

**Use this as a handy planning guide to choose your classes and times, then use this as you complete the registration form.**

If you want to register for this class, Type the day you will be attending in each row.	Class #	Product Track	Relevant Industry	Title	Class Description	Company	Presenter	Time (all classes are held both Wed and Thur unless otherwise noted)	Room #	Type
	C005	Instrumentation	Power	Improve your process results with Steam/Water Analysis System panel solutions	Find out more about how you can lower your maintenance costs and minimize downtime in your water steam circuit. SWAS panels are designed with best-in-class instrumentation to keep the integrity of water steam circuit safe at all times and to protect your plant from corrosion and scaling.	Endress+Hauser	Sierra Encarnacion	8:30-9:30	Room 1	Class
	C008	Instrumentation	All	Is Wireless Gas Detection Right For You?	With advances in wireless systems, this session will present options for wireless gas detection systems and how they can fit into your safety plan. Learn about advantages over a traditional wired systems as well as real world success stories.	Macurco	Ron Unruh	9:45-10:45	Room 3	Class
	C004	Instrumentation	All	To Calibrate or Verify - That is the Question	Learn about the differences between verification and calibration and what new innovations are available in both to help you maintain compliance and minimize risk.	Endress+Hauser	Jeff Miller	11:00-12:00	Room 2	Class
	C001	Instrumentation	Pulp & Paper	How to make tough applications easy with Gamma	While instrumentation utilizing nuclear sources is typically a technology of "last resort" in most process industries, radiometric solutions are common in the Pulp & Paper industry. In this session we will discuss why the "nuclear option" is often the best solution for the demanding applications found in Pulp & Paper for measuring level, density and mass flow.	Endress+Hauser	Tim Thomas	11:00-12:00	Room 1	Class
	C002	Instrumentation	Food & Beverage	Innovations in Coriolis Technology with Proven Results	Innovations in Coriolis measurement have drastically improved density measurement accuracy over a wide operating range, reduced pressure loss and thus increased usable turndown, improved repeatability, reduced size and weight and most challenging of all perhaps, upheld performance to within acceptable limits when dealing with significant entrained gas content. This presentation will describe the unique Endress+Hauser offering, and describe the testing and proven application results achieved.	Endress+Hauser	Steve Milford	1:30-2:30	Room 2	Class
	C003	Instrumentation	Chemical, Food & Beverage	Developments in the Industrial Internet of Things - Unlocking the potential	Learn more about the latest Endress+Hauser innovations and current/future developments in the IIoT world. Unlocking the potential of the data in field devices.	Endress+Hauser	Ricardo Chavez	1:30-2:30	Room 3	Class
	C007	Instrumentation	All	Refractometry - the Right Tool for the Job	Review of Density Technology Options: Nuclear Density, sound Velocity, Coriolis Mass Flow Meter(CMF);. Review of Refractive Index Option. How to choose the right technology	K-Patents	Herb Betts	2:45-3:45	Room 3	Class

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	C006	Instrumentation	Life Science, Chemical, Polymer	Process Improvement Using Real-Time Raman Spectroscopy in Life Science, Chemical and Polymer Industries	Raman spectroscopy is an established tool in research analytical laboratories because of its sampling versatility, chemically specific spectrum, minimal sample preparation, and compatibility with aqueous systems. Advances in instrumentation technology have enabled application of Raman spectroscopy in fields such as polymer production, life sciences, biomedical specimens and process control in manufacturing environments. In these fields, the end goal is to make Raman spectroscopy a reliable analytical tool for non-specialists that is easy to use and with a low cost of ownership. Drawing on our 20 years of experience in process Raman, we present an overview of logistical and technological considerations for developing robust, reliable and proven Raman analyzers and sampling probes.	Kaiser	Justin Moretto; Jonathan Stratton	2:45-3:45	Room 2	Class
	C020	Process Control	All	Don't Run to Failure - Here's How	Leverage your existing process control system to predict impending machine failures and notify operators and technicians before critical assets, personnel, and uptime are negatively affected.	Rockwell	Glen Hutto	8:30-9:30	Room 7	Class
