MARCH 13-16, 2017

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ALL PROGRAMS AND TRACKS

APW, NOW ABB CUSTOMER WORLD | MARCH 13-16, 2017 | CURRICULUM

Application & Best Practices: Industry

Advanced Services and Life Cycle Strategies

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1 PM	2 PM	50001	Connected services: An improved way to manage and monitor your ABB robots
	2:15 PM	3:15 PM	50002	Extending the life of critical drive assets: A greener alternative to rip and replace.
	3:30 PM	4:30 PM	50003	Parts Fingerprint: How to maximize uptime and minimize your system life cycle investment
3.14.2017	1 PM	2 PM	50004	Domtar Ashdown: Mill-wide DCS conversion
	2:15 PM	3:15 PM	50005	Life cycle strategies for your automation system: FirstEnergy case study
	3:30 PM	4:30 PM	50006	Wireless condition monitoring: Shedding visibility into the operations of a chemicals manufacturer
3.15.2017	1 PM	2 PM	50007	A practical approach to using the Internet of Things with ABB Ability
	2:15 PM	3:15 PM	50008	Motor and generator life cycle management
	3:30 PM	4:30 PM	50009	Advanced Services: Pinpoint inefficiencies, determine corrective actions and continuously improve
3.16.2017	1 PM	2 PM	50010	Remote monitoring and service: Moving toward predictive maintenance and optimization
	2:15 PM	3:15 PM	50011	The ABB approach to retrofit circuit breaker options
	3:30 PM	4:30 PM	50012	Lifecycle Considerations for Microprocessor Relays

COURSE CODE	SESSION TITLE	ABSTRACT
50001	Connected services: An improved way to manage and monitor your ABB robots	In the factory of tomorrow, advanced sensors in the entire robot fleet supervise everything from running hours, momentum and torque load to the amount of steel dust in the gear box and the environment. Tremendous amounts of real time data is continuously being uploaded instantly via a high speed wireless network to distant secure cloud servers for immediate back-up, reporting, diagnostics, benchmarking and analytics. These analytics translate into robots learning to avoid errors in the future and the ability to accurately predict maintenance needs, ultimately optimizing robot usage.
50002	Extending the life of critical drive assets: A greener alternative to rip and replace.	The presentation focuses on the key aspects of extending the life of critical assets. We will cover: bathtub curve for maintenance and life extension; upgrading drive systems and obsolete control systems; available retrofit options for drives; comparison between replacement and upgrade options; and examples of the risk of not addressing aging asset inventory. Widen your knowledge of the options available to maximize the useful and productive life from your existing high capital value, critical drive system.
50003	Parts Fingerprint: How to maximize uptime and minimize your system life cycle investment	Maintaining adequate critical spare parts is a key aspect of system uptime, but is often overlooked. The ABB Parts Fingerprint service offering uses innovative techniques to assess your plant's unique DCS or QCS configuration with current on-hand spares. A key deliverable of this service is a gap report that calculates any deficit in spare parts inventory that could pose a high risk to uptime. In addition, a complete assessment of spare part working status, inventory excess and obsolete parts is also provided.
50004	Domtar Ashdown: Mill-wide DCS conversion	In 2013, the automation team at Domtar's Ashdown, Arkansas pulp and paper mill began a seven-year plan to upgrade the mill DCS. The mill automation was split between Fisher Provox and ABB Bailey. The upgrade plan will replace the Fisher Provox with 800xA and upgrade the Bailey operator stations to 800xA. Now in year four of our conversion plan, we have upgraded the mill's water plant, caustic plant #3, and fluff pulp machine. We will discuss progress and challenges while upgrading our DCS controls, and demonstrate new capabilities for operations, maintenance and engineering at the mill.
50005	Life cycle strategies for your automation system: FirstEnergy case study	Plant owners make significant capital investments in the system components that comprise their plant automation systems. Over time, investments are added by enhancing these components, tuning and refining control logic and application code, and developing knowledgeable support staff. Developing a strategy and a plan to protect the automation system investment is key to effective life cycle management. We will review the life cycle evolution paths for ABB heritage systems, explore the value of life cycle planning, and discuss the strategies that First Energy employed.
50006	Wireless condition monitoring: Shedding visibility into the operations of a chemicals manufacturer	WirelessHART technology has opened the door for many wireless sensors and instruments, removing many of the expenses and logistical hassles for installing new equipment of this type in existing plants. One of the most promising technologies is condition monitoring. In an installation with nearly 50 WiMon sensors, operators have found abnormalities and overloading on nine rotating machine assets within the first three months of use.

50007	A practical approach to using the Internet of Things with ABB Ability	The Internet of Things (IoT) is one of the hottest topics being discussed today. There are a lot of practical considerations when connecting devices, including how the connectivity can be accomplished with older equipment, what security means, and where the return on investment comes from. This session will walk through the process of actually connecting equipment, and by doing so discuss the major issues that an organization would face, how these can be addressed when moving towards the IoT, and how value can be realized.
50008	Motor and generator life cycle management	This presentation will explain ABB's approach to managing the complete life cycle of your medium or high voltage motor or generator. From installation and commissioning, time- and condition-based maintenance, and spares and repairs, to upgrades and replacements, ABB has a full range of products and services to help plant operators add value, maximize uptime and optimize their cost of ownership.
50009	Advanced Services: Pinpoint inefficiencies, determine corrective actions and continuously improve	Results erosion and the slow degradation in performance of automation assets is on the rise. Knowledge is needed to pinpoint sources of inefficiency in large volumes of collected data, and determine corrective actions that get results. Audits, continuous monitoring of control systems and plant operations, tuning, and advanced process control (APC) are some advanced optimization services that help diagnose and correct problematic issues. Benefits include improved productivity and efficiency of plant control system assets. See real world examples, savings and ROI of these Advanced Services.
50010	Remote monitoring and service: Moving toward predictive maintenance and optimization	Remote condition monitoring is a comprehensive, proactive service that actively monitors and analyzes data from production drives, including important indicators about the motor and application operations. Information from intelligent drives can provide early fault indication and accurate maintenance recommendations. Data analytics also allows drive optimization, improving productivity and reducing total cost.
50011	The ABB approach to retrofit circuit breaker options	Retrofitting can be an optimal measure for upgrading older equipment in power transmission and distribution systems. Retrofitting involves the replacement of phased-out devices with new. We will present the ABB approach to circuit breaker retrofitting and what the four common methodologies are: conversion, roll-in replacement, hard-bus retrofill, and cradle-in-cradle.
50012	Lifecycle Considerations for Microprocessor Relays	This session will examine the life cycle of a microprocessor relay, from initial design to end of life. We will look at unplanned critical updates and product notifications, as well as non-critical firmware enhancements. A comparison of past and present technologies will also be presented, along with challenges from a manufacturer and user perspective. Finally, we will consider the costs associated with extending the service duty of these devices past their intended designed life.

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Application & Best Practices: Industry

Enhanced Process Performance & Efficiency

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1 PM	2 PM	50101	Using DCS data to speed up a kraft paper machine's Fourdrinier drive system
	2:15 PM	3:15 PM	50102	A phased approach to implementing alarm management
	3:30PM	4:30 PM	50103	Single loop control methods
3.14.2017	1 PM	2 PM	50104	Life cycle dynamic simulation for 800xA: It's more than OTS
	2:15 PM	3:15 PM	50105	Outperform your peers by leveraging the 'dark data' hidden in your control system
	3:30 PM	4:30 PM	50106	Engineering an ABB solution: Covestro's journey from manual to automated
3.15.2017	1 PM	2 PM	50107	Maximizing the use of simulator solution: Best practices implemented by DTE Energy
	2:15 PM	3:15 PM	50108	Dow Oyster Creek: The Control Room of the Year from design to start-up and beyond
	3:30 PM	4:30 PM	50109	Legacy process automation system migration: Using tools in the project engineering work process
3.16.2017	1 PM	2 PM	50110	Best practices for conveyor drive systems: Product selection and maintenance
	2:15 PM	3:15 PM	50111	Mounted bearing failure analysis and corrective actions for improving reliability
	3:30 PM	4:30 PM	50112	Harmonics 101: What are they, why do I care, and how do I reduce them?

COURSE CODE	SESSION TITLE	ABSTRACT
50101	Using DCS data to speed up a kraft paper machine's Fourdrinier drive system	The integration of a paper machine's DCS system and drive system is an extremely powerful tool and can be used to predict drive system power at higher machine speeds. ABB assisted a customer in an analysis of its machine and provided recommendations on motor horsepower, gearbox ratio and system power requirements. This case study examines the use of DCS system parameters of the Fourdrinier section of a paper machine to predict loading at higher machine speeds. This analysis method is a more exact and efficient estimate of future machine power consumption than a TAPPI study.
50102	A phased approach to implementing alarm management	Chris Young, from the Denver Metro Wastewater Reclamation District (MWRD), discusses how he tamed his alarm floods and minimized downtime using an effective alarm management strategy. Walk through his process, starting with the establishment of an alarm baseline, and then achieving quality and safety goals while reducing annunciator noise. The session will cover Chris's case study, using the 800xA distributed control system for phased alarm management at MWRD, the wastewater treatment authority for much of metropolitan Denver and parts of northern Colorado.
50103	Single loop control methods	This session, co-led by the author of 'Single Loop Control Methods,' will give you the skills to tune basic control loops (i.e., PID controllers). It will focus on matching the controller to the process characteristics. The tuning methods learned can be applied to any PID controller, independent of the vendor. A software process simulator will be used for hands-on practice.
50104	Life cycle dynamic simulation for 800xA: It's more than OTS	Although the production explosion of oil and gas is driving the renaissance of the chemical and process industries in North America, operations managers at process plants have greater challenges than ever before. Worker safety, environmental stewardship, process uptime, and conservation of plant resources are common goals for plant operations. Achieving safe, reliable plant operations is stretching management, making the job of running a process plant more difficult than ever before. Many of these challenges can be addressed through the use of life cycle dynamic simulation.
50105	Outperform your peers by leveraging the 'dark data' hidden in your control system	Industrial automation systems have evolved and become driven by big data. Even if large amount of valuable production data are gathered and stored, it remains unused surprisingly often. Research company Gartner define this as 'dark data.' The keys to managing and creating value from this 'dark' data are to provide easy access and portability of data, combine operational data with data based on information technology (IT), and define business intelligence and logic based on data. This session will explore important considerations in your IT/OT (operational technology) strategy.
50106	Engineering an ABB solution: Covestro's journey from manual to automated	In early 2014, ABB presented Covestro a complete solution for their polyurethane foam batch processing facility, where student engineers from the University of Houston make up the engineering team. The ease of use of ABB's Freelance DCS with Formulation recipe manager allowed the integration of ACS880 variable frequency drives (VFDs), Coriolis flow meters, and temperature and pressure transmitters to improve the accuracy and efficiency of the system. This collaboration enabled the operation to be converted from a manual process into a fully automated system managed from a central control room.

