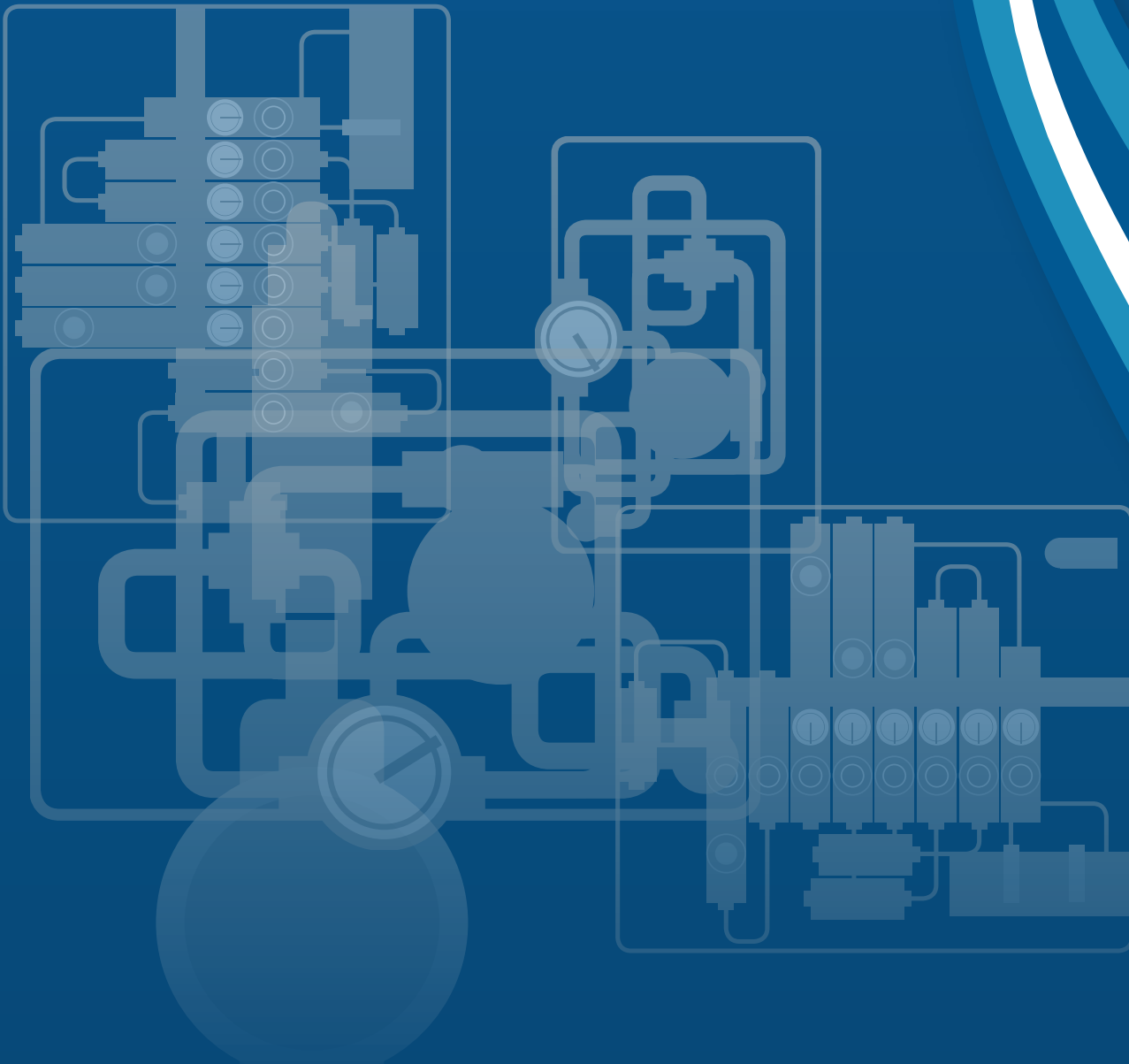


Swagelok®

Swagelok Malaysia

Process Analyzer Sampling System Training (PASS)

Designed for Analytical Instrumentation System Engineers, Technicians and Industry Professionals



