

Spartan U Burnaby
BCIT – Burnaby Campus
3700 Willingdon Ave, Burnaby, BC V5G 3H2

8:30am-9:15am

CO2 Metering and Measurement for Carbon Capture

Presenter: Clary Keizer and Jonathan Yeung

A key part of Carbon Capture and sequestration is measuring and quantifying CO₂. Measurement of the actual CO₂ content is key at several points along the capture, transportation, and sequestration process. Various analysis methods can be used for direct CO₂ measurement, while pipeline requirements may include analysis of other contaminants. Federal requirements for the generation of carbon credits also requires accurate metering for reporting total mass of CO₂, with requirements like custody transfer in other processes. Selecting the correct instrumentation can simplify the process for staying compliant. Spartan has combined three key elements of a CCUS measurement system which include measure, analyze and calculation functions into a single package making it easier to apply for users needing this functionality.

Critical Steam Valve Technologies: Desuperheaters, Safety Relief Valves, and Regulators

Presenter: Will Saunders

Steam systems are critical for many plants, and they need many valve types in many different applications. Some applications are severe, and others are not; but all applications in a steam plant are critical to either safety, performance or reliability. An improperly specified boiler drum level valve can be destroyed on startup. Leaks in isolation and pressure safety valves can limit production, cause damage, and create a safety risk. This session will review different steam applications, their challenges, and innovative solutions to increase production and safety, and reduce downtime.

Architecting an Integrated Control, Safety & Electrical System

Presenter: Andrew Yick

Sick of complexity, too many systems/software, and isolated islands of automation? This presentation design best practices to architect simple, reliable and easy to maintain automation systems that provide both capital savings as well as improved operational performance.

9:25am-10:10am

Complexities in Hydrogen Blending and Current Solutions

Presenter: Clary Keizer

This presentation will review a hydrogen blending application used by a gas utility in a proof-of-concept facility. The case study will highlight the hydrogen measurement and natural gas blending control in this high-level overview presentation. We'll do a brief flyover of the hydrogen blending project itself, and then walk through the design of the control algorithms highlighting the decision points along the way that led to the implementation of more advanced control algorithms. Finally, the presentation will touch on some of the key measurement technologies and the benefits they bring to this specific application.

Optimizing Valve Maintenance, Reliability and Performance Using Embedded Diagnostics

Presenter: Hua Aun Tan & Darryn George

Unreliable and unperforming control valves are a leading source of product quality, safety, environmental compliance and plant economic concerns. This session will showcase embedded diagnostics that are included in many of today's pneumatic and electric valve assemblies. Utilizing this powerful technology during regular plant operations and maintenance outages can ensure assets performance to their optimal level of performance with enhanced reliability.

Navigating Standards & Designs: Motors and Variable Frequency Drives (VFDs)

Presenters: Robert Chambers & Rob Sinclair

With today's challenges in supply chain and the focus on electrification, understanding industry standards and design criteria is fundamental to effectively managing cost and delivery when specifying / selecting motors and VFDs. This presentation will help attendees to understand the flexibility and options they can explore in selecting motors and drives based on application criteria in industries such as Oil & Gas, Process & Infrastructure, Mining, Pulp & Paper, Food & Beverage, and more.

10:20am-11:05am

Integrating Burner Management Systems with Advanced Combustion Control

Presenter: Chad Vollman

The CSA B149.3 gas code provides the regulatory requirements for fired equipment that utilizes gas. However, the code is quite prescriptive and when dealing with advanced combustion applications there are areas of the code that can be bit grey. Such applications require further interpretation of the code, proper design methodologies and application knowledge to apply appropriate technologies to result in a system that meets code but above all is a safe and reliable system. Burner management systems for such advanced applications also often use sophisticated logic and measurements to provide proper protection to people, assets and the environment, and offering reliability to ensure that uptime is maximized.

In this seminar, we will be sharing real-world application examples, discussing common challenges associated with these advanced applications and discuss how a cohesive integration of the application knowledge, best design practices and the modern technology that is available to us today (such advanced instrumentation and BMS Systems) can provide a novel approach to safely design and operate these types of complex applications.

Digital Journey to Energy Management and Carbon Accounting

Presenters: Rahul Raveendran, Carl Sheehan

In this presentation, we explore the implementation of an enterprise-scale Energy Management Information System (EMIS) at your facilities with the focus on monitoring energy usage, swiftly detecting unusual consumption events, and reducing overall energy consumption. We will cover the digital infrastructure requirements, functionalities, features, and foundational improvements needed for a successful EMIS deployment with measurable results. Additionally, we will delve into the potential expansion of the EMIS digital infrastructure to automate workflows related to carbon emission tracking, carbon offset credit validation, and carbon intensity monitoring. We will also discuss how the right technology can support your organization in aligning and complying with external standards and regulations surrounding energy management and carbon accounting. As part of our presentation, we will offer a live demonstration of EMIS product within the BlueMarvel App.