50107	Maximizing the use of simulator solution: Best practices implemented by DTE Energy	Industry is facing a barrage of simulation solutions. This session will help unravel the options so you can select a best-fit solution, and then explore best practices to maximize payback from the investment. See how DTE Energy is extending the value and life cycle of their simulation system by using it as a platform for ongoing plant improvement programs while minimizing risk to their production system, and ensuring well trained personnel. World-class practices have positioned their simulator as an integral part in almost every key project DTE Energy has invested in.
50108	Dow Oyster Creek: The Control Room of the Year from design to start-up and beyond	In 2015, ABB recognized the Dow Oyster Creek modernized control room as its 'Control Room of the Year.' In this session, we will explore the three phases of evolution of this control room. Phase 1 focused on design, keeping in mind standards, best practices, capital efficiency and operator health. Phase 2, start-up, examined lessons learned and operator feedback. Phase 3, evolving into the future, examined actions, challenges and preventing operator fatigue. Finally, we will review research on gamification and operator health and its possible impact on future control room designs.
50109	Legacy process automation system migration: Using tools in the project engineering work process	How would you like the challenge of migrating a legacy DCS consisting of over 80K IO at 38 plants scattered around the globe, using a common set of tools and engineering work process? This case study will discuss the project engineering work process and the application conversion tools developed by ABB and Trinseo, and their use in migrating the legacy applications.
50110	Best practices for conveyor drive systems: Product selection and maintenance	Conveyors are complex systems that must provide continuous duty operation in challenging environments. A typical conveyor drive system consists of a motor, gear reducer, belts and sheaves or a coupling, bearings, and pulleys. These critical components must work together to provide reliable, efficient operation. An issue with any one component can lead to system downtime. This session will discuss the best practices for selecting and maintaining a conveyor drive system. Topics will include selection considerations, installations, sealing options and lubrication.
50111	Mounted bearing failure analysis and corrective actions for improving reliability	This session will focus on learning to identify the most common failure modes for mounted bearings and provide recommendations on reducing or eliminating these failures in the future. We will use actual failed bearings for this session, giving attendees the ability to see these up close and in person. This will help reinforce the goal of having attendees walk away from this course with a practical understanding of identifying common mounted bearing failure modes and develop strategies to eliminate these in real world applications.
50112	Harmonics 101: What are they, why do I care, and how do I reduce them?	Current harmonics are produced by AC drives and DC drives. Through various case studies, we will learn how harmonics are affected when drives are operated on single-phase systems or open-delta transformers. We will also examine the methods used to reduce current and voltage distortions, including line reactors, link chokes, 12-pulse, 18-pulse, 24-pulse, ultra-low harmonic (ULH), and active front-ends, along with passive and active harmonic filters. These methods will improve your overall power quality and your power factor.

Application & Best Practices: Industry

Innovations in Processes and Technology

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1 PM	2 PM	50201	Rethinking the role of process control
	2:15 PM	3:15 PM	50202	Managing major automation projects to drive business value
	3:30 PM	4:30 PM	50203	Virtualized control system architectures deliver improved business performance at NOVA Chemicals
3.14.2017	1 PM	2 PM	50204	Using gearless technology to improve reliability in process cooling
	2:15 PM	3:15 PM	50205	Enterprise connectivity with System 800xA
	3:30 PM	4:30 PM	50206	Asset health: End-to-end solutions from a single sensor to comprehensive enterprise solutions
3.15.2017	1 PM	2 PM	50207	Demonstrate how a high performance operator experience was achieved at the Belle River Power Plant
	2:15 PM	3:15 PM	50208	Electronic work packages: Digitalizing plant maintenance to increase performance
	3:30 PM	4:30 PM	50209	Why High Performance HMI is changing the way we operate DCS systems and what that means to operators
3.16.2017	1 PM	2 PM	50210	Preparing the millennial engineering graduate to join the workforce: Digital integrated system
	2:15 PM	3:15 PM	50211	Use of vendor-standard designs to simplify power distribution equipment engineering and procurement
	3:30 PM	4:30 PM	50212	Controlled by Symphony Plus: ReACT emissions technology, a first-of-its-kind project in the U.S.

COURSE CODE	SESSION TITLE	ABSTRACT
50201	Rethinking the role of process control	Technology has both complicated process control, and made it easier. It has taken tasks that previously required a lot of expertise and embedded that expertise within automation products. The Industrial Internet of Things (IIoT) allows some expertise to reside off-site, providing additional value. While most process control organizations have adapted to new technology, few have stepped back to rethink skillsets and assignments in the context of today's more digitized and connected world. We will explore ways companies have responded to the changes in technology, skillsets and demographics.
50202	Managing major automation projects to drive business value	Today's advanced plant design tools allow owner-operators, EPCs and other solution providers to design and manage the entire design/build process with a robust integrated strategy. Owner-operators are now able to participate in early gate stages of the design process to provide specific requirements for engineering information needed at the handover to operations. This in turn enables and maintains the flow of information across the entire design, build, operate and maintain life cycle, which is critical to keeping capex and opex connected.
50203	Virtualized control system architectures deliver improved business performance at NOVA Chemicals	Virtualization technology has many benefits beyond the reduction of server machines. This session will look at NOVA Chemicals' decision-making process and implementation practices for using virtualization for their process automation infrastructure and the resulting effect on plant availability and reliability. Come to this session to see if virtualization is right for you and your business.
50204	Using gearless technology to improve reliability in process cooling	Air cooled heat exchangers (ACHE) are used quite extensively in the power and process industries. Up to today, the traditional drive mechanism of belts and sheaves has largely gone unchanged. Through the use of permanent magnet motors and drives, the opportunity now exists to improve reliability and reduce maintenance through the implementation of direct drive technology. This presentation will explore the adaptability of direct drive technology on the ACHE application. Case studies will be highlighted and data gathered during the testing period will be reviewed from those installations.
50205	Enterprise connectivity with System 800xA	Learn how to use ABB Enterprise Connectivity Server to improve operator situational awareness and communication with maintenance personnel. In this session, we will share lessons learned during the process of integrating the distributed control system (DCS) human machine interface (HMI) with safety protection tagging system, IBM Maximo and other external systems as part of a DCS upgrade project at DTE Energy's Belle River Power Plant.
50206	Asset health: End-to-end solutions from a single sensor to comprehensive enterprise solutions	The Internet of Things (IoT) improves data analysis, boosts productivity, improves safety, enhances reliability, saves energy, reduces cost and generates new revenue opportunities through innovative business models. From control systems, communications solutions, sensors and software, IoT is changing how we manage aging assets. Join this workshop to learn more about the benefits and challenges associated with the new age of industrial digitalization and lessons learned through recent deployments in industry, infrastructure and utilities.
50207	Demonstrate how a high performance operator experience was achieved at the Belle River Power Plant	We will demonstrate in practical ways, on a virtual system (not Power-Point), how to configure a high performance environment for operators in System 800xA version 6.0 with Harmony Connectivity. We will cover faceplates and graphic elements, the objectification of seemingly inde-pendent Harmony objects (tags), association and display of alarms, and controlling supporting objects and aspects such as the color palettes. The focus will be on using available 800xA aspects and tools, avoiding manual intervention as much as possible, and resulting in a system that is easy to maintain.

50208	Electronic work packages: Digitalizing plant maintenance to increase performance	Technology advances are creating opportunities to re-evaluate traditional ways of doing business. The electronic work package (eWP) can leverage technology to fundamentally transform the way work planning, execution and completion processes are performed, transitioning from the current paper-based processes to a fully integrated and automated electronic approach. Combining technology advances in data management, devices and mobility creates the opportunity digitalize plant maintenance operations and dramatically increase performance while ensuring safety.
50209	Why High Performance HMI is changing the way we operate DCS systems and what that means to operators	If operations could be five times more likely to detect abnormal situations before an alarm occurs, and 35 percent more successful in handling abnormal situations in almost half the current time, the bottom line for a plant would improve. This explains why DCS display techniques have been rapidly evolving to facilitate operations. This session will explore the key High Performance HMI principles and getting operator acceptance. DTE Energy and Consumers Zeeland will share experiences in overcoming operator pushback and finding compromises when High Performance HMI was introduced at their sites.
50210	Preparing the millennial engineering graduate to join the workforce: Digital integrated system	Providing the 'digital native' generation of future engineers with real world, innovative, cutting-edge technologies during their undergraduate education will produce a group of individuals that will incorporate safety, asset utilization, resource planning, equipment performance and productivity ideas in every decision they make during their professional lives. ABB's digital technologies tie together smart sensor-enabled devices, data collection and decision-making systems in order to keep people informed of potential problems.
50211	Use of vendor-standard designs to simplify power distribution equipment engineering and procurement	This session will illustrate a novel approach to specify and purchase power distribution equipment based on vendor-standard products. The covered scope includes switchgear, motor control centers, transformers, protective relaying and substation buildings. We will describe a methodology for developing these designs, an execution framework demonstrating its implementation by the relevant parties, benefits, and lessons from recent experience. Using these designs on multiple projects streamlines the engineering and procurement process by eliminating several traditional steps.
50212	Controlled by Symphony Plus: ReACT emissions technology, a first-of-its-kind project in the U.S.	Close collaboration between Wisconsin Public Service's Weston Power Plant and ABB enabled the successful completion of a complex Symphony Plus DCS installation, including the first appearance of a unique new environmental controls technology in the U.S. Originally developed in Japan, ReACT (Regenerative Activated Coke Technology) was aimed to drastically reduce Weston's flue gas emissions of sulfur dioxide (SO2), nitrogen oxides (NOx) and mercury (Hg).Â The automation controls of this innovative environmental process were added to an existing Symphony Plus DCS that was already in operation.

