



An Intensive 5 Day Training Course

Advanced Certificate in Process Automation

Maximising Process Control for your Operation

05 - 09 Jul 2020, Dubai
22 - 26 Nov 2020, Dubai



02-FEB-20

This course is Designed, Developed, and will be Delivered under
ISO 29990 : 2010 & ISO9001 : 2015 Quality Standards



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WHY CHOOSE THIS TRAINING COURSE?

Proper process control is vital to any industry. If your control is not done optimally, not only may you affect the safety of your operation, but also your efficiency and profitability. In this respect, very careful attention must be paid to the PID controller. These devices are used to control a host of different applications, and their optimization cannot be emphasized, enough! They are often incorporated into the Distributed Control System (DCS).

This PetroKnowledge training course takes over, where basic instrumentation courses end off. It assumes that the delegates already understand measuring devices for level, temperature, pressure and flow, HMI basics, PLC basics, etc. It really focuses on process control in greater depth, which is pertinent to PID controllers, progressing from basics right up to advanced options. The training course is presented in a manner that is easy to understand, and then to apply. It is vital that everyone, who is involved in PID controllers and loop tuning, are taught the fundamentals and techniques as thoroughly as possible.

This PetroKnowledge training course will feature:

- Process control
- Terms and definitions that will be encountered
- The PID controller
- Various loop tuning methods
- Advanced control, using PID controllers

WHO IS THIS TRAINING COURSE FOR?

The target audience will be anyone associated with PID controllers, process control and loop tuning. Whether it be the person that actually does the tuning, the person that is intimately involved with process control and control strategy selection, the person doing controller installations, the person doing the optimization, etc. There are a whole host of people who could benefit from this training course. Suitable candidates would include, but not be limited to:

- Instrument Technicians
- C&I Engineers
- Process Control Engineers
- Chemical Engineers
- Engineers and professionals, from other fields, who have a vested interest in the processes being controlled

WHAT ARE THE GOALS?

Delegates will understand ALL of the technical terms associated with PID controllers as well as process control. They will be taught to implement excellent loop tuning techniques and strategies and apply their knowledge in a useful and practical way. Following this training course, delegates will be able to interact effectively, with plant management and other engineers, regarding all aspects pertinent to process control and advanced PID controller tuning.

By the end of this PetroKnowledge training course, participants will be able to:

- Decide on the best type of control to implement, using a PID controller
- Understand all of the terminology that may be encountered, using PID controllers
- Implement various open-loop tuning strategies with a PID controller
- Implement various closed-loop tuning strategies with a PID controller
- Implement strategies, which include Cascade, Ratio, Gain Scheduling, etc., using PID controllers
- Implement assorted model-based loop tuning solutions

HOW WILL THIS TRAINING COURSE BE PRESENTED?

This PetroKnowledge training course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The training course focuses on applications typically found in Petrochemical industries. It has been designed to have a roughly 50-50 split between theoretical and practical sessions. Modern training techniques are utilized, and delegates are encouraged to use this opportunity to learn as much as possible, in an environment conducive to the sharing of knowledge. A user-friendly simulator is used. The material is of such a nature, that discussions flow freely, and questions are encouraged, at any time.

At the end of each day, an additional wrap-up session is included, to ensure full understanding of all course material covered.



DAILY AGENDA

Day One: Process Control, Terms & Definitions and Types of Control

- Process dynamics and assorted processes that can be encountered
- Process stability
- Process responses (including first, second and high order processes)
- Terms and definitions, associated with process control (Gp, Td, Tc, PV Tracking, etc.)
- The different types of control that may be implemented

Day Two: The PID Controller, Default Settings & Control Strategies

- Proportional band percentage / Gain
- Integral / Reset action
- Derivative / Rate action
- Default controller settings, for various processes
- PID combinations that can be used, for various processes
- Combined feedback and feed forward, integral windup, etc.