	C026	Process Control	Water & Wastewater	Reduce Chemical Usage, Energy Consumption, and/or Non-Revenue Water with Process Optimization	Every Municipality wants to optimize their process of treating & distributing water or collecting & treating wastewater. In this session, we will discuss the benefits of "Process Optimization" in the W&WW Industry. In particular, hear how one Municipality used a well-known but ground-breaking control strategy to solve their issue with excessive water main breaks.	Rockwell	Tom Reilly & Michael Tay	8:30-9:30	Room 4	Class
	C023	Process Control	Chemical	Deploying Batch Software in the Chemical Industry	Utilize batch software for automated and manual processes to reduce batch variability and improve quality and capacity.	Rockwell	Chuck Tommey	9:45-10:45	Room 7	Class
	C028	Process Control	All	Power Quality	30-70% of equipment downtime can be attributed to power quality. Methods to measure power quality and methods to mitigate power quality events.	Rockwell	Josh Olive & Greg Taylor	9:45-10:45	Room 1	Class
	C021	Process Control	All	Using Ethernet for Process Control	Back by popular demand, Ethernet 101, Information Technology fundamentals for the non-IT person.	Rockwell	Lyle Miller	11:00-12:00	Room 6	Class
	C022	Process Control	All	How Model Predictive Control Drives Business Value in your Process	Model Predictive Control (MPC) coordinates multiple PID loops, pushes performance within process limits and manages targets during disturbances. This frequently increases plant throughput and energy efficiency on the order of 5% and reduces quality variability on the order of 50% delivering best operator performance 24-7. And now that fully functional MPC is available within your controller it is more reliable, faster and secure than ever. Hear about where you should consider this technology and how it is implemented to run in your PlantPax system with a powerful set of Process Library Objects.	Rockwell	Michael Tay	11:00-12:00	Room 7	Class
	C024	Process Control	All	What's New in Rockwell Automation's Distributed Control System	What's new and coming in PlantPax - system release 4.5 & 5.0	Rockwell	Kris Dornan	1:30-2:30	Room 7	Class

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	C025	Process Control	Water & Wastewater	Basic Operating Principles and Core Maintenance Strategies for VFDs	In this session, we will begin with a review of the three common methods to start, stop and control the speed of our pumping equipment, and the pros and cons of each method. We then will discuss the benefits of VFDs in the W&WW Industry. Finally, we will discuss ways to (a) improve workforce development, (b) minimize downtime and (c) maximize return on investment when VFDs are used.	Rockwell	Tom Reilly	1:30-2:30	Room 6	Class
	C029	Process Control	All	Integration of Power Control	Take advantage of intelligent motor control (drives, MCCs) on EtherNet/IP to reduce downtime. Integrate information from intelligent distribution equipment to further reduce troubleshooting time.	Rockwell	Josh Olive	1:30-2:30	Room 1	Class
	C027	Process Control	All	Unlocking the Benefits of Smart Technology with Rockwell ThinManager	The ThinManager® platform is designed to simplify the way productivity content is delivered, and devices are managed within manufacturing environments. Learn how ThinManager® software can revolutionize everything from the plant floor to the control room, change the way you view mobility in those areas, and deliver and manage The Connected Enterprise today. In addition, this session will introduce what's new in ThinManager®.	Rockwell	Mike Smoltz	2:45-3:45	Room 7	Class
	C018	Pumps & Blowers	Chemical, General Industrial, Pulp and Paper	Sulzer Process Pumps ANSI centrifugal pump Hands-On	Hands-On ANSI Centrifugal pump disassembly and re-build. This will be a small hands-on class where you and your colleagues will work together to disassemble and re-build an ANSI process pump back to factory standards. You and your team will have your own workbench, tools and the pump to perform this task. You will learn about the components on an ANSI pump and how each has its importance in the pump's reliability. The new CPE process pump will include the bearing frame, back plate, seal chamber, the rotating components and the casing. You will learn how to look for wear areas and what the causes may be. Learn about pump hydrodynamics and the right way to rebuild a process pump for better reliability.	Sulzer Process Pumps	Joe Sala	1:30-3:00	MIV Building Shop	Hands-On
