Advanced Gas Chromatography	January 12 – 15	4	4000
	October 12 – 15	4	4000
GC Analyzer	March 2 – 4	3	3000
Liquid Chromatography			
Fundamentals of HPLC	January 19 – 22	4	4000
	October 19 – 22	4	4000
Advanced HPLC in Pharmaceutical	March 30 – April 1	3	3000
Spectroscopy			
Fundamentals of Flame AA Spectroscopy	April 19 – 21	3	3000
	November 8 – 10	3	3000
Techniques of Furnace AA Spectroscopy	April 22 – 23	2	2000
	November 11 – 12	2	2000
Fundamentals of ICP-OES	February 15 – 19	5	5000
	November 15 – 19	5	5000
Fundamentals of FTIR	June 15 – 16	2	2000
Fundamentals of NMR	Contact GSC		
Mass Spectrometry			
Fundamentals of Ion Trap GC/MS	March 15 – 19	5	5000
	November 22 – 26	5	5000
Portable GC/MS and Applications	April 13 – 14	2	2000
Polymer Sciences			
Understanding Plastics Products	April 6 – 8	3	1500
Engineering Design with Polymers	October 26 – 28	3	1500
Sample Preparation			
Microwave Based Technique	March 23 – 24	2	2000
Solid Phase Extraction Technique	March 25 – 26	2	2000

An overview for the 4th quarter 2008 and the full training year for 2009.



Course Title

Principles of Gas Chromatography

Course Code

GC 0010

Course Dates

2008

October 12 – 16

Duration

5 Days

Course Dates

2009

January 5 – 8

October 5 – 8

Duration

4 Days

Introduction

'Principles of Gas Chromatography' is presented with the daily practice of the end-user in mind.

Theory and practical demonstrations are integrated in the daily programme to provide the greatest possible benefit to the user. Delegates will be educated with the most current techniques and learning, enabling them to modify and update existing applications and processes, as well as solving new analytical problems.

Who should attend ?

All individuals (including lab technicians) interested in gaining basic theoretical knowledge and the practical aspects of Gas Chromatography.

Topics covered

- Fundamental aspects of GC
- Instrumental aspects of modern GC equipment
- Operation aspects; column installation and start up
- Packed and capillary columns including their chromatographic conditions and stationary phases (types, features, chemical bonding, selectivity, maximum and minimum temperatures, bleeding and deactivation)
- Injection detection techniques for liquid and gas samples (valve sampling)
- Universal detection techniques including TCD and FID
- Qualitative and quantitative analytical methods and calibration techniques
- Highlights of chromatographic software

Affiliates



Introduction

'Gas Chromatography Troubleshooting & User Maintenance' provides fundamental knowledge about troubleshooting, start up, elementary maintenance and diagnostics from chromatograms.

The course will introduce troubleshooting as a way of thinking and acting, as well as dealing with some of the most common problems related to GC including the starting of standard and routine GC maintenance for operations and diagnostics from chromatograms.

This course will assist trainees in operating their system in a reliable way.

Who should attend ?

All individuals who have reasonable and practical experience in Gas Chromatography.

Topics covered

- A structured approach to troubleshooting
- First checks; tools and spare parts
- Sample introductions; syringes and valves
- Injectors; direct and splitter
- Gas regulation system; flow controller, pressure regulator and gas purity filters
- Columns; temperature range, over-loading and bleeding
- Detection techniques including TCD and FID
- Data; unstable baseline, fluctuations, retention data, repeatability, reproducibility and reliability
- Common problems related to data management software
- System repeatability; retention shifts
- Quantitative repeatability; deviation in peak height, peak area
- Maintenance scheme, routine checks and replacement
- Diagnostics from chromatograms and interpretation of problems

Course Title

GC Troubleshooting & User Maintenance

Course Code

GC 0011

Course Dates

2008

October 19 – 23

Duration

5 Days

Course Dates

2009

February 2 – 5

November 2 – 5

Duration

4 Days

Affiliates



Course Title
Advanced Gas Chromotography

Course Code
GC 0012

Course Dates
**2008
November 2 – 6**

Duration
5 Days

Course Dates
**2009
January 12 – 15
October 12 – 15**

Duration
4 Days

Affiliates



Introduction

‘Advanced Gas Chromatography & Techniques’ covers all practical aspects of capillary GC in depth, which will be explained, discussed and applied during the theoretical and practical sessions.

