

## Registration Form

Reading and Understanding of P&IDs  
9 - 10 May 2011

Registration Fee: SGD\$750.00 nett

Name: Dr/Mr/Mrs/Ms: (Attach your name card, if any)

\_\_\_\_\_

Designation: \_\_\_\_\_

Name of Organisation: \_\_\_\_\_

\_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Contact Person: \_\_\_\_\_

Email: \_\_\_\_\_

Tel No (O): \_\_\_\_\_ Fax No: \_\_\_\_\_

Dietary Preference: No Pork No Lard / Vegetarian

NUS Alumni Membership (if any) # \_\_\_\_\_

### Payment mode:

Cheque / Bank draft No.: \_\_\_\_\_

Payable to "National University of Singapore"

Visa/Master/Amex:

\_\_\_\_\_

Expiry Date: \_\_\_\_\_ Amount (S\$): \_\_\_\_\_

Signature: \_\_\_\_\_

### Closing Date :

Please send in your registration form together with your payment by **21 April 2011**

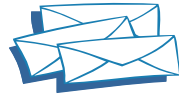
### Authorised Signature / Company Stamp

\_\_\_\_\_

Mailing address: Professional Activities Centre  
NUS, Faculty of Engineering  
3 Engineering Drive 2, Blk E1 #05-15  
Singapore 117578

Fax : +65 6874 5097

## 3 Easy Ways to Register MAIL or FAX to:



Professional Activities Centre  
Faculty of Engineering  
3 Engineering Drive 2  
Blk E1 #05-15 Singapore 117578  
Fax: (65) 6874 5097

## REGISTER ONLINE

@ PAC Website:

<http://www.eng.nus.edu.sg/PACentre>

**Enquiries:** Please contact Gabriel ONG for more information at Tel: (65) 6516 5113 or e-mail: [gab@nus.edu.sg](mailto:gab@nus.edu.sg)

**Fee:** SGD\$750.00 nett

**Payment:** Payment is required prior to the course. Crossed Cheque should be made payable to "National University of Singapore" and mailed together with the registration form to the mentioned address.

**Discount:** Maximum of 10% discount is applicable to:

- NUS Alumni &
- Organizations / Companies sending three or more participants.

### Refunds and Cancellations:

A 50% refund will be made for withdrawals (received in writing) ten working days before the commencement of the course. No refunds will be made thereafter. However, a replacement will be accepted upon prior arrangement at no extra cost. Please inform us of the changes, if any, by fax.

The Professional Activities Centre reserves the right to cancel the course and fully refund the participants, should unforeseen circumstances warrant it. Every effort will be made to inform participants of any changes.

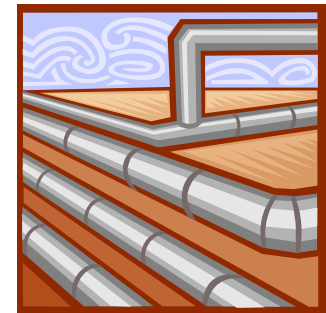
Supported by  
**WorldOils**



12 PDUs Accredited by PE Board

# Reading and Understanding of P&IDs

By  
Dr U.K. Dutta  
CEO, The Technomange Group



9 – 10 May 2011  
9.00 am – 5.00 pm  
National University of Singapore

Organised by:  
Professional Activities Centre  
Faculty of Engineering  
National University of Singapore

## Introduction

Understanding P&IDs and the ability to develop P&ID is the heart of engineering and operation of process plants. The course is designed for Project Engineers, Production personnel and other discipline engineers from operating companies and engineering companies, who need to get familiar with and understand P&IDs. It is also suitable for graduate trainees of all disciplines working in the process industry.

It is a two day program customized to suit the specific industry. Generally the focus is on the practices in Oil, Gas and Petrochemical industries.