	C017	Pumps & Blowers	Power Gen, Chemical, Water & Wastewater	Pulsafeeder Metering Pump Hands-On Class (Diaphragm Metering and External Gear	Hands-on External Gear Pump and Diaphragm Metering Pump disassembly and rebuild. This is a small class where you and your colleagues will work together to tear down and rebuild a Pulsafeeder External Gear Pump and a Diaphragm Metering Pump. Learn how fast and simple it is to rebuild this unique External gear pump designed for corrosive chemical, acid and caustic service. Some of these pumps will fit in the palm of your hand. Your team will have your own work bench, the pump and the tools to complete the disassembly and rebuild to factory specifications. In the end we will bet that you can rebuild this pump with your eyes closed! This a chance for everyone to learn how these pumps work. E&I, Maintenance, Engineering and Team Leaders can all learn from this class. You will receive a certificate of completion for this class at the end of this 90 minute session.	Pulsafeeder	Gary DeWolf	1:30-3:00	Main Shop	Hands-On

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	C035	Pumps & Blowers	All	Best practices to kill your pump!	See a working pump module and watch as we subject it to all the things you can do wrong in a pump system. We will demonstrate first hand some of the common problems in a pump system that can kill your pump. Here are the situations and topics we will cover in this live demo. 1-Skip the strainer - We will show pumps that have been destroyed by foreign objects that entered the suction of the pump. 2-Starve the Pump- We will demonstrate common suction problems and how it affects pump performance. 3- Over-speed the pump - demonstrate the fluid dynamics when you run the pump too fast. 4-Over-pressure the pump - see how common discharge restrictions over pressurize and reduce the life of the pump. 5-Run to Failure-see how you can monitor your pump to indicate upset conditions and shut the pump down before catastrophic failures. 6-Deadhead the Pump - illustrate common discharge problems that can deadhead a pump. We will show wear patterns that indicate deadhead and over-pressure. 7- Install the Pump poorly-severe misalignment, excessive flange loading, and pipe stress can severely damage your pump. 8-Change the service without consulting your pump expert - examples include pumping thicker, more corrosive, less lubricating or abrasive fluids without consideration for the current pump construction. 9-Run relief valve in full bypass - relief valves are there to protect your pump and are not to be used as full bypass valves. 10- Skip preventive maintenance - re-greasing bearings, changing gear box oil, and replacing worn parts will all extend the life and performance of your pump. Overall you will learn how pump failures are more often a symptom of a pump system problem and not a fault of the pump.	Carotek	Carotek	11:00-12:00	MIV Building Shop	Demo
	C013	Pumps & Blowers	Food and Bev, Biopharma, Chemical	Rotary Lobe Pumps-Determining which technology is right for your application, and how it will impact your cost of ownership	Have you ever been overwhelmed by the vast number of options in hygienic rotary lobe pumps? Sorting through these variations can pose a significant challenge in determining which features are best applied in a specific application. Whether you are comparing bi-lobe, tri-lobe, or quad-lobe against circumferential piston, or you are weighing the advantages and disadvantages of clean in place (CIP) and clean out of place (COP), there is a rhyme and reason to determining which technology will offer the greatest performance in your facility. Understanding the underlying technologies is critical to selecting the proper hygienic lobe pump, and there are efficiencies in performance and maintenance to be had which can dramatically impact the total cost of ownership of your system. This session will focus on exactly how to arrive at the best possible solution.	Wright Flow	Max Portocarrero	2:45-3:45	Room 1	Class