The course focuses on all major subjects of GC and presents new developments in this field including fast GCs, trace analysis, large volume injection, complete separation of complex samples, analysis of gases and volatiles and tailor made columns. After completing the course, delegates will be able to modify or select the right column for their applications and optimise current methods.

Who should attend ?

The course is aimed at those who would like to improve their understanding of Gas Chromatography.

Delegates should have first attended the ‘Principles of Gas Chromatography’ training session or have more than four years practical experience in capillary GC or a minimum of six years experience in operating Gas Chromatography instruments.

Topics covered

- Theory of GC; Golay equation and prediction of column performance
- Columns for capillary GC; effect of length, diameter and film thickness on separation and analysis time
- Columns for fast GC analysis
- Column choice and optimisation; selection of carrier gas in relation to performance and analysis time
- Universal and selective injection techniques for capillary GC; direct, split, splitless, on column, headspace, PTV, large volume injection and purge and trap
- Gas Solid Chromatography PLOT columns for the separation of gases and volatiles
- Multidimensional Gas Chromatography (MDGC); separation of complex samples with multiple column systems (column switching and analysers)
- Selective detectors for capillary GC; ECD, FPD, NPD, SCD, AED, PDD and MS for the detection of element specific compounds in complex mixtures

Introduction

There are many available solutions for complex analysis of oil and gas samples introduced along with Gas Chromatography instruments as dedicated analysers. These instrumental analysers are capable of performing various applications depending on the original configurations and providing custom solutions for complex separations, data handling and reporting.

The course is based on real practical research and studies that will enable delegates to understand and apply the latest techniques using analyser technology for certain industrial applications.

Each trainee will be able to discuss applications related to their environments, as well as using current techniques to obtain the most relevant solutions. Through demonstrations trainees will have practical experience on different analysers including:

- RGA (Refinery Gas Analyser)
- NGA (Natural Gas Analyser)
- Micro-GC (Natural Gas Analysis)
- SIMDIST (Simulated Distillation)
- LOWOX (Low Level Oxygenated Analyser)

Who should attend ?

The course is aimed at those who would like to improve their understanding of Gas Chromatography.

Delegates should have first attended the ‘principles of Gas Chromatography’ training session or have more than four years practical experience in capillary GC or a Minimum of six years experience in operating Gas Chromatography instruments.

Topics Covered

Sample introduction

- Instrument operation
- Conditions & parameters
- Injection techniques
- External calibration

Hardware & special techniques

- Gas regulation and pneumatics
- Valve switching and pressure switching
- Columns for gas and oil applications

Application training

- Analysers classification
- Separation techniques
- Case studies
- Methods utilizations
- Hands-on applications
- Troubleshooting

Software operation

- Basic software operation
- Performing accurate analysis
- Automation features
- Documentation of procedures
- Reporting options and data manipulation

Course Title
Gas Chromatography Analyzer

Course Code
GC 0013

Course Dates
**2009
March 2 – 4**

Duration
3 Days

Affiliates



Course Title

Fundamentals of HPLC

Course Code

LC 0014

Course Dates

2008**December 13 – 17**

Duration

5 Days

Course Dates

2009**January 19 – 22****October 19 – 22**

Duration

4 Days

Affiliates

Waters
THE SCIENCE OF WHAT'S POSSIBLE.™

Introduction

Over the last 15 years, HPLC has involved into a powerful analytical technique, which is being applied to many different fields of study from research labs to quality control and regulatory facilities, in both government and private sectors.

This course will cover origins, theoretical and instrumental aspects of operation as well as all requirements of today's HPLC. It will include a review of chromatographic terminology and will cover topics like sample preparation, method development, detectors and some troubleshooting.

Who should attend ?

All new and intended users of HPLC.

Those with experience based only on their routine work and who wish to acquire a better understanding of qualitative analysis.

Those who wish to better their understanding of the instrumentation.

Those who want to improve their understanding of the basic theory and practical aspects of chromatography.