Application & Best Practices: Industry

Process Safety

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1 PM	2 PM	50301	Simple and retrofitable arc flash mitigation for LV equipment
	2:15 PM	3:15 PM	50302	The silo factor: Why tackling process safety management silos is key to averting catastrophe
	3:30 PM	4:30 PM	50303	Zone protection in adjustable speed drive systems
3.14.2017	2:15 PM	3:15 PM	50305	New requirements on management of competency after changes on IEC 61511 edition 2 and ISA84
	3:30 PM	4:30 PM	50306	Integrated process control and safety: Achieving both integration and functional independence
3.15.2017	1 PM	2 PM	50307	How to conduct a conveyor inspection safely
	2:15 PM	3:15 PM	50308	Human factors and their impact on plant safety
	3:30 PM	4:30 PM	50309	The role and importance of functional safety assessment for safety instrumented systems
3.16.2017	1 PM	2 PM	50310	Can you answer these four questions about process safety?
	2:15 PM	3:15 PM	50311	Improving safety with installed switchgear
	3:30 PM	4:30 PM	50312	General purpose transformers and beyond (600V transformers)

COURSE CODE	SESSION TITLE	ABSTRACT
50301	Simple and retrofitable arc flash mitigation for LV equipment	As industry pursues safer workplaces with arc flash mitigation programs, they face major challenges in effectively reducing incident energies on the secondary of medium voltage to low voltage transformers. When an arc fault occurs on the transformer secondary, primary currents can be below the short circuit range of the primary protection. This presentation will offer a method of applying a high speed grounding switch (HSGS) at a strategic system position. The low voltage arc flash event collapses quickly to limit incident energies to less than 1.2 cal/cm2.
50302	The silo factor: Why tackling process safety management silos is key to averting catastrophe	High profile process safety incidents have intensified focus on process safety management in order to minimize the threat of hazardous catastrophes. At the same time, budgets are getting tighter and safety performance is being threatened by the interminable rise of the silo factor an inability to collaborate with other departments. This session will focus on the issue of 'silo working' and show how a collaborative approach enables safe, reliable and profitable operations.
50303	Zone protection in adjustable speed drive systems	Monitoring and detecting abnormal conditions is important for critical applications utilizing medium voltage drives. This presentation will explain the various zone protection area definitions, describe which protection functions or elements are available for each zone, and describe how those functions are implemented within a medium voltage drive system.
50305	New requirements on management of competency after changes on IEC 61511 edition 2 and ISA84	The recent changes in functional safety standards introduced new requirements relative to the adoption of a functional safety management system and management of competency for the personnel involved in life cycle activities associated with Safety Instrumented Systems (SIS). This session will provide an overview of the changes in the functional safety standards with an emphasis on their application across the process industries. We will also discuss the activities and work processes required for compliance and the challenges the industry faces throughout adoption.
50306	Integrated process control and safety: Achieving both integration and functional independence	Industry commonly implements process control and safety using different and independent systems, and the method is established in safety standards as a best engineering practice. However, users perceive benefits from the integration of safety and control. An expert panel reviews safety standards and identifies implementation schemes to address the need for integration and provide a better response to abnormal conditions in the plant, while still meeting safety standards. The session will also address concerns about the cyber security of integrated systems.
50307	How to conduct a conveyor inspection safely	Billions of tons of material are transported using conveyors. Conveyors are the arteries of many mining and other bulk material handling operations. Belt conveyors are reliable and cost effective, but they are also potentially dangerous. Conveyors require constant inspection in order to keep them running reliably and therefore reducing unexpected downtime. This presentation will help those responsible for the inspection and maintenance, as well as any others in proximity to belt conveyors, stay safe.
50308	Human factors and their impact on plant safety	Today, when operators are loaded with numerous activities, is it reasonable to expect they'll be able to respond appropriately to all conditions? This session discusses some of the capabilities available in a modern automation system and how to apply innovative control room planning and technology to support decision making and help humans handle the abnormal situations in a safe and effective manner. We will present results from research centered on operator health and discuss how the impact of an intelligent and ergonomic workspace can both mitigate risk and increase productivity.

50309	The role and importance of functional safety assessment for safety instrumented systems	The functional safety standards IEC 61508 and IEC 61511/ISA84.01 mandate that functional safety assessments (FSAs) shall be implemented at every stage of the safety life cycle in order to ensure that the level of risk reduction is always achieved or maintained. One of the key criteria for performing an FSA is to demonstrate sufficient independence is applied in providing the necessary judgment. Inadequacies in implementation of the FSA process during different stages of the safety life cycle has the potential to be a significant contributing factor associated with industrial accidents.
50310	Can you answer these four questions about process safety?	According to the American Chemistry Council (ACC), incident rates are steadily declining; however, the severity of the incidents that do occur is increasing. This can be a problem, as the lack of incidents can cause a inappropriate sense of security. Asking certain questions on a ongoing basis will help avoid processes and systems from being neglected. Do we understand what could go wrong? Do we know what systems are to prevent this from happening? Do we have the information to assure us that these systems are working effectively? What is your role?
50311	Improving safety with installed switchgear	Safety is paramount to operations. We will discuss technologies available to improve the safety of existing installed switchgear. Through the use of retrofitable breakers like AMVAC and Emax 2, active arc flash mitigation, remote electric racking, and other new technology, it is possible to improve the safety of legacy plant switchgear and to protect your most valuable asset: your personnel.
50312	General purpose transformers and beyond (600V transformers)	This session will provide an overview of general purpose transformer applications and how they are specified. It will also cover applicable industry standards, testing and typical accessories. Additionally, we will discuss how these transformers are integrated into power distribution systems.

Application & Best Practices: Industry

Specialized Solutions for Unique Industries

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1 PM	2 PM	50401	Considerations, risks and benefits of replacing an aging motor fleet for chemical, oil and gas
	2:15 PM	3:15 PM	50402	Use of ABB SMISSLINE TP touch-proof electrical power distribution system at Hudson Scenic Studio
	3:30 PM	4:30 PM	50403	ABB Ability and digitalization in underground mining
3.14.2017	1 PM	2 PM	50404	Lump-sum, turnkey project partnering approach to reduce overall project cost
	2:15 PM	3:15 PM	50405	System 800xA providing operations and management benefits to radioactive waste management facility
	3:30 PM	4:30 PM	50406	High performance imaging technology of paper or material provides the next level of online quality
3.15.2017	1 PM	2 PM	50407	Successful execution of the ABB electrification and control system approach for Codelco in Chile
	2:15 PM	3:15 PM	50408	A new era in solutions for the pharmaceutical sector: ABB and Werum in a collaboration for success
	3:30 PM	4:30 PM	50409	Argentinian beer producer improved processes and quality results with DCI evolution to System 800xA
3.16.2017	1 PM	2 PM	50410	Optimizing the selection and specification of DC motors from all perspectives
	2:15 PM	3:15 PM	50411	Developing a solid plan for upgrading aging, high uptime, complex multi-drive systems
	3:30 PM	4:30 PM	50412	Why should I care about power factor?

COURSE CODE	SESSION TITLE	ABSTRACT
50401	Considerations, risks and benefits of replacing an aging motor fleet for chemical, oil and gas	There exists a large and aging installed base of electric motors and generators in all facets of the chemical, oil and gas industry. Though there are numerous reasons to justify upgrading this critical equipment, there are also a number of risks and decisions involved in doing so. Some of these include: changes in dimensions, newer industry standards, safety in design, efficiency pros and cons, and existing infrastructure. This presentation will address these topics using lessons learned in the field to help those considering upgrading their equipment and those involved in helping them do so.
50402	Use of ABB SMISSLINE TP touch-proof electrical power distribution system at Hudson Scenic Studio	Hudson Scenic Studio creates theatrical sets with automated elements. In 2015, senior engineer and head of automation Chuck Adomanis needed a control panel for a mobile drive that integrates set elements with the venue's electrical power system, with flexibility to accommodate various devices and power distribution systems. ABB's modular SMISSLINE TP touch-proof electrical power distribution system, a plug-in socket system that enables load-free devices to be switched on and off under voltage, provided flexibility and ease of use, as well as offered an extensive selection of accessories.
50403	ABB Ability and digitalization in underground mining	Digitalization is ongoing in many industries and ABB has a leading role. This presentation will demonstrate what ABB Ability can do for safety and productivity in underground mining, through some examples from automation, analytics to cloud solutions. A customer case study on one of the first integrated mines from underground to mill, will be discussed and we will also look into the future with some examples of the next generation of mine automation.
50404	Lump-sum, turnkey project partnering approach to reduce overall project cost	When Alcoa needed an additional rectifier system to increase potline current and provide additional redundancy at their Baie-Comeau, Quebec, aluminum smelter, ABB took full lump-sum, turnkey system responsibility. This included conceptual design, scope definition, costing, detailed system design, equipment engineering, project management, procurement, civil works, installation and commissioning without use of an EPCM (engineering, procurement, construction management) contractor. Alcoa provided project monitoring, technical review, subcontractor approval and compliance with internal processes.
50405	System 800xA providing operations and management benefits to radioactive waste management facility	System 800xA is installed at the Hanford site, in Washington state, to support the control and monitoring of nuclear waste storage facilities. Since initial installation in 2011, the system has been continually expanded and improved to take advantage of 800xA's capabilities. We will describe the challenges and successes of the USDOE operations contractor (Washington River Protection Solutions) using 800xA functions, including alarm management, predictive maintenance, historian, virtualization and simulator to a system with wired and wireless interfaces to safety systems and enterprise network.
50406	High performance imaging technology of paper or material provides the next level of online quality	Recent and continuing developments in imaging technology have allowed ABB to leverage its long history of web inspection into a broader approach to quality and performance measurements. The integration of the latest imaging technology allows our customers to access costly and disruptive product and production performance. The utilization of real time imaging to augment the traditional quality and production data provides our customers with new best practices that can impact both product and operational cost.

50407	Successful execution of the ABB electrification and control system approach for Codelco in Chile	Codelco's new industrial facility for processing molybdenum concentrate in Mejillones, Chile, is one of the first projects executed for the company under an integrated system approach. From more than 10 purchasing packages, Codelco asked ABB to deliver one single integrated package for e-houses, electrical and automation equipment, infrastructure, and emergency power supply. We will discuss the challenges in streamlining design principles, working procedures, documentation, language barriers and change management all in a tough environment, under great cost and time pressure.
50408	A new era in solutions for the pharmaceutical sector: ABB and Werum in a collaboration for success	Through the close working relationship between ABB and Werum, we can deliver first-class value in a strategic partnership. The collaboration will lead to a new era of innovative solutions that will surpass our customers' expectations. We will simplify how you manage and make decisions in the ISA-95/S88 layer by providing cost effective, standardized and totally integrated solutions throughout the complete life cycle of your operations.
50409	Argentinian beer producer improved processes and quality results with DCI evolution to System 800xA	Quilmes, the main beer producer in Argentina and part of AB InBev group, evolved its main brewing facility located in Quilmes City from DCI to System 800xA. The new system enables batch processing on 800xA with AC800M controllers and DCI installed base with DCI for 800xA. It also features process control equipment library for batch, process control equipment library for state-based control implementation, process control device library, and Probase library for batch (on implementation). 800xA virtualization on a vSphere 6 platform is included as well.
50410	Optimizing the selection and specification of DC motors from all perspectives	Bobby Unser, Indy car racer, once said, 'Success is where preparation and opportunity meet.' The same can be about selecting and optimizing the performance of DC motors for specific applications and environments. If the pre-order specification process is clear, concise and detailed, then there will be no surprises. The product you receive will be what you expect, as will its ability to provide durability, performance and longevity.
50411	Developing a solid plan for upgrading aging, high uptime, complex multi-drive systems	This presentation covers the issues of extending the useful lifetime of high uptime, complex multi-drive systems in demanding environments such as paper, metals, and chemical, oil and gas, including available options for extending the life of low voltage multi-drives and the benefits of a solid plan to mitigate the risks and allowing for the rapid retrofitting of multi-drives to modern fully supportable technology. We will also include key examples from industry of short shut multi-drive upgrades with the emphasis on safe working and limited timeframes.
50412	Why should I care about power factor?	Improving your plant's power factor can result in increased operational efficiency and big energy savings on your utility bill. One petrochemical facility aimed to reduce utility charges by improving their power factor. However, this facility had real estate challenges that required a highly compact, indoor solution. Learn how using standardized indoor statcom enabled the customer to improve their power factor, reduce their utility bill and improve operational efficiency, all while also meeting their space requirements.

