

WHY SHOULD YOU ATTEND?

If you are like many people involved with a fluid piping systems, there may be areas on your system that you would like to understand better. Here are five reasons why you'll want to attend the Piping System Fundamentals Training Seminar.

1. Learn to Identify System Problems - Attendees will learn to identify the real problems causing pump and control valve failures, system instability, excessive power consumption and how to avoid the problems, increasing system capacity.
2. Locate areas where you can save your company money— Gain a better understanding of how to minimize operating and maintenance cost by optimizing your piping system.
3. Gain real world experience—attendees will gain real world experience that they can use back at their place of work and immediately apply what they have learned.
4. Earn up to 14 Professional Development Hours— earn continuing education units to apply toward licensure renewal or just brush-up on your piping system operational knowledge and principles.
5. Combine theoretical knowledge and practical experience to gain a total picture of system operation.

Who Should Attend?

Piping System Fundamentals Courses is a comprehensive course designed for recent college graduates, mechanics, operators, consulting engineers and designers needing to obtain a clear picture of the operation of the total fluid piping systems.

Attendees come from a variety of fields and skill levels including but not limited to:

- Design Engineers
- Plant Engineers
- Facility Managers
- Maintenance Technicians
- Mechanics
- Building Owners
- Plant Operators
- Safety Engineers
- Recent College Graduates
- Pump Sales Representatives
- Anyone who needs to select, specify, commission, install and/or maintain liquid piping systems and pipelines.

Reserve Your Space Now!

Call: 1-800-786-8545

Fax: 1-360-412-0672

Web: www.fluidfundamentals.com

Attendees Also Receive...

\$45 Value!

▶ **CRANE's Technical Paper No. 410:**

A copy of the most current CRANE Technical Paper No. 410 (TP410), the quintessential guide for to understanding the flow of fluid through valves, pipes and fittings, enabling you to select the correct equipment for your piping system.

▶ **Comprehensive Course Workbook:**

\$100 Value!

To maximize the value of your learning experience during and after the training course, your extensive course manual has been designed with many useful guidelines and key points of information covered in the course.

You'll find this manual to be an excellent resource for retrieving concepts taught during the seminar and applying them back on the job.

▶ **1.4 Continuing Education Credits:**

1.4 Continuing Educational Units (CEU) or 14 Professional Development Hours.

▶ **Course Certificate:**

At the conclusion of the training course, you will be awarded an attractive Certificate of Completion with course content description included for confirmation of your continued education credits.

What Can You Expect From Our Training?

Well-rounded, Detail-packed training that sets the standard for excellence

Sessions are on-target, full of must-know information for anyone who works in and around fluid or gas piping systems. This is a fast-paced program designed to present the major topics relative to the design and operation of piping systems. The program consists of 2 days of Full time Instruction including concept theory, problem solving, system design, and exposure to the latest technology in piping design.

Knowledgeable speakers

Our polished trainers are hand-picked to present our seminars based on their dynamic public speaking abilities and their industry expertise. These seasoned professionals have years of hands-on experience in the piping system industry and have provided thousands of hours of instruction.

100 percent guaranteed training

We go great lengths to provide you with the highest quality piping system training available and we promise a wealth of practical and valuable information in a short period of time. In fact, you'll get the best training, or you'll get your money back. We stand behind the value of our training with a 100% money back guarantee. That means you must be completely satisfied with your training investment, or we'll refund your money—*hassle-free*.

There's simply no one else who offers this training with our amount of dedication to your satisfaction.



Piping System Fundamentals Training is endorsed by the Crane Co.



Proud Members of the Hydraulic Institute and Pump Systems Matter



Energy | Efficiency | Economics

Ways to Register:

Internet: www.fluidfundamentals.com
Fax: (360) 412-0672
Phone: Toll Free (800) 786-8545 or
(360) 412-0702
Mail: Fluid Fundamentals Training
4529 Intelco Loop SE
Lacey, WA 98503

For more information call (800) 786-8545 or email
register@fluidfundamentals.com.

