PiProMaster

Industrial Process Control Training

π PiControl Solutions

PiProMaster is **Computer-Based Training (CBT) software** on **practical industrial process control designed** specially for **industry** and **college**. Nowadays, modern chemical control rooms are complicated with all the DCS, PLC and Advanced Control software and hardware. There is a lot to know and learn to be a good practical industrial Control Engineer or Technician. **PiProMaster teaches** you the **theory** and **practice of industrial process control using real plant data**, **simulations** and **calculations** and with **real industrial examples**.

PiProMaster shows you how to:
- **Tune** PIDs and **troubleshoot** problems
- **Design** a Lab-Corrected Inferential Model-Based Controller with Closed-Loop Control
- **Design** a Feedforward Controller based on accurate process dynamics
- **Determine** Transfer Functions from Closed-Loop or Open-Loop data
- **Design** Constraint Override Selectors
- **Implement** Production Rate Maximizers
- **Activate** controllers correctly in the right sequence for safe startup
- **Design** and **implement** many other schemes

PiControl's CBT trains you on these and other concepts designed specially for the practical control room. The **CBT** converts any Control Engineer or Technician into a skilled, seasoned process control expert in a remarkably short time of about a week.

The **CBT** has been developed by practicing control engineers with over 150 years of control room experience. Chemical Plants, Oil Refineries, Schools/Colleges, Process Control Designers & Practitioners will benefit from this Training.
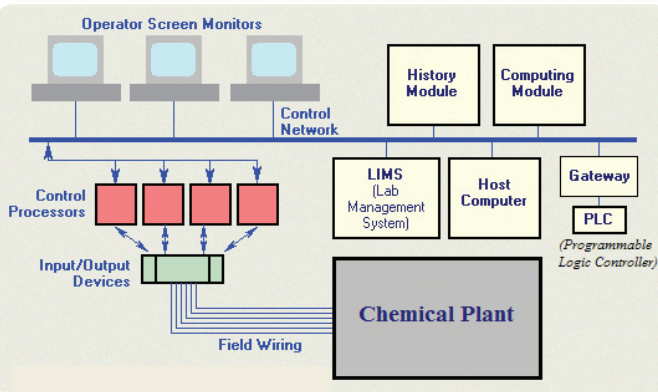
The **CBT** has **three parts**:
- Interactive Theory Lessons
- Quizzes with Online Grading
- Hands-on Lab Sessions on Process Control Simulator
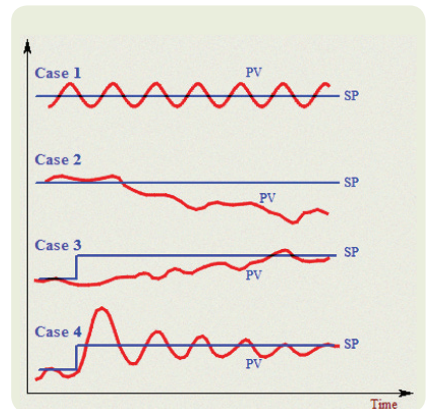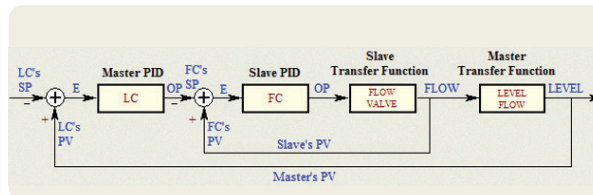
6. Override Control Strategies

Maximization of Production Rates

A very popular use of constraint override control strategies is in the design of production rate maximizing control strategies. These strategies can be very simple, yet can increase a plant's bottom-line profit margin anywhere from $250,000 to as high as $3,000,000 per year for typical commercial sized chemical plants.
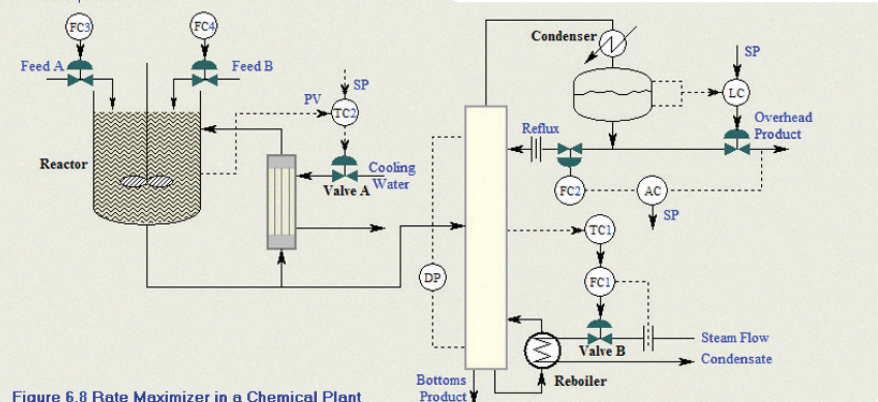
Figure 6.8 Rate Maximizer in a Chemical Plant

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Most Practical and Hands-On Process Control Training Ever!

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Process Control has become increasingly important in all manufacturing plants. Modern process control can help a chemical business through **improved product quality, increased production rates, reduced utilities, more stable plant and equipment operation** and **increased automation**. Monetary benefits typically range from 0.5% – 8% of the plant's gross profit margin.

PiProMaster is the result of years of practical industrial control room experience and academic background on process control. **PiProMaster** is designed to train process engineers, process control engineers, control room operators, university students, supervisors and managers on both basic and advanced concepts of industrial process control. The module will help to develop the ability to quickly apply modern practical process control techniques to implement control strategies in the plant. **PiProMaster** helps to choose the most appropriate process control tool for a given control problem based on the nature and uniqueness of a process. Whether you are a process or process control engineer, project engineer or a student, you will find **PiProMaster** of immense value.

Hands-On Lab Sessions with PITOPS Software:

In the Lab Session, several simulation exercises are run with PiControl's **PITOPS** software. These lab sessions enhance your understanding of the fundamentals of process control and its application to industrial problems. **PITOPS** is a complete process control simulator which behaves like the real plant. The user can configure process control loops ranging from fast flow loops or compressor surge loops to slower pressure, temperature loops, and very slow loops like those controlling online distillation purities. It can model zero order ramp and higher order transfer functions. **PITOPS** simulates complex cascade loops, feedforwards and model based control schemes. It also provides complete IMC (internal model control) and DTC (dead time compensation) schemes. **PITOPS** allows simultaneous identification of multivariable transfer functions with both open-loop or closed-loop data. The combination of **PITOPS** as lab and the **PiProMaster** theory material provides a totally novel form of modern practical process control training like never before and without any competition.

Learn in a few days what takes several years to learn! PiProMaster is great for the control room, design office, college or university!

Module Contents (Study Time = 50 hours)
Part I. Primary Process Control
1. Overview of Modern Industrial Process Control
2. Process Control Variable Definitions
3. Primary Control & The PID Algorithm
4. PID Algorithm – Additional Options & Parameters
5. Cascade PID Algorithm
6. Override Control Strategies
7. PID Modes & PID Activation Procedure
8. PID Tuning Procedures & Control Quality
9. Process Control Schematics

Part II. Advanced Process Control
10. Disturbances, Feedforwards and Decouplers
11. Process Signal Filtering & Control Valve Checkout
12. Dead Time Compensation & Model-Based Control
13. Control Schemes Using Discrete Signals
14. Model Predictive Control & Rule-Based Control
15. Handling Nonlinearities

Part III. Lab Sessions
16. Lab Sessions (Practical Exercises)

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