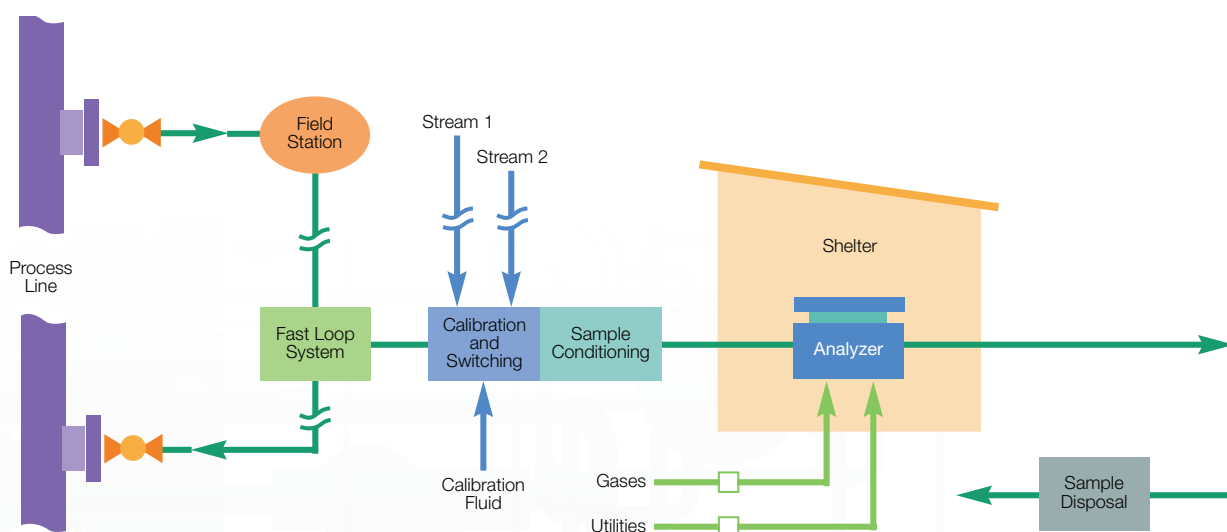
Optimize Your Sampling Systems.

Expand Your Knowledge with Training from Industry Expert

As part of our continuing efforts to help customers keep their teams trained on the principles, processes, and materials that go into designing, building, and maintaining high-quality fluid systems, we are now offering in-person training courses. Sign up to receive practical education from experienced instructors on the Process Analyzer Sampling System.

Process Analyzer Sampling System Training

Swagelok® Process Analyzer Sampling System (PASS) training courses will teach you how to design and optimize process analyzer sampling systems, providing the sound design principles needed to prevent costly sampling system errors. Attendees will learn how to design and build an optimized process analyzer sampling system that delivers timely, accurate results.



About the Course

Course content is derived from *Industrial Sampling Systems*, a technical reference book authored by industry expert and consultant Tony Waters.

Learn to improve process accuracy and optimize analyzer performance by:

- Recognizing and diagnosing sample transport problems
- Calculating pressure drop in a fast loop or return line
- Preventing or controlling phase separation
- Reading and creating sample system schematics
- Designing and building your own sample system

Course Modules:

Fundamentals: Classroom and Basic Exercises

- i. Basic Performance Criteria and Challenges
 - Sample compatibility
 - Time delay in sampling
 - Mixing and contamination, including deadlegs
- ii. Diagnosing and Fixing Time Delay Problems
 - Sample transport time calculations for liquids and gases
 - Gas compressibility and time delay

Classwork and Basic Exercises

Group Project: Design a Complete Sampling System

- iii. Sample Conditioning Techniques
 - Proper use of filters and coalescers
 - Liquid, vapor, and gas separation devices
 - The difference between vapor and liquid concentration
- iv. Sample Tap Design
 - Understanding process conditions, analyzer characteristics, and sample requirements
 - Location and design of process nozzle
 - Probe selection and design

Advanced Design Concepts

Group Project: Design a Complete Sampling System

- v. Phase Preservation
 - How to condense or vaporize a sample (or avoid it)
 - How to use phase diagrams
 - Design of field stations and fast loops

Advanced Design Work

Group Project: Prepare Group Design Presentations

- vi. Advanced Calculations
 - How to determine fluid velocity in line segments
 - Laminar and turbulent flow (Reynolds Number)
 - Effect of temperature and pressure
 - Calculating the pressure drop in each line segment

Stream and Calibration Selection

- vii. Techniques of Stream Switching
 - Avoiding deadlegs and mixing volumes
 - Modular sample conditioning systems
 - Design and build a modular sampling system
- viii. Group Presentations
 - Group presentations and instructor comments

Swagelok Process Analyzer Sampling System (PASS) Training



Registration

Date: 14 - 18 October, 2024

Time: 8:30am-5:30pm (MYT/SGT)

Location: Swagelok Malaysia, No.16, Blok A, Jalan PPU3, Taman Perindustrian Puchong Utama, 47100 Puchong, Selangor

How to register



1. Visit www.malaysia.swagelok.solutions/services/training for training details.
2. Contact your local authorized Swagelok sales and service center for assistance at +603-8084 1818 or email to enquiry@swagelok.com.my

Terms & Conditions



- Deposit : 30% deposit is required before 14 September 2024.
- Deposits will be forfeited if cancellation is made 2 weeks before training commences.
- Balance of payment to be paid 2 weeks before the training course commences.
- Swagelok reserves the right to postpone or cancel the training due to insufficient students or trainer availability. In the event the training is cancelled, the deposits/payment will be refunded.

*All payments will be processed through your authorized Swagelok Sales and Service Center.