Registration Rates:

Day of Class Registration Single Seat: \$995
Early Registration Price Single Seat: \$895
Group Discount: Based on Number of Attendees*
Onsite Training: Call For Details (800) 786-8545

** Group Discount Only available via mail, phone or fax.
All attendees must register at the same time to received group
discount. Group discounts cannot be combined with any other
discount and/or offer.*



SPRING 2008

March

LOUISIANA

Baton Rouge • March 26-27

April

OHIO

Cincinnati • April 9-10

OREGON

Portland • April 16-17

TEXAS

Houston • April 23-24

May

INDIANA

Indianapolis • May 14-15

DELEWARE

Wilmington • May 21-22

REGISTRATION ORDER FORM FOR: Piping System Fundamentals Training

Method of Payment (Check one):

Visa MC Amex Purchase Order* Check (Payable to Engineered Software)

CARD NUMBER: _____ EXP. DATE: _____ SECURITY CODE: _____

NAME ON CARD: _____

SIGNATURE: _____

Attendee Information

Requested Class Date:

- | | |
|--|---|
| <input type="checkbox"/> Mar 26-27 Baton Rouge, LA | <input type="checkbox"/> Apr 23-24 Houston, TX |
| <input type="checkbox"/> Apr 9-10 Cincinnati, OH | <input type="checkbox"/> May 14-15 Indianapolis, IN |
| <input type="checkbox"/> Apr 16-17 Portland, OR | <input type="checkbox"/> May 21-22 Wilmington, DE |

NAME: _____ EMAIL: _____

COMPANY: _____ TITLE: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

PHONE: _____ FAX: _____

** Invoice to be paid prior to beginning of class*

PIPING SYSTEM



FUNDAMENTALS

TWO-DAY TRAINING COURSE

Learn How to Save Money while Improving the Efficiency of your Piping Systems by 50% or More!

Spring 2008

LOUISIANA
Baton Rouge
March 26-27

OHIO
Cincinnati
April 9-10

OREGON
Portland
April 16-17

TEXAS
Houston
April 23-24

INDIANA
Indianapolis
May 14-15

DELEWARE
Wilmington
May 21-22



Discover the key to saving thousands of dollars in the operation of your piping system.



Go Green without making ANY physical changes to your piping system!



Learn how save dramatically on your system startup costs. Do you really need an additional pump?



Maintenance costs CAN be lowered without increasing your system's downtime. Learn How!

Earn Continuing Education Credits!

See page 2 for more details!



- Receive Your Free CRANE Technical Paper No. 410 (TP410)
- This Course can be presented at your facility for larger groups
- Check us out online at www.fluidfundamentals.com for a complete schedule of courses.

Harness the skills needed to gain a clear picture of your piping systems, and successfully troubleshoot changes or additions to your plant.

PIPING SYSTEM FUNDAMENTALS



TWO-DAY TRAINING COURSE

A Comprehensive Course designed for mechanics, operators, recent college graduates, consulting engineers, designers and anyone needing to obtain a clear picture of how a fluid piping system operates.

With this course you will learn how to

- x Avoid the #1 mistake in system redesign.
- x Review the 3 major pitfalls of adding loads to existing piping systems.
- x Identify key components effecting piping system performance.
- x Recognize trouble spots in a piping system.
- x Properly size and select pumps for a piping system.
- x Identify basic elements for determining fluid flow.
- x Uncover the mysteries of Net Positive Suction Head.
- x Learn how temperature changes can drastically effect total system operation.
- x Increase your system's capacity by learning how to balance the total system.

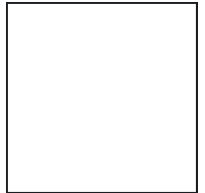


Look inside for a complete course outline!

**ENROLL TODAY ONLINE AT
WWW.FLUIDFUNDAMENTALS.COM
OR CALL 1-800-786-8545**



FLUID FUNDAMENTALS TRAINING
4529 INTELCO LOOP SE
LACEY, WA 98503



PIPING SYSTEM FUNDAMENTALS
TWO-DAY TRAINING COURSE

Learn How to Save Money while Improving the Efficiency of your Piping Systems by 50% or More!