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Application & Best Practices: Infrastructure

Mission Critical Facilities

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	50501	The next generation data center: Automated, hyperscale and secure
	2:15 PM	3:15 PM	50502	Data center automation for improved capacity forecasting and performance
	3:30 PM	4:30 PM	50503	Dynamic cooling management for mission critical facilities
3.14.2017	1:00 PM	2:00 PM	50504	The industrialization of the data center: What you need to know
	2:15 PM	3:15 PM	50505	Internet of Things optimizes data center power system designs
	3:30 PM	4:30 PM	50506	Solving a data center's need for rightsizing and simple scalability with modular UPS technology
3.15.2017	1:00 PM	2:00 PM	50507	Equipment and personnel protection with active arc mitigation to maintain operations 24x7
	2:15 PM	3:15 PM	50508	Choose your transformer wisely: Smart solutions for switching transient protection
	3:30 PM	4:30 PM	50509	Data center services that maximize uptime and reliability
3.16.2017	1:00 PM	2:00 PM	50510	Improving power redundancy with integrated transfer technology
	2:15 PM	3:15 PM	50511	State-of-the-art digital sensors improve, simplify electrical distribution in critical applications
	3:30 PM	4:30 PM	50512	Medium voltage power protection for large data centers

COURSE CODE	SESSION TITLE	ABSTRACT
50501	The next generation data center: Automated, hyperscale and secure	'Do more with what you have' is the new data center mantra. Today's businesses focus on achieving higher value computing from the data center, the engine on which business runs. ABB and Ericsson have come together to deliver a high-value compute environment so that any enterprise can deliver information and services faster, more reliably and more efficiently than ever. Join us to learn about the industrialized infrastructure you need to attain higher value compute: a data center environment with automated policy and coordinated controls for continuous optimization and insight to do more.
50502	Data center automation for improved capacity forecasting and performance	The team at Digital Realty manages 225,000 MWh of power per year for over a million square feet of white space. Learn how they use Decathlon for Data Centers to meet the highest level of performance and customer service while keeping costs under control. This case study will examine the business requirements, technology selection criteria, implementation strategy and results.
50503	Dynamic cooling management for mission critical facilities	Over-provisioning, too much pressure, hot spots and short cycling can figuratively suck dollars right out of the air. Learn how to manage cooling better with dynamic airflow balancing, variable frequency drives (VFDs) and process automation that deliver real-time cooling management and ongoing reductions in cooling energy costs. This session identifies how to automate the cooling chain in data centers for immediate and continuous improvements in thermal reliability, cooling capacity and cost.
50504	The industrialization of the data center: What you need to know	The data center industry is industrializing. This shift will deliver improved operational efficiency, provide new paradigms for design and construction, and shorten construction time. Industrialization will become the basis for competitive advantage and will lead to new opportunities for the entire industry ecosystem. In this talk, we will discuss the practical implications of industrialization and what this transition means for design and operations. There are lessons to be learned, and the industry will evolve to become more efficient.
50505	Internet of Things optimizes data center power system designs	The Internet of Things (IoT) is driving unprecedented scale and flexibility requirements for data centers. Because intelligent data needs intelligent power, data centers now require industrial strength power and automation. This session will take a deeper look at how ABB's converged critical power solutions are flexible, scalable and future-proof. Learn how intelligent grid connection, deep component visibility and our elastic critical infrastructure will prepare you for future trends and their consequences.
50506	Solving a data center's need for rightsizing and simple scalability with modular UPS technology	Learn how Volico implemented a modular UPS strategy that resolved its short-term need to replace a system that was a barrier to expansion, and laid the foundation for future growth. Data center owners must consider cost control, as well as optimized network performance characteristics such as reliability and availability, to realize competitive advantages. This customer success story will discuss the benefits of modularity in the data center, specifically the modular UPS and how it has the unique ability to provide constant availability, which also comes with high levels of efficiency.
50507	Equipment and personnel protection with active arc mitigation to maintain operations 24x7	While active arc mitigation devices and techniques are used to provide a level of safety to electrical equipment operators and technicians, they can also dramatically decrease or eliminate equipment damage due to an arc fault. This allows data center owners to meet their 'always on' goals and provides shorter down times, less costly repairs or replacement, as well as enhanced personnel safety.

50508	Choose your transformer wisely: Smart solutions for switching transient protection	When a vacuum or gas-insulated circuit breaker cycles, re-ignitions can create fast transient over voltages inside of the transformers on the system. There is also the chance of voltage amplification due to harmonic resonance from the wide range of voltage frequencies that occur during the event. A single over voltage can be fatal, but winding damage can also build over time. This presentation will display recent testing that has broken down the aspects of the event and new, comprehensive methods to protect transformers.
50509	Data center services that maximize uptime and reliability	Power reliability is key to data center and other mission critical applications. Any outage can be devastating due to loss data, such as shutting down an entire airline. Learn about innovative technologies and best practices that can keep your facility running 24x7 with efficiency and security.
50510	Improving power redundancy with integrated transfer technology	Power supply interruptions represent the most important and critical problems in the quality of energy supply. It is especially true that voltage disturbances with electronic controls systems and other sensitive installations can lead to complete loss of production and long stoppage times. ABB's high speed transfer (HST) solution guarantees an optimum assurance of energy supply. It ensures the continued supply to the consumer through automatic transfer to a stand-by feeder. Join us to learn more on how to get access to a perfectly integrated High Speed Transfer System (HSTS).
50511	State-of-the-art digital sensors improve, simplify electrical distribution in critical applications	Sensors, also known as digital or non-conventional instrument transformers, offer advantages over traditional instrument transformers in certain applications. This innovative and critical component simplifies protection equipment for faster delivery, commissioning and service times. This session will cover present and future sensor technology, financial impacts and reliability considerations in mission critical applications.
50512	Medium voltage power protection for large data centers	As power demand grows within data centers, there are new concepts and solutions required for the electrical infrastructure. Power protection needs to be applied to the facility as a whole in addition to equipment specific protection. This technology eliminates gaps in power supply to provide truly uninterrupted power supply. As a market leader in industrial power protection, ABB already supplies medium voltage UPS systems for super critical facilities like semiconductor factories. This solution builds on those existing technologies to the meet data center requirements of the future.

Application & Best Practices: Infrastructure

Smart Cities: Transport & Infrastructure

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	50601	Enabling innovation for future-proof smart buildings
	2:15 PM	3:15 PM	50602	Wastewater treatment controls evolution: A multi-step program for the City of San Jose
	3:30 PM	4:30 PM	50603	Saving a Unesco wonder: Symphony Plus for the MoSE flood barrier in Venice
3.14.2017	1:00 PM	2:00 PM	50604	The electric vehicle market: Growing, charging and driving faster
	2:15 PM	3:15 PM	50605	EV charging in the real world: Infrastructure best practices
	3:30 PM	4:30 PM	50606	A case study on deploying energy storage and microgrid controls in a small port environment
3.15.2017	1:00 PM	2:00 PM	50607	Commercialization of fast charging for electrical buses
	2:15 PM	3:15 PM	50608	Why rail networks should consider a wayside energy storage system in their traction power network
	3:30 PM	4:30 PM	50609	Asset health: Manage, protect and control your rail assets
3.16.2017	1:00 PM	2:00 PM	50610	Energy efficiency and conservation in municipal supply and water treatment plants
	2:15 PM	3:15 PM	50611	Improvements in low-speed pump systems for wastewater, flood control and irrigation
	3:30 PM	4:30 PM	50612	Asset management for DCS equipment and associated field devices

COURSE CODE	SESSION TITLE	ABSTRACT
50601	Enabling innovation for future-proof smart buildings	The commercial building market is a very dynamic environment. Building owners and operators are challenged to optimize energy consumption, decrease operational and maintenance costs and ensure that codes and standards are met while providing comfort, security and affordable utility bills to their occupants a truly smart building. The only way to meet all of these expectations is with a networked, intelligently monitored and controlled building. This session will cover the available Building Space technologies and the required eco-systems which are ready support these challenges.
50602	Wastewater treatment controls evolution: A multi-step program for the City of San Jose	This session will describe the City of San Jose's Regional Wastewater Facility's multi-year plant controls evolution strategy. The program was designed to maintain ongoing operations, minimize annual budget impacts, and take advantage of the latest generation of control system, all in a non-disruptive evolution process. This collaborative multi-year, multi-phase effort included San Jose and ABB engineering teams working together in various aspects of the project, including console, controller and I/O updates.
50603	Saving a Unesco wonder: Symphony Plus for the MoSE flood barrier in Venice	Venice is a testament to the ingenuity of its builders, who erected a unique city that has lasted over 1500 years. Innovation began right with its construction, as millions of wooden stakes were planted deep into soft sediment to create a foundation for its palaces and bridges. It continues today with the largest public works project Italy has undertaken since WWII, the MoSE flood barrier. The brains controlling this unique infrastructure is the Symphony Plus automation platform, granting the project unprecedented reliability thanks to mass redundancy and data monitoring from >50,000 signals.
50604	The electric vehicle market: Growing, charging and driving faster	We're not talking about your grandfather's golf cart; today's electric vehicles (EVs) have loads of tech, torque and style. Supported by battery innovations, clean air directives and consumer demand, this disruptive vehicle technology has pushed deeply into the automotive landscape, changing the way every automaker is now approaching new vehicle development. In this EV primer, learn why EV adoption is growing and how it's driving transportation infrastructure and charging technologies.
50605	EV charging in the real world: Infrastructure best practices	DC fast charging (DCFC) technology is an elegant solution to driver range anxiety, offering quick, convenient charging to intercity and highway electric vehicle (EV) drivers. High quality DCFC stations are essential, but their true value comes from much more than the hardware. Installation considerations, Internet of Things (IoT) connectivity and payment enablement, as well as operation and maintenance are all critical to ensure up time and longevity. This session will bring together a panel of experts on both the investment and commercial reality of implementing fast charging infrastructure.
50606	A case study on deploying energy storage and microgrid controls in a small port environment	Energy storage and modern microgrid control systems can help you optimize and coordinate your electric harbor crane operations in constrained grid environment, while reducing your demand charges and improving your power factor. Attend this informative session to learn more about the benefits of microgrids in small port environments.
50607	Commercialization of fast charging for electrical buses	Today with more than 54% of the world's population residing in urban areas, the need for improving public transportation within the city is becoming critical. Increased congestion, noise and toxic emissions are impacting the mobility, the life and health of people living and working in the cities (stress, asthma, accidents, etc.). The need for converting transit fleets of diesel buses to next generation 100% electric vehicles is becoming a priority, however, it will force the transit authorities to adapt their operations to this new technology.