## What you will learn?

### The Basic Concepts:

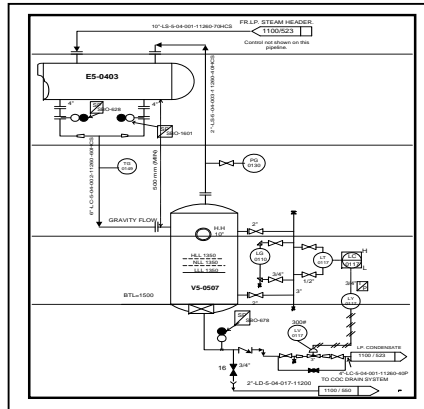
- ◆ Definitions and Abbreviation
- ◆ Purpose of PFD and P&ID
- ◆ Information provided on PFD and P&ID
  - Process related Information
  - Piping related Information
  - Instrumentation and Control related Information
  - Special Information

### Generic Symbology and Numbering Systems:

- ◆ Symbols
- ◆ Piping
- ◆ Valve
- ◆ Control Valve and Actuator
- ◆ Instruments
- ◆ Notation, Numbering and Tag System
- ◆ Equipment
- ◆ Instrument
- ◆ Pipelines
- ◆ Instrumentation and Control
- ◆ Specialty Equipment
- ◆ Combining Process and Hardware

### Understanding PFDs:

- ◆ Why PFD
- ◆ Relating PFD Information to P&ID
- ◆ Relevance of Heat and Mass Balance
- ◆ Relevance of Operating Conditions
- ◆ Relevance of Physical Property Information



### Understanding and Developing P&ID:

- ◆ Equipment and System
- ◆ P&ID and Datasheets
- ◆ Development of a Simple Basic P&ID
- ◆ Valves – Type and Application
- ◆ Development of Control Loops
- ◆ Need and Location of Measuring Instruments
- ◆ Piping and Insulation Information
- ◆ Safety System in P&ID
- ◆ Depiction of DCS and RTU
- ◆ Incorporation of Miscellaneous Information in P&ID
- ◆ P&ID evolution and changes in plant life.

### Safety Systems in P&ID:

- ◆ Levels of Safety
- ◆ Pressure Relief and Flare Systems
- ◆ Shutdown Systems – PSD and ESD
- ◆ Safety, Redundancy and Application of API RP-14C
- ◆ Safety Features in Refinery and Petrochemical Plants.
- ◆ Overview of Hazard Analysis Techniques

### P&ID Life Cycle and Case Studies:

- ◆ P&ID Life Cycle
- ◆ Why P&IDs keep changing
- ◆ Exercises on reading P&IDs
- ◆ Case Studies Specific to Hydrocarbon Industry

## Methodology of Presentation

- ◆ Microsoft Power Point slides packed with information
- ◆ Real life P&ID exercises
- ◆ Highly interactive with total involvement of the participants
- ◆ Interesting and Interactive Quiz Sessions and Group Tasks for better assimilation

## Course Lecturer

**Dr.U.K.Dutta:** Doctorate in Chemical Engineering from Loughborough University of Technology (UK), he is a consultant in the Hydrocarbon Process Industry, focusing on specialist consultancy in niche areas and training. He has over 35 years of experience in Hydrocarbon Industry (upstream & downstream) in the areas of process and technology, engineering, project management, marketing and organization development. He had work experience and association with major Indian and International companies like EIL, Union Carbide, CE Natco, Lummus Crest, Triune and Rotary Engineering. He presented papers on Technology Development & Technology Transfer in major International Conferences such as ASCOPE & CHEMTECH. He has conducted training for executives from major companies like Petronas (Malaysia), Aker-Kvaerner (Philippines), Yokogawa (India), Vopak (Singapore), Solar Turbines (Singapore), PTI (Thailand), Technip and other major multinationals. His programs have been successfully conducted for industry executives in Singapore jointly with NUS for the last eight years. Presently he is running his own consultancy firm Technomanage Consultants, based in New Delhi.

“In addition, guest faculty from the industry may be invited”.