| | |
|---|---|
| <p>Spring 2008</p> <p>LOUISIANA Baton Rouge March 26-27</p> <p>OHIO Cincinnati April 9-10</p> <p>OREGON Portland April 16-17</p> <p>TEXAS Houston April 23-24</p> <p>INDIANA Indianapolis May 14-15</p> <p>DELEWARE Wilmington May 21-22</p> | <ul style="list-style-type: none"> ▶ Discover the key to saving thousands of dollars in the operation of your piping system. ▶ Go Green with out making ANY physical changes to your piping system! ▶ Learn how save dramatically on your system startup costs. Do you really need an additional pump? ▶ Maintenance costs CAN be lowered without increasing your system's downtime. Learn How! <p>Earn Continuing Education Credits! See page 2 for more details!</p> |
|---|---|

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- Check us out online at www.fluidfundamentals.com for a complete schedule of courses.

Sample Name
Sample Company
123 Sample Street
Sample Town, SMPL, 12345

**ENROLL ONLINE TODAY AT
WWW.FLUIDFUNDAMENTALS.COM**

COURSE OVERVIEW

Piping System Fundamentals Courses take you inside your piping system to get a better understanding of what is really going on. Starting with the basics like vocabulary and building to component operation and finishing with problem solving techniques all with a minimum of math formulas.

Our emphasis is on understanding the relationship between the components that make up a piping system and what happens when changes are made to the piping system. Attendees will learn to safely troubleshoot and prevent a variety of problems that can arise in a piping system. The attendee will gain real world experience that they can use back at their place of work and immediately apply what they have learned.

DAY 1 – BASIC TRAINING

INTRODUCTION

Value of a Clear Picture of a Piping System

Minimizing Capital Cost
Minimizing Operating Cost
Minimizing Maintenance Cost

PIPING BASICS

Definitions
Pipe Details
Pressure Calculations
Bernoulli Equations
Pipeline Headloss Calculations

PIPELINES

Pipe Material Variations
Valve & fittings
Fluid Properties
Connecting Pipelines
Piping System Networks

PUMPS

Overview
How Centrifugal Pumps Operate
Pump Types
Understanding the Pump Curve
Net Positive Suction Head
Pump Affinity Laws
Pump Power & Cost of Operation
Operating Pumps Properly

CONTROL VALVES

Overview
How Control Valves Operate
Control Valve Description
Selecting Control Valves
Off Normal Control Valve Operation

FLOW METERS

Types of Flow Meters
Sizing Flow Meters
Flow Meter Off Normal Operation

CONTROL VALVES

Overview
How Control Valves Operate
Control Valve Description
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Off Normal Control Valve Operation

FLOW METERS

Types of Flow Meters
Sizing Flow Meters
Flow Meter Off Normal Operation

DAY 2 – SYSTEM EXAMPLES

COMPONENTS

Heat Exchangers
Filters & Strainers

SYSTEM OPERATION

Single Pipeline Controlled Flow
Pipeline Between Two Pressure Sources
Pipelines & Pumps
Controlling Flow Rate with a Control Valve
Controlling Flow Rate with a Pump
Controlling Flow Rate with a VSD
Balancing Systems with Multiple Destinations
Balancing Systems with Multiple Loads
Problems with Cavitating Pumps
Problems with Cavitating Control Valves

CONCLUSION

Review of First Day Examples
Value of a Clear Understanding

Course fee:

The registration fee of \$995 includes the two-day seminar, course materials, CRANE Technical Paper 410 (TP410).

Cancellation Policy:

If notification is received at least two weeks prior to the start of the course, credit may be granted to a later seminar date. No refunds are available for cancellations made less than 30 days prior to the start of the scheduled course.

If for any reason we are required to cancel a class, our liability is limited to the return of the registration fee. We reserve the right to cancel courses due to insufficient enrollment. Such decisions will be made at least one week before the scheduled course date. Registrants will be notified via email; *Every effort will be made to avoid cancellations.*

Guarantee:

Engineered Software offers the highest quality training available. If you are dissatisfied for any reason, notify the instructor prior to the end of the first day and you may withdraw and receive a 100% tuition refund.

Class size:

Limited to 50 attendees. Onsite Corporate Training Available.

Onsite Corporate Training:

Piping System Fundamentals training courses can be conducted on your site, saving you time away from the office. Our expert instructors deliver onsite training to you and your plant staff.

To register:

Call (800) 786-8545 or Email register@fluidfundamentals.com