50608	Why rail networks should consider a wayside energy storage system in their traction power network	Through regenerative braking, ABB's Enviline ESS recuperates otherwise lost energy and delivers this energy to the train network to provide voltage support for peak power shaving and demand charge reductions. It also has the ability to participate in the wholesale electricity markets by providing behind-the-meter smart grid services. Not only does the ESS save energy and reduce a transit authority's energy bill, it can also add revenues from the ancillary services market. We will look at case studies and results of several commercially installed ABB systems.
50609	Asset health: Manage, protect and control your rail assets	Predict and prevent critical asset failures with proactive health and performance insights that maximize productivity, safety and ROI. A robust Asset Health solution unlocks asset data trapped across your enterprise and uses industry performance analytics to highlight risks and potential actions that will guide a total asset management strategy for rail and related transportation assets.
50610	Energy efficiency and conservation in municipal supply and water treatment plants	The world is facing a crisis of water resources, and we are being challenged to meet the need for drinking water for a growing population, without further damage to the ecological environment. At the same time, aging water treatment plants are facing high energy consumption, changing climate conditions and restrictions of various laws and regulations. This presentation will highlight solutions that address these important water issues, including improving efficiency and maintaining quality in the treatment process.
50611	Improvements in low-speed pump systems for wastewater, flood control and irrigation	Providing a safe, acceptable and affordable water supply for communities continues to be a major worldwide challenge. Globally, this effort is driving projects in wastewater, desalinization and irrigation using large low speed pump systems. This presentation will expand on an innovative solution utilizing low pole count induction motors and proven gearmotor technology for high volume, low head, vertical pumping applications. This gearmotor technology offers opportunities for improvements in efficiency, capital cost, operating cost and maintenance costs for high power, low speed pumps.
50612	Asset management for DCS equipment and associated field devices	This session will describe the site-wide controls asset management program for the Denver Metro Wastewater Reclamation District (MWRD), covering DCS system servers, workstations, switches, and out to field devices such as transmitters and valves. MWRD has utilized their System 800xA DCS's integrated maintenance workplace, which enabled them to target the allocation of resources to the assets that required truly necessary attention. MWRD is the wastewater treatment authority for much of metropolitan Denver and parts of northern Colorado.

Application & Best Practices: Utilities

Aging Infrastructure & Asset Management

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	50701	Life extend HV substations or power plants on a dime: How to maximize asset lifespan and reliability
	2:15 PM	3:15 PM	50702	How to extend the life of your switchgear
	3:30 PM	4:30 PM	50703	Transformer oil: Caring for the lifeblood of your assets
3.14.2017	1:00 PM	2:00 PM	50704	Transformer performance models: An in-depth look into ABB's asset health management
	2:15 PM	3:15 PM	50705	Innovative HV service solutions for planned preventive maintenance
	3:30 PM	4:30 PM	50706	Installed breakers: Do you still support that?
3.15.2017	1:00 PM	2:00 PM	50707	Asset management: Why do I need to have my existing electrical equipment evaluated?
	2:15 PM	3:15 PM	50708	Repair or re-manufacture: Options for life extension before end of life
	3:30 PM	4:30 PM	50709	Meeting power plant needs with new GCB functionality instead of sourcing new equipment
3.16.2017	1:00 PM	2:00 PM	50710	Life extension of aged substations
	2:15 PM	3:15 PM	50711	Service and consulting: Helping utilities and industry in their challenges with aging infrastructure
	3:30 PM	4:30 PM	50712	Critical transformer components: Load tap changer and bushing management

COURSE CODE	SESSION TITLE	ABSTRACT
50701	Life extend HV substations or power plants on a dime: How to maximize asset lifespan and reliability	High voltage assets are getting older. Several solutions are available to life extend assets without breaking the bank (or your operations and maintenance budget), from fleet upgrades to retrofits, or solutions to inspect assets with a condition or fleet assessment. An assessment enables you to only spend resources on specific weak links in the systems, without spending on healthy assets. Customizable solutions run the gamut from component upgrades to online cable inspection to complete turnkey replacement with a hands-off approach for customers.
50702	How to extend the life of your switchgear	Maintenance and operating costs associated with aging switchgear can come in many forms. Unexpected failures, high maintenance costs due to limited supply of spares, and loss of knowledge to maintain and repair old gear are just some of the challenges involved. There are a number of available service solution to help modernize older gear. This session will provide an overview of the available options to bring new life to old switchgear and present the various methods available to do so.
50703	Transformer oil: Caring for the lifeblood of your assets	The oil in a transformer degrades when subjected to heat and dielectric stresses during normal operation. In cars, oil is replaced at the end of its life. In a transformer, contaminated oil is captured in the cellulose insulation system. Cleaning the existing oil can be performed with the transformer off-line, through a state-of-the-art oil reclamation system. Oil can also be refreshed while the transformer is online carrying load. This session will cover a brief overview of basic oil analysis that helps determine when action is required, helping to minimize cost and maximize transformer life.
50704	Transformer performance models: An in-depth look into ABB's asset health management	Aging assets, dwindling budgets and a smaller expert base demand attention now. ABB's Mature Transformer Management Program (MTMProgram) has been used to assess the condition of over 10,000 transformers worldwide using static transformer condition information. Our Asset Condition intelligence (ACi) has been developed to integrate dynamic information (from offline data and online performance intelligence gained through monitoring solutions) as it becomes available to define asset health and in-kind recommend actionable service needs.
50705	Innovative HV service solutions for planned preventive maintenance	Safety, efficiency, reliability and cost-effectiveness are essential factors in maintaining your high voltage equipment. ABB has the resources and experience to provide complete service offerings and continually improve in order to create new and innovative service solutions. This panel discussion will focus on three ABB service initiatives: generator circuit breaker (GCB) arcing chamber swap to reduce onsite time and resources during overhaul; GIS retrofit and life extension solutions to maximize asset life; and custom service agreements to meet today's maintenance needs.
50706	Installed breakers: Do you still support that?	Have you ever wondered what support is available for your legacy equipment? When should you consider an upgrade to newer technology? This session will cover the options still offered for ABB's installed base, from spare parts to full replacements of original breakers, and when you may want to go ahead with a complete upgrade.
50707	Asset management: Why do I need to have my existing electrical equipment evaluated?	Maintenance and operating budgets are a large expense. Having a proper understanding of your existing electrical equipment's state can help you save money on maintenance and operating expenses by focusing on the gear that truly needs the maintenance over the gear that is convenient or familiar. This session will examine the value of having your existing electrical equipment evaluated.

50708	Repair or re-manufacture: Options for life extension before end of life	A power transformer is an important and costly asset needed for the efficient transmission and distribution of electricity. Proper maintenance practices help transformers provide decades of reliable service. Once the transformer's organic material reaches the end of life, it can be recycled. An option beyond repair is to re-manufacture the transformer with new cellulosic and polymeric materials, while recycling the conductor material and reusing core and tank steel. ABB's North American capabilities will be highlighted to demonstrate local options and support.
50709	Meeting power plant needs with new GCB functionality instead of sourcing new equipment	When Salt River Project (SRP) called to replace the aging phase reversing switch in their Horse Mesa Pump Storage power plant, ABB offered an alternate solution with generator circuit breakers. This offered a more flexible operation to the plant owner. The project team was put together with an isolated phase bus supplier, switchgear supplier and installation contractor. The challenges of short project schedule and working in an aging power plant were overcame with a great project execution.
50710	Life extension of aged substations	From an increasingly aging infrastructure to adopting new and disruptive technologies, utilities and grid operators are required to continue to provide reliable services while at the same time keeping rates low for consumers. Learn how innovative and proprietary software combined with industry expertise can provide unique insights into your substation. This innovative approach enables utilities to develop pragmatic long-term asset management strategies that can improve reliability, minimize service disruptions, and help utilities meet their budget targets.
50711	Service and consulting: Helping utilities and industry in their challenges with aging infrastructure	Aging infrastructure is a reality for many utility and industrial units. At the same time, customers are facing the challenges of the need to ensure power availability; to optimize capital expenditure and operational expenditure; and making their network, equipment and people safe, secure and fit for the digital future. ABB has a broad and deep portfolio of solutions that could help customers in meeting these challenges. This presentation will cover the details of our solutions portfolio, with references to illustrate how the challenges are met by other customers.
50712	Critical transformer components: Load tap changer and bushing management	Load tap changers (LTCs) and bushings are critical components of almost every transformer. Care, maintenance and change-out considerations are essential to ensure transformer reliability. Transformers have a life that will exceed that of each of these components, creating demand to focus attention on these consumable components. Some LTCs and bushings are obsolete or have known issues. ABB can help with ongoing care and maintenance as well as support in identification of units that need to be replaced proactively.

Application & Best Practices: Utilities

Distributed Energy Resources & Renewables

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	50801	Smart inverters for reliability and transactive energy
	2:15 PM	3:15 PM	50802	Collector substations for renewables: Design considerations and project execution
	3:30 PM	4:30 PM	50803	Lessons learned from the Mount Holly microgird at Duke Energy
3.14.2017	1:00 PM	2:00 PM	50804	Power systems integration for high penetration renewables
	2:15 PM	3:15 PM	50805	Distributed energy resources: Seizing opportunities while managing distribution grid impacts
	3:30 PM	4:30 PM	50806	Reactive power control strategies to enable the safe and reliable integration of renewables
3.15.2017	1:00 PM	2:00 PM	50807	Successfully integrating DERs to maximize renewable penetration
	2:15 PM	3:15 PM	50808	Improve wind farm performance through centralized real-time monitor/control and streaming analytics
	3:30 PM	4:30 PM	50809	Reducing operational costs in the rapidly growing residential PV solar market
3.16.2017	1:00 PM	2:00 PM	50810	Intermittent resources and the promise of energy storage
	2:15 PM	3:15 PM	50811	DER management to improve distribution grid resiliency
	3:30 PM	4:30 PM	50812	Key considerations for remote/island renewable microgrid development