Topics covered

- Review of chromatographic terminology – retention factor, selectivity factor, plate count and efficiency of separation
- Types of solvents and their properties – solvent polarity, selection and preparation of solvents for LC
- Modes of chromatography, absorption (normal phase), theory and application
- Factors affecting reverse phase LC
- Detectors – Types of LC detectors and application
- Sample Preparation – Clean-up requirements, filtration, liquid extraction, GPC clean-up and automated sample preparation
- Method development – Selecting LC modes, ion suppression, ion pairing and ion exchange
- Isocratic vs. gradient elution
- Start-up and shut down procedures
- Column care and cleaning
- Accessing projects & acquisition methods
- Creating sample sets & running samples
- Processing methods & Background processing
- Reviewing results & generating reports
- Backing up and restoring data
- Configuring chromatographic data systems

Introduction

This is an advanced level course focusing on reversed phase analysis of drug substances and drug products (small molecule) and designed for pharmaceutical scientists who want advanced training on HPLC analytical method development.

This course will assist delegates in becoming more successful in pharmaceutical assays and ICH impurity testing. It presents an overview of modern trends in HPLC columns and instruments, key concepts in reverse phase LC, and 'best practices' in pharmaceutical analysis including troubleshooting strategies.

In addition, other topics include HPLC calibration procedures for GMP compliance, ICH guidelines for impurity testing and innovative approaches in pharmaceutical analysis.

Who should attend ?

This course is suited to analysts, managers and researchers who currently use HPLC in a pharmaceutical laboratory.

For optimum benefit, it is highly recommended that individuals have a minimum of two years hands on HPLC experience in the pharmaceutical area.

Topics covered

- An overview of regulatory aspects in pharmaceutical testing
- Advanced concepts in HPLC instrumentation and theory
- Best practices and trends in HPLC method development
- Review the latest HPLC column technologies and select the best column for your applications
- HPLC methods for sample preparation and avoiding unexpected problems
- Chromatographic separations; resolution, tailing, robustness and computer assisted method development
- Quantitation methods; which one to choose?
- Experimental design; applications for method development and validation

Course Benefits

- Understand regulatory aspects for HPLC assays including stability testing, ICH validation guidelines, system suitability, method adjustments and global filing
- Become more successful in pharmaceutical assays by better understanding of HPLC instrumentation and column selection
- Learn modern trends and best practices in HPLC method development
- Learn 'tricks of the trade' to enhance your system's precision and sensitivity

Course Title

Advanced HPLC in Pharmaceutical

Course Code

LC 0015

Course Dates

2008**October 26 – 28**

Duration

3 Days

Course Dates

2009**March 30 – April 1**

Duration

3 Days

Affiliates

Waters
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Course Title
**Fundamentals of Flame
AA Spectroscopy**

Course Code
SY 0016

Course Dates
**2008
November 16 – 18**

Duration
3 Days

Course Dates
**2009
April 19 – 21
November 8 – 10**

Duration
3 Days

Affiliates



Introduction

An introductory course for the beginner, as well as those who want to learn basic principles and gain a more thorough understanding of current flame Atomic Absorption technology.

Who should attend ?

New users of Flame AAS

Users of Atomic Absorption Spectroscopy who want to update themselves with the latest AA technology.

Technicians, chemists and supervisors engaged in routine chemical analysis.

Topics covered

Theoretical

- Basic theory of Atomic Spectroscopy
- Flame AAS instrumentation
- Flame Atomization
- AAS Hardware and Accessories
- Safety Practices
- Introduction to SpectrAA Software
- AAS Optics and Background Correction Techniques
- Factors Affecting Flame Analysis
- Troubleshooting and maintenance

Practical Work

- Flame AAS – Setting up and optimizing the instrument for analysis
- Calibration and curve fit algorithms
- Determination of Characteristic Concentration and Detection Limits
- Chemical Interferences and correction techniques
- Effect of Background Correction on complex matrices
- Flame Emission Measurements
- Flame AAS Productivity Tools – SIPS, SPS-3 and Fast Sequential Analysis
- Basic maintenance Procedures

Prerequisites

Basic chemistry background with some analytical experience. Familiarity with computers and Microsoft Windows XP operating system.

Introduction

This course is for those who want to learn the basic principles of AA and gain a more thorough understanding of current graphite furnace AA technology, troubleshooting, and maintenance.

Who should attend ?

New users of Furnace AAS.

Users of Atomic Absorption Spectroscopy who want to find out the most efficient ways to develop furnace methods that deliver accurate results.

Technicians, chemists and supervisors who want to maximize their furnace AAS productivity and engaged in trace analysis of elements.

