

Examples Used in This Workshop

- **Measurement Sensors:**
temperature, pressure, pressure drop, level, flow density, concentration
- **Final Control Element:**
solenoid, valve, variable speed pump or compressor, heater or cooler
- **Automatic Controllers:**
on/off, PID, cascade, feed forward, model-based Smith predictor, multivariable, sampled data, parameter scheduled adaptive control

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Workshop Goals

- learn why understanding the dynamic behavior of a process is fundamental to controlling it
- practice methods of collecting and analyzing process data to gain this all important understanding of process dynamics
- learn what "good" or "best" control performance means for a particular process
- understand the computational methods behind the popular controllers and learn when and how to use each
- learn how controller tuning parameters impact performance and how to determine values for these parameters
- understand the limitations and pitfalls of the different controllers and learn how to turn this to your advantage

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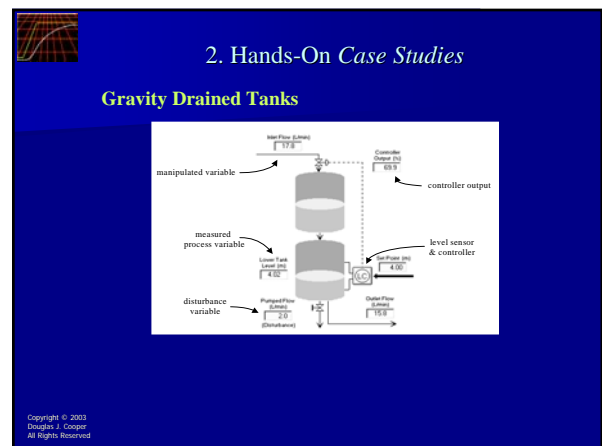
Thought Experiment: Cruise Control in a Car

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Cruise Control in a Car

- **Control Objective:** *maintain car velocity*
- **Measured Process Variable:** *car velocity*
- **Manipulated Variable:** *pedal angle, flow of gas*
- **Controller Output:** *signal to actuator that adjusts gas flow*
- **Set point:** *desired velocity*
- **Disturbances:** *hills, wind, passing trucks....*

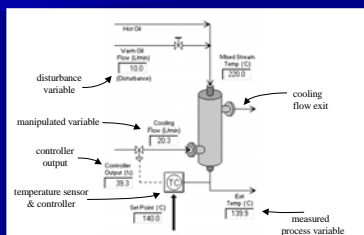
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Hands-On *Case Studies*

Heat Exchanger



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