COURSE CODE	SESSION TITLE	ABSTRACT
50801	Smart inverters for reliability and transactive energy	Due to the rapid growth of photovoltaic distributed energy resources (PV DERs), inverter standards are being updated to improve distribution system operations efficiency and reliability. The capabilities of these new smart inverters not only enable improvements in utility operations but also provide functionality that aggregators of photovoltaic sites can take advantage of for transactive energy markets. This presentation will cover the new inverter standards and smart inverter functionality as well as potential new service offerings for virtual power plant portfolio owners and operators.
50802	Collector substations for renewables: Design considerations and project execution	The collector substation in any wind or solar plant is one of the most critical aspects of the facility, but is often an afterthought during the construction phase. In this panel, learn how getting a head start on project planning and system designs can optimize overall plant performance.
50803	Lessons learned from the Mount Holly microgird at Duke Energy	The advances and development of different technologies and communications have resulted in initiation of several microgrid pilot projects in the U.S. In 2014, Duke Energy designed, installed and commissioned a fully functional second microgrid in the Charlotte, North Carolina area. Based on lessons learned, in 2016 Duke Energy expanded the microgrid to include an additional power battery with ABB 650kVA PCS inverter, and ABB smart high and medium voltage transformers, in order to provide the voltage/frequency source to microgrid, as well investigate the use of battery for grid operations.
50804	Power systems integration for high penetration renewables	Integration of subsystems into an optimally operating renewable energy-based islanded microgrid is a critical task during system implementation. The Power Systems Integration Laboratory at the Alaska Center for Energy and Power provides a space for in-system R&D and refinement towards commercialization of new equipment from energy storage to novel electric generators. The grid can be powered by diesel generator, or ABB ESSPRO inverter, and controlled by ABB M+ or custom SCADA. This presentation will focus on energy storage and direct-drive generator integration projects to serve as examples.
50805	Distributed energy resources: Seizing opportunities while managing distribution grid impacts	Distributed energy resources (DERs) are reshaping the operation of the electric power system. While DERs can yield significant economic and environmental benefits for utilities, the challenge is deploying DERs in ways that support the evolution of more flexible power grids. Attend this informative session to discover best practices for integrating DERs and how to avoid the most common pitfalls that occur with high levels of renewable penetration.
50806	Reactive power control strategies to enable the safe and reliable integration of renewables	With the increasing proliferation of renewables on the utility grid, the potential for grid instability and power quality issues may occur. This panel session will discuss how reactive power control throughout the utility grid can enable the seamless integration of renewable energy. By leveraging advanced grid technologies such as synchronous condensers, statcoms, metal enclosed capacitor banks and smart solar inverters, gird operators can more efficiently utilize renewables while maintaining high levels of power quality.
50807	Successfully integrating DERs to maximize renewable penetration	Today's grid was designed and built for centralized generation with limited capacity for reversing power flows, and often without controls and communication at the point of use. Subsequently, an increased penetration of distributed energy resources (DERs) can have a significant impact on the performance and reliability of the grid. This session will cover best practices and innovative technologies that can be utilized to optimize grid operation and integration of DERs that is successful for both the developer and utility.

50808	Improve wind farm performance through centralized real-time monitor/control and streaming analytics	This discussion will focus on improving awareness of operational problems at wind farms and efficiency using holistic consolidated data with advanced monitoring and control. Growth in wind development has resulted in disparate systems being used for detailed local turbine monitoring and control, multiple historian databases and separate SCADA system for substation control. We will explore different monitoring and control strategies for local versus centralized solutions, as well as fleet operational performance improvements and real-time streaming analytics.
50809	Reducing operational costs in the rapidly growing residential PV solar market	As residential solar installations gain momentum, new tools and processes are needed to support improved installation management, customer operations and life cycle asset management. ABB provides a cohesive and comprehensive solution including smart, wireless-connected inverters and communications plus monitoring, customer portals and asset management software to assist in the planning, construction and commissioning process as well as on-going condition-based maintenance.
50810	Intermittent resources and the promise of energy storage	Unlike fossil-fueled power plants, wind and solar are not dispatchable, posing a challenge to grid operators. When there is a significant penetration of wind/solar power, regulating frequency can be a challenge. This presentation will focus on an (sub-hourly) analysis that can quantify the impact of wind/solar resources on grid frequency. Illustrations will be given based on studies performed for the California ISO (CAISO) and PJM. The role of energy storage as a mitigating solution will be highlighted, including addressing diminishing returns for the new technology.
50811	DER management to improve distribution grid resiliency	Technology advancements in smart inverters and distributed energy resources (DERs), particularly photovoltaic and battery storage, have affected a sharp increase in their deployment. The widespread deployment of intermittent power sources impacts distribution grid reliability and optimization significantly due to their capability to consume and produce real and reactive power as well as availability uncertainties. The Advanced Distribution Management System (ADMS) with DER management capabilities can improve grid resiliency by enhancing traditional self-healing and optimization applications.
50812	Key considerations for remote/island renewable microgrid development	Remote and island communities have always provided a strong business case for the development of hybrid renewable microgrids. These communities have traditionally relied almost entirely on diesel-fired generation, which is costly and presents supply chain and environmental risk. This is changing, as increasing adoption of renewables on to these systems with appropriate controls and integration are providing direct economic benefit. Successful execution of a high-renewable-penetration remote microgrid deserves careful consideration of certain key aspects.

Application & Best Practices: Utilities

Grid Modernization & Optimization

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	50901	Practical considerations when working with IEC 61850 GOOSE multivendor projects.
	2:15 PM	3:15 PM	50902	Challenges and opportunities in power and energy systems education
	3:30 PM	4:30 PM	50903	Fast transient resistant instrument voltage transformer for power distribution network applications
3.14.2017	1:00 PM	2:00 PM	50904	Automation markets for electric power
	2:15 PM	3:15 PM	50905	Reach for the skies: Critical substation refurbishment in multi-vendor IEC 61850 automation systems
	3:30 PM	4:30 PM	50906	Creating a reliable and secure smart grid field area communications network
3.15.2017	1:00 PM	2:00 PM	50907	Control of VSC-HVDC in weak networks
	2:15 PM	3:15 PM	50908	Maximizing capability of power transmission corridor
	3:30 PM	4:30 PM	50909	Deployment and end-to-end control of distributed smart inverters on the utility grid.
3.16.2017	1:00 PM	2:00 PM	50910	Power quality issues related to reactive compensation: Utility and industry perspective
	2:15 PM	3:15 PM	50911	Future directions for the grid, and implications for engineers and society
	3:30 PM	4:30 PM	50912	Leveraging enterprise geographic information systems to support real-time grid management

COURSE CODE	SESSION TITLE	ABSTRACT
50901	Practical considerations when working with IEC 61850 GOOSE multivendor projects.	Among other requirements, the IEC 61850 standard was designed to allow interoperability between products from different vendors. The standard has been so successful worldwide that even though it was originally defined exclusively for substation automation systems, it has since been extended to other application areas beyond the switch yard. However, the standard does not regulate on the tools used for IEC 61850 engineering, and there are parts of the standard that are optional, not mandatory. This means that some design considerations need to be addressed when working in multivendor project.
50902	Challenges and opportunities in power and energy systems education	The Energy Production & Infrastructure Center (EPIC) at University of North Carolina - Charlotte has paired together with the industry to create programs, courses and energy concentrations within multiple departments that surpass technical skills. Curriculum covers project management, risk analysis and leadership skills. This presentation will discuss facilities and DoE sponsored programs developed for training purposes that enables delivery of new and creative solutions for the energy industry.
50903	Fast transient resistant instrument voltage transformer for power distribution network applications	The electric grid has become markedly complex over the last decade. This change is stretching the capabilities of many existing power network products. An example is premature failure of voltage transformers deployed in conjunction with reclosers. The root cause of this failure was determined to be very high frequency, high magnitude steep-wave voltage transients. Solution - we identified a suitable alternative standard and developed product specifically to help customers in their commitment to provide reliable electric power.
50904	Automation markets for electric power	Investment decisions for automation for new and existing electric power infrastructure are becoming more complex than ever. Traditionally, investment decisions about generation and T&D could be independent or loosely coordinated. With the development of smart grid technologies and distributed and renewable resources, this is no longer true. This presentation will review results of recent ARC research into worldwide markets for DCS, SCADA, smart grid and renewable system automation. It will also discuss the market growth prospects and the reasons for regional and technological differences.
50905	Reach for the skies: Critical substation refurbishment in multi-vendor IEC 61850 automation systems	Replacing aging infrastructure such as substations and protection & control systems with state of the art primary and secondary technology with minimal impact on the existing substation is key for a successful upgrade strategy. The use of IEC61850 standard and a thorough testing at the factory allow a fast and trouble free deployment at site. The experience and best practices are shared based on real project experience of one of the biggest IEC 61850 projects in the US. Out of the box thinking solution with panel platforms that can be lifted when next Sandy storm approaches.
50906	Creating a reliable and secure smart grid field area communications network	This session will focus on the technology criteria developed and decisions made by DTE Energy in the selection of a field area network solution as part of their smart grid rollout. The network was identified as a critical element for their Advanced Metering Infrastructure (AMI) implementation, which included deployment of nearly four million meters. We will share lessons learned and the approach taken in leveraging a single field area communications network as a foundation for layering multiple smart grid applications.

50907	Control of VSC-HVDC in weak networks	Weak alternating current (AC) network conditions present special challenges for applying high-voltage direct current (HVDC). These challenges include selecting control strategies to ensure robust, stable performance of the HVDC system in steady-state and following disturbances, and developing strategies to address possible post-contingency overloads of remaining AC lines after tripping of AC lines far from the HVDC station. We will describe methods recently used to address these issues, with an example from a recently commissioned ABB back-to-back voltage sourced converter(VSC) HVDC system.
50908	Maximizing capability of power transmission corridor	Electric utilities and transmission owners face increasing constraints to building new transmission lines. As we are including cleaner generation sources and more efficient generation markets, combined with ever-increasing demands for reliability, ensuring reliable transmission capacity has never been more critical. In this panel session, learn the about latest applications of transmission technologies that can increase power capacity while maintaining reliability, and the system studies required to evaluate the technical and economic merits of the various technology alternatives.
50909	Deployment and end-to-end control of distributed smart inverters on the utility grid.	Increased penetration of solar generation on the grid has now started to mandate the use of smart inverters. While studies have shown that smart inverters enable higher penetration, the industry has had little experience with smart inverter deployments on utility grids. The lack of a playbook for 'what-if' scenarios and the need for a robust end-to-end control infrastructure present significant hurdles to mass deployment of smart inverters. This session aims to present options ranging from the configuration of a single smart inverter to large scale grid management, and everything in between.
50910	Power quality issues related to reactive compensation: Utility and industry perspective	This presentation will look at the all-important aspects related to the power factor compensation that utilities and industry networks face on power quality. Each stage of power supplier (from generation, transmission, distribution and energy use) can have different issues when dealing with the need of power factor compensation. This presentation intends to give attendees a wide view of the problem and an ABB perspective about how to detect, identify and treat the problem in the high, medium and low voltage sides.
50911	Future directions for the grid, and implications for engineers and society	The fact that the electric power industry and its markets are experiencing transformations throughout the world is self-evident. This panel will bring together thought leaders to discuss the key trends identified through the IEEE-PES Future Directions initiative instituted by Prof. Rahman and chaired by Prof. Hederman (former Sr. Advisor to Energy Sec. Moniz and former founding director of FERC's Market Oversight and Investigations - now Enforcement). Dr. Jones will add his global perspective as VP of EEI's International Program.
50912	Leveraging enterprise geographic information systems to support real-time grid management	Connecting geographic information systems (GISs) to advanced distribution management systems (ADMSs) is one of the key information technology/operational technology (IT/OT) integrations for a distribution utility. While technical and organizational challenges exist to overcome IT/OT boundaries, there are compelling business reasons and strong technology drivers for increased IT/OT convergence, particularly when it comes to GIS and ADMS integration. The availability of configurable adaptors and industry standards can reduce these challenges.