Topics Covered

Theoretical

- Graphite furnace technique,
- GFAAS hardware overview
- Optimization of the furnace system
- Interferences and background correction techniques
- Chemical modification techniques
- Platform techniques
- Analysis considerations
- Troubleshooting and maintenance

Practical Work

- Furnace AAS – Setting up and optimising the instrument for analysis
- Determination of operational parameters
- Determination of trace elements in complex matrices e.g. iron in coffee
- Optimization of furnace parameters
- Basic maintenance procedures

Prerequisites

Basic chemistry background with some analytical experience. Familiarity with computers and Microsoft Windows XP operating system. Experience in Flame AA Spectroscopy or completed a basic course on Flame AAS.

Course Title
**Techniques of Furnace
AA Spectroscopy**

Course Code
SY 0017

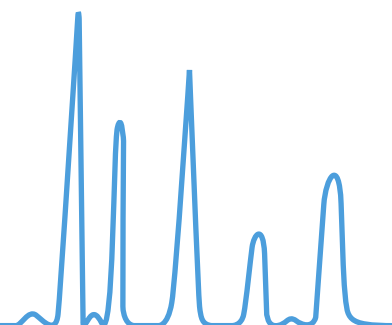
Course Dates
**2008
November 19 – 20**

Duration
2 Days

Course Dates
**2009
April 22 – 23
November 11 – 12**

Duration
2 Days

Affiliates



Course Title
Fundamentals of ICP-OES

Course Code
SY 0018

Course Dates
**2008
November 23 – 27**

Duration
5 Days

Course Dates
**2009
February 15 – 19
November 15 – 19**

Duration
5 Days

Affiliates



Introduction

This course covers the basic principles of Inductively Coupled Plasma – Optical Emission Spectroscopy (ICP-OES), focusing on operation and optimization of the Varian 700-ES series ICP-OES.

Who Should Attend ?

New users of ICP-Optical Emission Spectroscopy.

Users of Atomic Absorption Spectroscopy who are interested to learn about the fast and powerful technique of ICP-OES.

Technicians, chemists and laboratory managers interested in trace-element analysis.

Topics covered

Theoretical

- Basic theory of Spectroscopy
- ICP-OES instrumentation - Radial and axial viewing ICP
- Safety Practices
- ICP-OES Hardware and Accessories
- Introduction to ICP Expert Software
- Optimization Techniques
- Interferences and corrections
- Analysis considerations
- Troubleshooting and maintenance

Practical Work

- ICP-OES – Setting up the instrument for analysis Torch alignment and Wavelength calibration,
- ICP-Operation - Developing a worksheet method, Multi-element analysis with single standard and multiple standards,
- Optimization of ICP-OES operating parameters – Manual optimization, Use of auto-optimization – Auto Max
- Determination of Detection limits – Instrument Detection Limit (IDL) and Method Detection Limit (MDL)
- Effect of Background Correction on complex matrices
- Physical Interferences and Correction – Standard Additions, Internal Standardization
- Spectral Interference Correction using FACT (Fast Automated Curve-fitting Technique)
- Productivity Improvements – use of Switching Valve and Autosampler
- Basic maintenance Procedures

Prerequisites

Basic chemistry background with some analytical experience. Familiarity with computers and Microsoft Windows XP operating system. Some experience in AA Spectroscopy or completed a basic course on AAS.

Introduction

'Fundamentals of Fourier Transform InfraRed Spectroscopy' introduces FTIR as a preferred method of infrared spectroscopy. The technique has many significant practical advantages and has enabled the development of new sampling techniques designed to tackle challenging problems which were impossible using older technology.

In addition, FTIR has made the use of infrared analysis virtually limitless.

Who should attend ?

New and existing FTIR users who are interested to learn about new applications and accessories.

Chemists in university, analytical laboratories, petroleum, food industry, forensics and polymer laboratories.

Topics covered

- Basic principles, accessories and usage
- Data analysis and transforms
- Quantitative analysis
- Basic troubleshooting and maintenance
- Learn to efficiently collect FTIR data and set up routine methods
- Discover how to effectively use the sampling accessories available for your FTIR and choose the best one for your application
- See how to replace the common components in your spectrometer and minimize downtime

Course Title
Fundamentals of FTIR

Course Code
SY 0019

Course Dates
**2009
June 15 – 16**

Duration
2 Days

Affiliates



Course Title
Fundamentals of NMR

Course Code
SY 0020

Duration
Contact GSC

Course Dates
Contact GSC

Introduction

'Fundamentals of Nuclear Magnetic Resonance Spectroscopy' examines how NMR spectroscopy can be used to study mixtures of analytes and understand dynamic effects such as change in temperature and reaction mechanisms.