Isolation Valve Actuation Best Practices

Presenter: Justin Graham & Aadam Mamaji

Valve actuation is a complex topic. There are multiple types of actuators and accessories, and different methods of valve adaption. When specifying valve actuation, the major considerations are motive force available whether it be manual, air, gas or electricity; and functional requirements such as local/remote operation, feedback signal, fail action and safety lockout. This session will provide insight into the different types of solutions, their strengths and limitations, and show some real-world actuation examples where they are used including remote pipeline applications.

12:45pm-1:30pm

Techniques and Technologies to Liberate Stranded OT Data

Presenter: Ellie Foden

Spartan Controls has been helping organizations extract value from stranded operational technology (OT) data for a variety of use cases. This presentation will help you distinguish what OT data sets do and don't belong in a traditional process data historian, how you can securely and reliably move data from site to enterprise, and how technology can be leveraged to provide tangible insights to your organization.

Magnetic Flow Meter Best Practices & Meter Verification

Presenter: Jonathan Yeung & Andrew Tan

Although very commonly used and somewhat a default standard for water-based liquid flow measurement, magnetic flow meters can pose some challenges if incorrectly used. In this session, we will go through the basics of magnetic flow meters to understand the installation practices, and also review common troubleshooting procedures and how diagnostics can assist in this process.

Modern Training Solutions with Cloud Hosted Digital Twins

Presenter: Devin Marshman

To meet operational goals, it is essential to have trained competent control system and operations staff. Utilizing Digital Twins for operator training help reduce the cost and risk of improving the operation and control of the plant and supports upskilling of the work force without affecting plant production. This presentation will explore how a Digital Twin delivers value and will identify several market drivers behind the growing demand for cloud hosted training systems. Simulation cloud components, requirements, and realized benefits will also be highlighted.

1:40pm – 2:25pm

Level Technologies for Inventory Management

Presenter: Jonathan Yeung & Mehdi Ahmari

Radar technology for level measurement has been around for a few decades now and has evolved and progressed since its inception. While presenting a multitude of advantages over traditional level measurement technologies, it is important to understand the best practices around its installation, how different technologies affect those practices, and review software tools and how they can help diagnose any challenges that may present themselves.

Rotating Equipment Predictive Maintenance in the Digital World

Presenter: Carl Sheehan

As demands on assets continue to increase, the importance and functionality of today's predictive maintenance programs continue to evolve. Vibration monitoring technology was adopted into most industrial organization 30 years ago, but the last 5 years has seen an explosion in new technologies related to vibration and condition monitoring. Data from vibration monitoring systems, supplemented by data analytics, are integrating with Maintenance Management Systems to automate workflows and drive maintenance efficiencies while improving plant availability. Web-based dashboards are providing insight into asset health across the entire organization. Digital architectures in the industrial facilities are being enhanced to increase the volume and quality of vibration monitoring data available to analysts and other end users. This session is intended to provide attendees with insights and information that will assist in evaluating or improving a new or legacy vibration program. Use cases will be provided showing how programs are implemented to resolve today's cultural and technology challenges.

Analytics for your Plant: The Data you Already Have; the Analytics you Actually Need

Presenter: Devin Marshman

In this presentation, we will discuss the current state of "big data" and "data analytics" in the field of heavy industry. This will be a practical conversation where we'll look past the hype and focus on practical, value-add applications that are achievable today. Additional topics will include infrastructure requirements, deployment strategies, data analytics opportunity assessment, and resource/skillset requirements for high value results.

2:35pm-3:20pm

7 Effective Habits of a Cyber Resilient Organization

Presenter: Andrew Yick

Are you feeling worried about cybersecurity and are looking for some coaching to help improve your OT security? Come attend this workshop that provides practical suggestions and design principles to improve your OT cybersecurity posture.

Industrial Applications of Advanced Process Analytics

Presenter: Lee Rippon

Process analytics refers to the application of advanced analytics (e.g., statistics and machine learning) to manufacturing data. As manufacturing facilities undergo digital transformation, engineers and operators are confronted by an overwhelming amount of process data. Developing applications that can systematically analyze large quantities of process data to provide key operating insights is essential for effective evidence-based reasoning. This presentation introduces BlueMarvel Apps that use data analytics to generate valuable operating insights from large quantities of process data. Specifically, three applications are presented with broad relevance to many process industries, i.e., bypass monitoring, alarm management, and control performance monitoring. A fourth application is introduced that illustrates the benefits of advanced data visualization for rotary kiln monitoring. This presentation concludes with live demonstrations of the applications.

pH Control Best Practices

Presenter: Jonathan Yeung

pH often seems like a straightforward measurement until the measurement gets checked with another pH measurement, where it can sometimes not match. In this session, we will review the basics of pH so we can understand how proper calibration and verification procedures are crucial to having trust-worthy and accurate results, as well as how diagnostics can help us identify potential error sources and what needs to be done (and when) to ensure our pH measurements are accurate.