	C019	Pumps & Blowers	Water & Wastewater, Chemical, Pulp & Paper	Progressive Cavity Pumps: Back to the Basics	In this class, you will learn pumping principles of progressing cavity pumps, product range, application areas, and the Roto Advantage. We will have pumps available in the classroom that you can view and inspect the inner workings of a PC pump. You will learn about the key components of a PC pump, where the most common fail points are and how to avoid them in the future. We will discuss the most common troubleshooting techniques and how to increase MTBF.	Roto-Pump	Cory Flindt	2:45-3:45	Room 4	Class

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	C034	Pumps & Blowers	All	How to Read a Centrifugal Pump Curve – Variable Speed	This class will cover an interpretation and use of the pump curve for variable speed pumping. It builds on the fundamental knowledge of the single speed pump curve. We will explore which parts of the curve apply in identical ways to both fixed and variable speed operation, and also the important differences in their use. This knowledge will enable you to make informed decisions when selecting and specifying variable speed pumps along with their drivers and controls, in order to optimize performance and reduce power consumption.	Grundfos/Peerless	Jim Swetye - Technical Training Manager	8:30 - 9:30 (Thurs only)	Room 6	Class
	C015	Pumps & Blowers	Chemical, Industrial	Viking Internal Gear Hands-On training	Hands-On Gear Pump disassembly and rebuild. You and your colleagues will have your own work station, factory built pump and the tools you will need for a complete Gear pump disassembly and rebuild. You will see and touch the components that make up an Internal Gear Pump, perform a disassembly and rebuild in 90 minutes. You will have a trainer and service technicians available to help you through this hands-on educational process. You will learn about wear points in a gear pump and what to look for in wear patterns to find the root cause of a gear pump failure. You will learn about factory tolerances and how to measure tolerance in your pump to determine necessary parts replacement. This class is suitable for all attendees to the PSS. From entry level to corporate executive this is your chance to learn about how an Internal Gear Pump works. Take this opportunity to learn more about a total process system and how you can increase your uptime performance in the workplace. At the end of the class you will receive a certification of completion of this Pump Analysis Class.	Viking Pump	Chad Wunderlich and Gus Purcell	8:30-10:00	Main Shop	Hands-On
	C016	Pumps & Blowers	Chemical, Industrial	SandPiper Air Operated Double Diaphragm Pump Hands-On Class	Hands-on Pump disassembly and rebuild. This is a small class where you and your colleagues will work together to tear down and rebuild an Air Operated Double Diaphragm pump. Your team will have your own work bench, the pump and the tools to complete the task. This class is suited for everyone from Maintenance to Engineering to Purchasing and Management. You'll learn about the components of this pump and how it works. You'll learn how to identify wear points, root cause failure and what you can do to prolong the life of your pump. Once you're finished we'll put air to the pump and operate it to see how well you performed the Pump rebuild. At the end of the class you will receive certification of your Pump Maintenance training session to take with you. For an hour and a half of your time you can't afford to miss this Hands-On educational session	Sandpiper/Warren Rupp	Daisy Hernandez and Dale Phillips	8:30-10:00	MIV Building Shop	Hands-On



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	C014	Pumps & Blowers	Chemical, Plastics, General Industrial, Power, Water & Wastewater	Moving Air - What are the technologies available for aeration and pneumatic conveying applications	There are a number of ways to produce air flow. Most air flow applications are satisfied by centrifugal blowers or positive displacement blowers. But how do you know which one to use? This basic overview of the equipment available to move air will give you the information you need to make a proper selection. Flow of air and the discharge pressure required are the beginning of selecting the right blower for your application. Learn more about Centrifugal blowers vs. PD blowers and why to choose one over another.	Gardner Denver	Craig Burness	8:30-9:30	Room3	Class