Application & Best Practices: Utilities

Reliability & Resiliency

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	51001	Compact substations for substation security
	2:15 PM	3:15 PM	51002	Security and innovations in substation automation: Stop trading one for the other!
	3:30 PM	4:30 PM	51003	Reducing system losses and implementing self-healing to minimize impact of faults in networks
3.14.2017	1:00 PM	2:00 PM	51004	Preventing long-term outages due to loss of power transformers
	2:15 PM	3:15 PM	51005	Adaptable transformers: Optimizing investment and simplifying logistics
	3:30 PM	4:30 PM	51006	Hardening of power transformers
3.15.2017	1:00 PM	2:00 PM	51007	Microgrids for resiliency, security and energy market participation
	2:15 PM	3:15 PM	51008	Leveraging technology to manage risk and optimize reliability
	3:30 PM	4:30 PM	51009	Maintaining grid stability as generation mix changes
3.16.2017	1:00 PM	2:00 PM	51010	Internet of Things-enabled outage communication to improve utility customer satisfaction
	2:15 PM	3:15 PM	51011	Dry type bushings provide utilities with solutions to improve safety and reliability
	3:30 PM	4:30 PM	51012	Advancing transformer physical security with sensors and analytics

COURSE CODE	SESSION TITLE	ABSTRACT
51001	Compact substations for substation security	Compact substation energy bunkers provide an economical means to meet NERC Critical Infrastructure Protection 14-1 requirements. Combined with underground connection, compact switching solutions effectively hide substations and switchyards underground or inside a building. Comparable NERC CIP 14-1 compliant large open air substation switching solutions may require high exterior and interior walls, forward looking radar, anti-drone capability, extensive camera and surveillance systems, man traps, armed security, and annual first responder training.
51002	Security and innovations in substation automation: Stop trading one for the other!	The grid is becoming more versatile and being subjected to extreme and adverse conditions. Substation automation systems allow for real time data flow and decision making to improve the overall performance to achieve higher levels of resiliency. Critical infrastructure protection has become a major bottleneck in achieving this goal. The session will explore the benefits of automation while preserving the system security.
51003	Reducing system losses and implementing self-healing to minimize impact of faults in networks	Greater emphasis on reliability and efficiency of the electric distribution network is taking place through regulation at the federal and local level. Utilities have identified investments for self-healing networks and volt/VAr (Volt-Ampere Reactive) optimization to improve distribution grid reliability and efficiency to comply with the regulations. When faults occur on the system, fault detection and isolation techniques now available rarely consider the power quality and VAr impact to non-isolated customers. However, new technologies now make this possible.
51004	Preventing long-term outages due to loss of power transformers	The loss of a key transmission asset or step-up transformer, whether due to a natural or man-made event, can cause a loss of significant power to the grid. Depending on the circumstances, this loss of power could cause other cascading effects resulting in long-term outages. ABB has developed a five-step program to significantly reduce the risk and rapidly repair/replace transformers to mitigate the impact.
51005	Adaptable transformers: Optimizing investment and simplifying logistics	This session will look at specialty transformers to address any generation or transmission contingency. These include polytransformers, which are compact multi-voltage transformers which may be used as an universal network-link transformer. We will also discuss high voltage mobile power transformers, modular mobile multi-voltage transformers for transmission utilities, providing fast deployment, quick and simple transportation and multi-voltage polytransformer capabilities.
51006	Hardening of power transformers	This panel will discuss the options available for hardening of power transformers and what criteria is important in choosing you security strategy. Leading utility members will share their decisions on the chosen solutions and why they made the choices they did.
51007	Microgrids for resiliency, security and energy market participation	The most common use case for microgrids is resiliency and energy security for mission critical businesses. However, there is also a case to be made for deploying those assets in the local energy markets to improve the return on investment of the generation assets while the power grid is fully functional. These secondary use cases can greatly improve the economics of a microgrid project. Attend this informative session to gain important insights on maximizing your microgrid investment.
51008	Leveraging technology to manage risk and optimize reliability	Unlike ever before, the power industry is facing unprecedented challenges. Aging infrastructure, new regulations, major weather events, capex constraints, and reduced operations and maintenance budgets mandate risk-based decision making to optimize already limited resources. While new technologies can help utilities overcome many of these challenges, they can be complicated to navigate. Attend this informative session to discover how utilities are successfully leveraging technology, intelligent devices and big data to prioritize resources, mitigate risk and optimize reliability.

51009	Maintaining grid stability as generation mix changes	As utilities continue to diversify their energy mix by incorporating intermittent power sources such solar and wind, maintaining grid stability continues to be a challenge. Learn how utilities are using advanced grid technologies such as Static Var Compensators (SVCs) on their transmission network to compensate for fluctuations in the voltage and current by instantly injecting and absorbing reactive power. Pulling from real life examples, this presentation will offer examples of how installing SVCs on transmission networks ensured overall system efficiency and reliability.
51010	Internet of Things-enabled outage communication to improve utility customer satisfaction	In this age of high-reliability guarantee, performance-based pricing and close scrutiny from media, the need for rapid outage restoration has never been greater for electric utilities. The Internet of Things (IoT) and grid sensors provide improved grid monitoring and control, but utilities require big data analytics solutions to provide accurate, timely notifications to customers and regulators. This panel will discuss available and emerging solutions for emergency notification to provide rapid response during major storm situations and post-event analysis to strengthen the distribution grid.
51011	Dry type bushings provide utilities with solutions to improve safety and reliability	ABB's insulation and components group in Alamo, Tennessee, utilized innovation, creativity and teamwork to develop a solution for Salt River Project regarding a competitor's issue with transformer bushings that are critical to Salt River Project's system. The team provided not just a direct replacement, but enhanced the product for a more user-friendly installation. This session will review how ABB provided a resilient, reliable, easier to maintain and safer product utilizing a new type O Plus Dry resin impregnated synthetic condenser with silicone insulator bushing technology.
51012	Advancing transformer physical security with sensors and analytics	According to a recent report, part of the nation's power infrastructure is struck by a cyber or physical attack about once every four days. A 2013 substation sabotage incident marked the first major intentional attack on the power infrastructure, underscoring the changing physical security requirements. The latest patent-pending technology from ABB advances the state of the art in physical security by leveraging vibro-acoustic sensors and just-in-time impact detection and assessment algorithms. This presentation will provide an overview of this innovative technology.

Application & Best Practices: Utilities

Safety & Regulatory Compliance

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	2:15 PM	3:15 PM	51101	Hogwash! Debunking the myth that NERC CIP Standards are a case against IEC 61850
	3:30 PM	4:30 PM	51102	Modern flame scanners and applications: A fresh look at this new scanner technology
3.14.2017	1:00 PM	2:00 PM	51103	FERC Order 1000: Tame the beast
	2:15 PM	3:15 PM	51104	Implementing a world-class alarm management strategy: A guide to applying ISA 18.2 to your DCS
	3:30 PM	4:30 PM	51105	When safety matters most: Dry-type transformers for chemical, oil and gas applications
3.15.2017	1:00 PM	2:00 PM	51106	Managing protection and control systems to improve security, compliance and operation
	2:15 PM	3:15 PM	51107	Is your arc flash study up to code?
	3:30 PM	4:30 PM	51108	Strategies that address the challenges of balancing load and unstable grid frequency
3.16.2017	1:00 PM	2:00 PM	51109	NERC CIP compliance for dummies
	2:15 PM	3:15 PM	51110	Expanding into the future: GM Shrum Station service rehabilitation
	3:30 PM	4:30 PM	51111	Retrofitting safety in medium voltage metal-enclosed capacitor banks

COURSE CODE	SESSION TITLE	ABSTRACT
51101	Hogwash! Debunking the myth that NERC CIP Standards are a case against IEC 61850	Utilities have become overwhelmed with regulatory requirements, such as NERC CIP. This standard is continuously evolving, addressing requirements and closing loopholes. Recently, many utility roundtables have discussed how digital substation technology extending outside of the control house and into the switch yard is a direct violation of NERC CIP. Our experts are working with regulators through IEEE/IEC industry standard associations to obtain clarity on this issue. The hype surrounding this issue and technical solution for digital substation cyber security requirements will be addressed.
51102	Modern flame scanners and applications: A fresh look at this new scanner technology	Flame quality is key to maximizing combustion effectiveness, thermal efficiency and fuel utilization while minimizing emissions. Learn how the latest flame scanner technology and best practices can help your plant achieve these goals by detecting more than just the existence of flame. Measuring the actual flame quality as it relates to the combustion of a variety of fuels and/or various fuel combinations can provide additional insights for improved safety and performance of the combustion cycle in both power and industrial boilers.
51103	FERC Order 1000: Tame the beast	Learn how digital substation technology can drive capital cost from your substation designs. The changing landscape of the power network, driven by additional regulations such as FERC 1000 to increase competition, requires out-of-the-box thinking for the power utilities. New technologies such as digital substations and a fundamental review of companies' standards are mandatory to prepare for the future and avoid being outperformed by the competition. We will discuss advanced technology solutions that will help utilities to outline a strategy in order to reach their goal to form a vision.
51104	Implementing a world-class alarm management strategy: A guide to applying ISA 18.2 to your DCS	Alarm management has been a buzzword for some time now. Everyone knows they want it, but the potential cost and time commitment seem daunting. This session unlocks the mystery of ISA 18.2 into a practical, step-by-step approach for implementation on existing ABB DCS systems. Explore how plants have been able to use this cost-effective approach and understand the value of partnering with the DCS provider to achieve a world-class alarm management strategy.
51105	When safety matters most: Dry-type transformers for chemical, oil and gas applications	Environments such as those encountered in the chemical, oil and gas industries pose challenging transformer reliability and safety concerns. During this session, we will explore recent case examples of users applying dry-type technologies and the safety and environmental benefits they received in these challenging applications.
51106	Managing protection and control systems to improve security, compliance and operation	The advancement of system protection controls enabled industry to have much better protection schemes using latest communications, protection methods and intelligent electronic devices. However, these technologies can add potential network challenges. Regulators impose stringent operation and protection practices on bulk electrical system owners and operators. This session will explore a protection and control management process that addresses system security, regulatory compliance and system operation issues.
51107	Is your arc flash study up to code?	In this session, we will examine the current regulation and laws applicable to arc flash mitigation. We will discuss how to approach an arc flash study as well as methods to control the risks associated with arc flash.