NMR is an invaluable tool in understanding protein and nucleic acid structure and function, and can be applied to a wide variety of samples, both in the solution and the solid state.

Who should attend ?

New and existing NMR users who are interested to learn about new applications and techniques.

Chemists specialising in pharmaceuticals, medical chemistry, natural products and research laboratories.

Topics covered

- Setting up, acquiring and processing various 1D and 2D experiments
- Discover the spectrometer hardware, Solaris/RedHat environments, system organization and data structure
- Learn to set up, acquire, and process 1D (¹H, ¹³C, APT, DEPT, 1D-NOE, and homo-decoupling) and 2D (COSY, NOESY, HETCOR, HSQC, and HMBC) experiments
- See how to effectively conduct sample preparation, locking and shimming, and calibrations

Affiliates



Introduction

This is an introductory course on Ion Trap GC/MS for the novice user. This course covers basic theory and practices required for understanding and successfully operating Ion Trap GC/MS systems.

Who should attend ?

New users of Ion Trap GC/MS.

Chemists with good background on capillary GC analysis.

Advanced chemists who want to learn about efficient ways to solve analytical problems using advanced GC/MS Techniques.

Chemists, supervisors and laboratory managers engaged in trace analysis using chromatography procedures.

Topics covered

Theoretical

- Introduction to Mass Spectrometry
- Ion Trap GC/MS Hardware – GC Inlet, Columns, MS
- MS Sample Introduction Techniques
- Introduction to MS Workstation Software
- Introduction to Advanced Ion Trap MS Techniques – Selected Ion Storage, Chemical Ionization and MS/MS
- Ion Trap Maintenance procedures and Trouble-shooting

Practical Work

- Setting up the Ion Trap MS and initial adjustments
Tuning the instrument for routine analysis
- Method development, sample injection and analysis
- Qualitative Procedures – identification of compounds by library search, creation of spectral lists and compound tables
- Quantitation Procedures – multi-level calibration and analysis of unknown samples
- Ion Trap advanced techniques – SIS, CI and MS/MS
- Basic MS maintenance procedures

Prerequisites

Basic chemistry background with some analytical experience.

Familiarity with computers and Microsoft Windows XP operating system. A good background in Gas Chromatography and Capillary GC techniques is a must.

Course Title
Fundamentals of Ion Trap GC/MS

Course Code
MS 0021

Course Dates
**2008
November 9 -13**

Duration
5 Days

Course Dates
**2009
March 15 – 19
November 22 – 26**

Duration
5 Days

Affiliates



Course Title

Portable GC/MS and Applications

Course Code

MS 0022

Course Dates

**2009
April 13 – 14**

Duration

2 Days

Introduction

This course is intended for the Chemist and Lab Technicians. It covers all skills and knowledge for understanding and successfully operating GC/MS system. It will cover theory and principles of Mass (Ms).

Also, practical aspects, use maintenance, covering principles, instrumentation and particular column requirements.

Who should attend ?

Chemists or technicians involved in Forensic laboratories, Environmental In-forcing Agencies, Emergency Response Centers, Civil Defence, Hazmat Teams, Fire Brigades or in Industrial Hygiene (Exposure).

Topics covered

- Volatile Organic Compounds (VOC)
- Operating Principle of HAPSITE GC/MS
- VOCs in air
- VOCs in water
- VOCs in soil
- Data handling and interpretation

Prerequisites

Individuals should have a basic laboratory technical background.

Introduction

This course is designed for polymer industry professionals such as polymer engineers, foremen, operators and managers.

It will help better understand polymer behavior and factors affecting polymer failure for designing and processing polymer products with higher success rate.

The course will provide a higher understanding of polymer properties, design, testing, and processing.

Who should attend ?

Any professional involved with plastics who wishes to understand the fundamentals for designing successful polymer products.