	C033	Pumps & Blowers	All	How to Read a Centrifugal Pump Curve – Fixed Speed	In class will cover an interpretation and use of the pump curve where we will explore fixed speed pumping. The pump performance curve - the most fundamental of all centrifugal pump documents – is packed with information that can be used as an aid in selection and specification of the right equipment. This class will teach you to read the pump curve, to know what information is there, and understand how it is formatted. Additionally, we will learn how to interpret the graphically provided information and what it means. Finally, you will learn how to use the pump curve to make decisions on the choice of pump and driver sizing and power consumption strategies.	Grundfos/Peerless	Jim Swetye - Technical Training Manager	8:30-9:30 (Wed only)	Room 6	Class
	C012	Pumps & Blowers	Water & Wastewater	Have the Rules Changed for Vortex Grit Removal	Efficient grit removal is fundamental for protecting and optimizing downstream Water Resource Recovery Facility processes and equipment. Recent activity has placed an emphasis on the nature of grit, resulting in more comprehensive and advanced studies. The presentation will discuss complete aspects of five grit efficiency tests recently conducted at different WWTPs, advantages of baffled grit systems, and common problems with grit system design.	Smith & Loveless	Ryan Asbury	9:45-10:45	Room 6	Class
	C031	Thermal/ Heat Transfer	All	Energy Efficient Industrial Hot Water Solutions	This class will start with an overview of typical industrial hot water uses and needs. This is followed by a look at major components used in hot water systems, the differences between recirculated and non-recirculated systems and the role of booster pumps. Finally a discussion of various water temperature controls and energy efficient hot water generating solutions to produce and supply hot water for the various uses. These solutions include gas-fired and steam-fired solutions as well as digital hot water mixing options.	Armstrong		1:30-2:30	Room 4	Class
	C032	Thermal/ Heat Transfer	All	GPHE vs Shell & Tube Heat Exchangers	Learn how to identify which product you should consider for your heat transfer application. You will learn when to use a Casketed Plate Heat Exchanger versus Shell and tube Heat Exchangers.	Standard Xchange	Don Czepiga	11:00-12:00	Room 3	Class

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	C030	Thermal/ Heat Transfer	All	Heat Transfer Applications Overview and Proper Piping Practices	A 90-minute training session suitable for beginners and experienced attendees. We begin with an overview of Heat Transfer applications for coils, tank heaters, unit heaters and other heat transfer equipment. We review capabilities to customized equipment to application specific performance and materials requirements. We discuss proper piping practices for heat exchangers including correct air vent and vacuum breaker locations, correct steam trap piping for on off and modulated control and when you need a condensate pump. We finish with how to maximize the performance and life of you heat transfer systems.	Armstrong		8:30-10:00	Room 2	Class
	C090	Valves	Water & Wastewater	Strategies to Maximize Performance and Lower Cost in Fluid Handling Systems	Learn how pump control valves, check valves, surge relief valves, isolation valves, air valves, air valves and a pump/valve interface panel work together in a system.	DeZurik	John Skalla	11:00-12:00	Room 4	Class
	C011	Valves	All	Quarter-Turn Control Valves	This HOT topic explores the types, applications and common design features of quarter turn control valves. Where do I use them, why do I use them, do they save me money? Quarter turn control solutions include general utilities, slurries, corrosives and both high / low temperatures.	Quarter-Turn Control Valves		2:45-3:45	Room 6	Class
	C010	Valves	All Industries	Control Valve Diagnostics Applying Smart Technology	Are your control valves operating at optimal performance? Do your control valves provide the necessary feedback to know they are "healthy" or in need of attention or even repair? Do unexpected control valve failures upset processes or worse cause production loss / shut downs? If you answered yes to any of these questions, I am happy to inform you there is a solution. Flowserve's smart positioner, Logix 3800, combined with its intuitive software, ValveSight, provides real time diagnostics / data that is priceless in knowing the exact condition and performance of your control valves at any given moment. Come join us to take an inside look at monitoring control valves, preventing unexpected failures and how to perform predictive maintenance on your installed control valve base.	Flowserve - Valtek		9:45-10:45	Room 4	Class