Day Three: Open and Closed Loop Tuning, for the PID Controller

- Ziegler-Nichols open loop tuning method
- Ziegler-Nichols closed loop tuning method
- Tuning methods to satisfy overshoot constraints
- Tuning rules and guidelines
- Non-formalized (trial & error) open loop running methods
- Non-formalized (trial & error) closed loop running methods

Day Four: Advanced Control Strategies, Using a PID Controller

- Cascade loops, using PID controllers
- Ratio control loops, using PID controllers
- Gain scheduling, with a PID controller
- Using a PID controller, to deal with long dead times
- Self-tuning controllers
- Understanding Real vs ideal, saturated vs non-saturated and controller equations

Day Five: Model-based Control, for Applications where a PID Controller Would not be Suitable/ Optimal

- Using a model-based system, to deal with dead time
- Using a Smith predictor
- Understanding Internal Model Control (IMC)
- Dahlin's controller
- Understanding and implementing Model Predictive Control (MPC)

ORGANISATIONAL IMPACT

The company can be assured of delegates that have an excellent knowledge base, and an ability to apply that knowledge. They will be able to:

- Immediately grasp aspects, pertinent to normal and advanced PID controllers
- Deal effectively with tuning issues
- Make a positive contribution to process control, using PID controllers, in the workplace
- Develop confidence in their own abilities to tune difficult processes, and
- Be able to share PID controller knowledge with others, as required

PERSONAL IMPACT

Participants will leave with a sense of empowerment. They will:

- Enhance their knowledge of PID controllers
- Improve their credibility
- Speak with authority on PID controllers
- Have faith in themselves and their abilities, and
- Make a positive contribution to the workplace, using PID controllers



QUALITY CERTIFICATION



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✓	DATE	VENUE	FEE(\$)
	05 - 09 Jul 2020	Dubai - UAE	4,950
	22 - 26 Nov 2020	Dubai - UAE	4,950

This fee is inclusive of Documentation, Lunch and Refreshments

Please use BLOCK CAPITALS to fill in this form. It is important that you read carefully through all information before starting to complete the form.

REGISTRATION DETAILS

Family Name: _____ First Name (Mr./Ms.): _____
 Position: _____ Company: _____
 Mailing Address: _____
 Telephone: _____ Mobile: _____ Fax: _____ Email: _____

AUTHORISATION

Authorisation By: _____
 Position: _____ Company: _____
 Mailing Address: _____
 Telephone: _____ Mobile: _____ Fax: _____ Email: _____

BOOKING TERMS & CONDITIONS

Booking

- Bookings for courses can be made via our website (petroknowledge.com) or by contacting our Registration Desk on +971 2 5577389 or at reg@petroknowledge.com
- For on-line bookings, please select the course that you require and click on the "Register Now" button, following the instructions step by step
- Upon receipt of booking in order, enrolment on the respective training course will be confirmed by Registration Team with all necessary documentation

Invoicing and Payment

- Our fees include course presentation, relevant materials, physical & digital documentation, lunch and refreshments served during entire training. Accommodation charges are not included in the course fees
- Course fees are payable upon booking unless a valid, authorized Purchase Order is provided and accepted
- Invoices will be sent via email/courier to the ID/name and address provided
- We prefer to have the fees payment in our account before the start of training course. However, if your company has a different payment policy, the same should inform us in advance
- The currency of fees is in US Dollars (USD). Payments can be made in USD or UAE local currency AED (Arab Emirates Dirhams) either by Bank Transfer or by Credit Card. Our Bank Account details will be provided on the Invoice
- Please note that we do accept payment by cash, in USD or AED, only for the last minute bookings

Cancellation of Courses

- It may be necessary for PetroKnowledge to amend or cancel any course, course times, instructors, dates or published fees due to unforeseen circumstances and we reserve the right for such changes
- Any amendments will be advised before the course start date and any bookings already paid in full will not be subject to increased fees

Cancellation by Client

- Once you have completed your booking, received your confirmation of enrolment and a dated payment Invoice, you are deemed to have a contract with PetroKnowledge. You reserve the right to cancel this contract given the below terms
- All cancellations must be received in writing at reg@petroknowledge.com and info@petroknowledge.com at least 21 days prior to the training
- After the cancellation period has expired, consideration may be given, on a case to case basis, if a registered delegate nominates a substitute on the same course, shifts to next session of the course or moves to a new course
- For a cancellation request made on or before the statutory 21 day cancellation period, a credit note issued which can be used against future course fees
- A 25% administration fee (of the total course fee at the time of booking) will be charged for any cancellations made outside of the statutory cancellation period

Attendance Certificate

- The daily course schedule should be accurately followed to ensure undeterred implementation of our training
- All delegates, who participated in their course throughout, will receive the Certificate of Completion on the last day
- Please report any foreseeable absences to a PetroKnowledge representative or to your sponsors directly
- An absence of three (3) or more sessions of the course will invalidate your eligibility for the Certificate of Completion

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