Topics covered

- Polymer properties
- Polymer characterisation
- Design concerns
- Processing tips
- Methods of failure analysis
- Case studies and examples

Course Title

Understanding Failure Prevention and Analysis of Plastics Products

Course Code

PS 0023

Course Dates

**2009
April 6 – 8**

Duration

3 Days

Affiliates



Affiliates



Course Title
**Engineering Design
with Polymers**

Course Code
PS 0024

Course Dates
**2009
October 26 – 28**

Duration
3 Days

Introduction
'Engineering Design with Polymers' is designed for polymer industry professionals such as polymer engineers, foremen, operators and managers as a tool which enables them to perform their jobs better and with higher efficiency.

This will help the attendees to better understand how to design plastic parts, molds and dies.

Who should attend ?
This training course is a must for any professional involved with plastics and wants to understand the fundamentals of making a successful polymer products via understanding polymer properties, design, testing, and processing.

- Topics covered**
- Factors affecting a good plastic product
 - Keys to successful part design
 - Mold design fundamentals
 - The basics of die design
 - Screw design and its functions

Introduction
The specialized workshop is designed to address the true challenges involved in sample preparation. The workshop provides the skills necessary to develop & apply the correct methodology for preparation of samples prior to trace analysis.

The course encompasses a combination of classroom lectures as well as laboratory sessions where small groups work directly under the guidance of CEM application staff. While utilising wide assortment of the most modern microwave methodology & equipment, time is allotted for problem solving & to discuss job related application.

Laboratory sessions are deliberately 'hands on' with an emphasis placed on the digestion of real samples & the practicality of this important and yet often neglected step in the analytical process.

Who should attend ?
All new and intended users of Microwave technology in the laboratory.

Those who want to performing trace element analysis by microwave.

Those who wish to trace Organic Sample Digestion & Inorganic Sample Digestion by microwave.

Those who want to improve their understanding of cleaning techniques and safety.

- Topics covered**
- Microwave Theory (how microwave works)
 - Microwave Digestion; controlling the process
 - Microwave Digestion for Organic Sample
 - Digestion Organic in XP
 - Microwave Digestion for Inorganic Samples
 - Lab on Inorganic Sample Prep (XP & Ultra Prep)

Course Title
Microwave Based Technique

Course Code
CD 0025

Course Dates
**2008
October 29 – 30**

Duration
2 Days

Course Dates
**2009
March 23 – 24**

Duration
2 Days

Affiliates



Affiliates



Course Title
**Solid Phase
Extraction Technique**

Course Code
CD 0026

Course Dates
**2009
March 25 – 26**

Duration
2 Days

Introduction
'Solid Phase Extraction' is a course designed for individuals want to learn how to develop environmental friendly, economical and robust sample preparation methods.

Who should attend ?
Individuals including lab technicians, chemists and analysts who are interested in gaining basic knowledge on the theory and practical aspects of solid phase extraction techniques.

- Topics covered**
- Sample preparation overview
 - Characteristics of the sample preparation methods
 - Overview of Solid Phase Extraction
 - Sample pretreatment
 - Column conditioning
 - Column equilibration
 - Sample loading
 - Interference elimination
 - Analyte collection
 - Easy step-by-step guide to method development
 - Optimising a solid phase extraction procedure
 - Demonstration of Solid Phase Extraction and principles
 - Experiment in method development
 - In the laboratory practices
 - Applications to the Gas Chromatography instruments

Affiliates



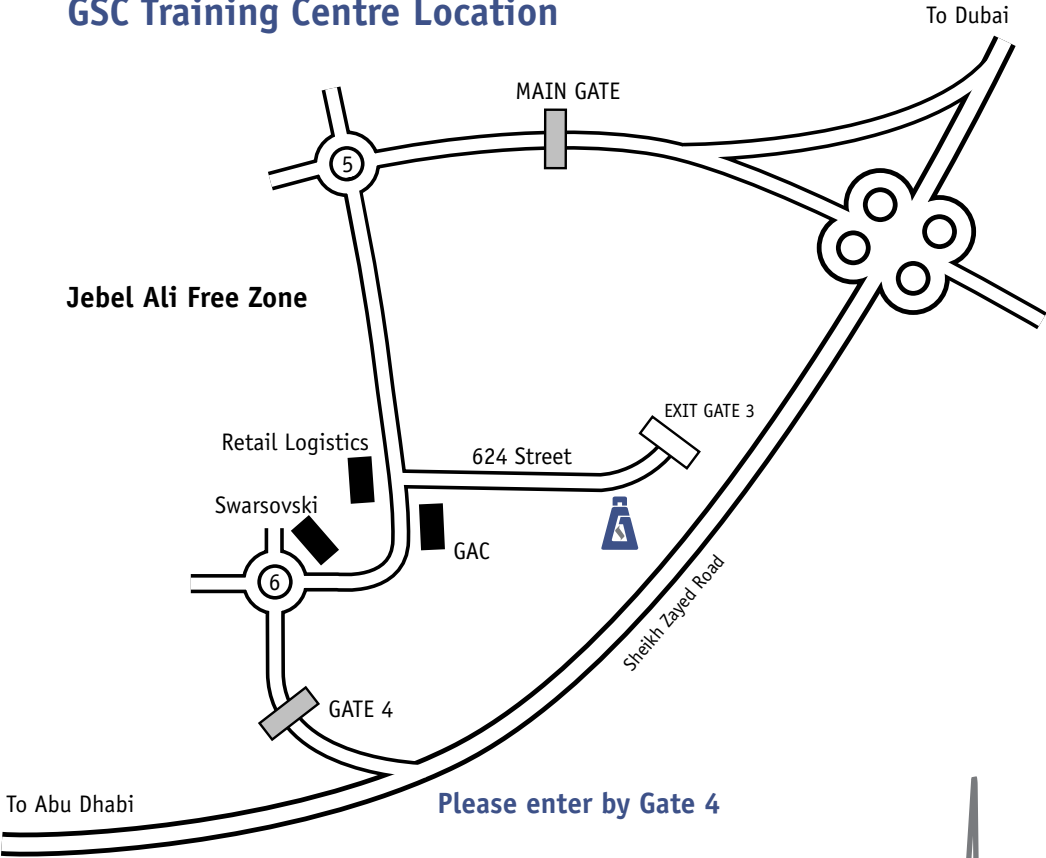
GSC Training Centre

The only specialist purpose built scientific facility in the region.

GSC has gained the confidence of its principals and customers alike through proving itself as a leading provider of total solutions to laboratories across the MENA region.

The only specialist purpose built scientific facility in the region that possesses state-of-the-art facilities including training laboratories, a fully equipped service centre and a spare parts depot, GSC adheres and operates according to the highest international quality standards.

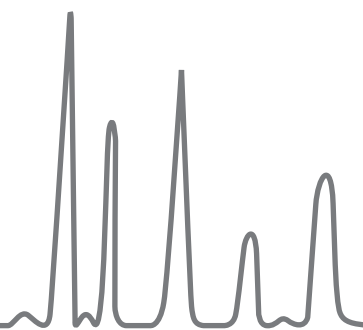
GSC Training Centre Location





GSC's state-of-the-art, training centre in Dubai, United Arab Emirates provides trainees with practical 'hands on' experience, operating the actual equipment and machines used in working scenarios. GSC's custom built premises include dedicated laboratories for HPLC, GC and spectroscopy with capacity for up to 45 delegates.

GSC training programmes are designed to meet the needs of various industries including oil and gas, agriculture and food science, clinical and pharmaceutical, environmental, research and educational institutions.



Registration

Please complete and return to GSC. Full details are enclosed overleaf.

Completing this form will enable you to enrol onto a course where you have identified your need for development.

Registrant Details

Family Name

First Name(s)

Title (please delete)

Mr. / Mrs. / Miss. / Dr .

Other

Job title

Company

Address

PO Box Number

Zip / Postal Code

City

Country

Telephone Number

E-mail

Course Details

Course Code

Purchase Order Number

Authorised Signature

Name

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Confirmation

On receipt of the Registration Form you will receive confirmation of the booking. If the course date you have selected is unavailable you will be offered an alternative date.

Full instructions will be issued prior to course attendance.

Cancellation

50% of the courses fees will be applicable if the registrant cancels up to one month prior to course commencement.

Accommodation

Course fees do not include any overnight accommodation. We can arrange accomodation close to the Training Centre.

Visa Requirements

GSC will handle the Visa process however please supply **two passport size pictures** and a **Copy of your Valid Passport**.

Please contact the Training Department for further details.

Registration Procedures

Simpy, do one of the following:

Fax to +971 4 881 6778

Mail to our Head Office in Dubai.

Apply online at www.gsc2000.com/register



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Training Prospectus

2008 & 2009