51108	Strategies that address the challenges of balancing load and unstable grid frequency	As the grid's electric loads vary, generation often must provide frequency stabilization services. What happens when the grid frequency destabilizes, you ask? Picture rolling blackouts and unpredictable outages. Primary and secondary frequency controls provide the ability to maintain a stable generation output meeting the Regional Balancing Authority's Automatic Generation Control (AGC) load set-point. Learn the issues, scope, and design considerations in upgrading the front end controls, boiler controls and turbine controls to satisfy NERC's desired generator governor frequency responses.
51109	NERC CIP compliance for dummies	As we transition to the new and modified Critical Infrastructure Protection (CIP) reliability standards, the industry is being challenged with understanding the scope of regulated assets and reporting methodology. This panel session will review the upcoming NERC CIP deadlines and definitions and discuss how utilities and system operators can streamline their reporting and documentation process to make for a smooth and prepared transition to this new regulatory environment.
51110	Expanding into the future: GM Shrum Station service rehabilitation	The bulk of British Columbia's grid is supplied by large hydro plants. The oldest, largest dam feeds the 10-unit, 2,730 MW GM Shrum GS which provides around 25 percent of BC Hydro's electricity production. To ensure the continued performance of this key station, BC Hydro embarked on an extensive multi-year project to upgrade the plant and expand its output. Among the works are dam infrastructure, electrical upgrades and unit improvements. ABB was engaged to replace and innovate the complete station services system to prepare for a plant increase of more than 10 percent in generating capacity.
51111	Retrofitting safety in medium voltage metal-enclosed capacitor banks	While switchgear has received a lot of attention over the years around safety, medium voltage metal enclosed capacitor banks (MECBs) have typically slipped under the radar. In many cases, the potential for damage to equipment and injury to personnel is the same or higher than that of switchgear. Specifications and standards around MECBs are varied or non-existent. What options are available for new equipment, and for retrofitting existing installed equipment?

Business Forum

Business Trends & Professional Development

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	40001	Emotional intelligence: People smarts for technical professionals
	2:15 PM	3:15 PM	40002	Today's sustainability: More than good corporate citizenship
	3:30 PM	4:30 PM	40003	Driving culture to embrace Big Data and Smart Mobility at Ford
3.14.2017	1:00 PM	2:00 PM	40004	TBD
	2:15 PM	3:15 PM	40005	Town Hall with ABB CEO Ulrich Spiesshofer
	3:30 PM	4:30 PM	40006	Strategic partnering and collaboration: an executive discussion
3.15.2017	10:00 AM	11:30 AM	40007	Tech talk: A CTO roundtable
	1:00 PM	2:00 PM	40008	U.S. and global economic outlook for manufacturers
	2:15 PM	3:15 PM	40009	You're not moving SLOW enough: The unexpected formula for lasting impact
	3:30 PM	4:30 PM	40010	Do you speak millennial? Understanding, motivating and retaining younger workers
3.16.2017	1:00 PM	2:00 PM	40011	How to influence senior managers with value orientation
	2:15 PM	3:15 PM	40012	Bore no more: how to present your ideas with power, passion and professionalism
	3:30 PM	4:30 PM	40013	Bore no more: how to design a compelling story to drive change and innovation

COURSE CODE	SESSION TITLE	ABSTRACT
40001	Emotional intelligence: People smarts for technical professionals	Technical competence is not enough if you can't build and sustain relationships both professionally and personally. Emotional intelligence (EI) is a key predictor of leadership effectiveness and a better predictor of success in work and life than IQ. Fortunately, EI is a learned skill that can be developed. Self-awareness and self-management are important for managing emotions and responses in the moment. Learn about the observation and communication skills that foster social awareness, allowing you to better manage relationships.
40002	Today's sustainability: More than good corporate citizenship	Sustainability has evolved from a nice-to-have to become an essential part of any business's license to operate. Industrial firms in particular are being expected to keep a watchful eye on the environmental and social impacts of their own operations and to make a positive contribution to society beyond profitability. Sustainability also plays an important role in recruiting and retaining talent. ABB has long been a leader in sustainability, not only in our own operations, but also in helping our customers reach their sustainability goals. This session features John Revess, Chief Sustainability Officer at ABB, who brings a unique perspective to his new role after years at consumer packaging firm Rexam.
40003	Driving culture to embrace Big Data and Smart Mobility at Ford	In this session, Kathy Biermann will share with you the huge transformations underway at Ford Motor Company as they embrace the every growing significance of Big Data and Smart Mobility. Getting a 110+ year old organization to embrace change and become more agile in a rapidly changing environment, is a not an easy task, but Kathy will walk through the cultural strategy being employed to aid in this process. She will share some of the organization's key learnings, best practices and unsolved challenges as they travel this journey. If you have an interest in corporate culture, change management, the automobile industry or big data... come join this session.
40004	TBD	TBD
40005	Town Hall with ABB CEO Ulrich Spiesshofer	This special session is exclusively for ABB customers and partners, a chance to hear about ABB's vision for the future direct from CEO Ulrich Spiesshofer and other ABB senior managers. Join in a candid and open discussion on a range of topics focused on facing the challenges in today's global marketplace.
40006	Strategic partnering and collaboration: an executive discussion	Partnering and collaboration are not new concepts, but they have taken on a new level of importance as companies look for ways to increase productivity and maintain their competitive edge. Join executives from some of the region's top producers as they discuss the challenges and rewards of partnering, the keys to successful partnerships and how strategic collaboration has affected their bottom line.
40007	Tech talk: A CTO roundtable	From materials research to robotics, software and the IT/OT convergence, ABB is pushing the boundaries of technology across a variety of fields. This year, ABB Chief Technology Officer Bazmi Hussain is joined onstage by fellow CTOs for a wide-ranging discussion on where the next R&D breakthroughs are coming and how they will impact manufacturing, process industries and service. If you think Amazon's delivery drones are cool, wait till you see what's going on in the industrial space.

40008	U.S. and global economic outlook for manufacturers	Markets hate uncertainty, but these days that seems to be the one constant across the global political and economic landscape. International challenges have posed significant headwinds for manufacturers and other businesses, slowing economic growth and export demand. What can we expect from a Trump presidency, the impact of Brexit and a fragile oil market, among other things? Chad Moutray, Chief Economist at the National Association of Manufacturers, offers his perspective on these questions and what they mean for business and the global economy.
40009	You're not moving SLOW enough: The unexpected formula for lasting impact	This session explores the link between delaying gratification and our ability to persuade people. Interaction with people we desire to influence, presents us with a painful choice: instant gratification vs. lasting impact. Most of us go for the first, but doing so greatly limits our ability to achieve the second. This is due mostly 'Gratification Traps,' common pitfalls that we all experience in our workplace interactions. This session will focus on identifying three such traps and using a simple 5-step method to avoid them.
40010	Do you speak millennial? Understanding, motivating and retaining younger workers	Millennials, generally described as 18-to-34-year-olds, are now the largest generation in the American workforce. Despite many similarities with preceding generations, there are many ways in which this group is different (ever heard of the 'quarter-life crisis'?) Join us to hear from a panel of experts-young professionals-about what their contemporaries want out of work, what inspires them, what doesn't, and how Baby Boomer and Gen X managers can help younger team members succeed. This session also includes a presentation from CareerBuilder.com, one of the world's largest employment sites, on trends and insights.
40011	How to influence senior managers with value orientation	The term 'value' is everywhere: products and services have a 'value proposition'. We use 'value-based selling' to bring them to market. And that $7 beer at the ballgame is a great example of 'value pricing.' But what does it really mean to be value oriented? This session explores the mindset and skills that make up value orientation, and how this concept is an essential part of the 'language of management.' We'll discuss the four building blocks of value orientation (desired outcomes, obstacles, solutions and resources) and how successful professionals use these when they listen, think, communicate and act. Join us for valuable insights that can help you succeed in any role.
40012	Bore no more: how to present your ideas with power, passion and professionalism	It doesn't matter how mind-blowing your ideas are if you can't capture your audience's attention. Let's face it: if your presenting style is filled with nervous tics, 'um's' and 'uh's,' poor eye contact, awkward gestures and a less-than-commanding stance, nobody is going to be focused on your content. In this interactive session, learn how to command the room (even before you speak) and present your ideas in a way that conveys your confidence and competence.
40013	Bore no more: how to design a compelling story to drive change and innovation	Communicating clearly and concisely is important for every speaker, but it's positively do-or-die for the technical presenter. One of the most effective ways for technical professionals to transform their sessions is to tell a compelling story. According to the Harvard Business Review, powerful speakers know how to combine data and narrative to make an impact, ignite change and inspire innovation. This session shares concrete tips and tools to help you become a more compelling, concise, clear and effective speaker.

Business Forum

Cyber Security: Manage Changing Risks Successfully

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	40101	Making the case for cyber security investment
	2:15 PM	3:15 PM	40102	Secure deployment in the Industrial Internet of Things
	3:30 PM	4:30 PM	40103	Cyber security: Strategy for electricity distribution management system and security considerations
3.14.2017	1:00 PM	3:15 PM	40104	ABB Cyber Security Service: Services to improve and maintain your assets' resilience and reliability
	3:30 PM	4:30 PM	40106	Solving the challenge of control system cyber security maintenance
3.15.2017	1:00 PM	2:00 PM	40107	Audit ready for NERC version 6?
	2:15 PM	3:15 PM	40108	Cyber security: The present state and where the future will lead
	3:30 PM	4:30 PM	40109	Ukraine: Anatomy of a cyber-directed power outage
3.16.2017	1:00 PM	2:00 PM	40110	Cyber security in the supply chain
	2:15 PM	3:15 PM	40111	Developing a workforce to master cyber security challenges
	3:30 PM	4:30 PM	40112	Putting your data in the cloud: A risky dream or just dreamed up risks?

COURSE CODE	SESSION TITLE	ABSTRACT
40101	Making the case for cyber security investment	A good cyber security program requires substantial resources. Without an appropriate budget, it is virtually impossible to reliably achieve and maintain the level of security your organization needs. However, quantifying a return on investment for security is challenging, as no established models exist yet. Join us in this session to discuss with thought leaders from the industry how to communicate with management decision makers and how to justify the cyber security investment you need.
40102	Secure deployment in the Industrial Internet of Things	Cyber security must be at the heart of any Internet of Things (IoT) project and must be considered for any device and type of deployment â€' from smart sensors, gateways, and edge computing devices to on-premise and hybrid deployments of IoT infrastructure and applications. Learn why cyber security is a necessity to be deployed and how you can manage the complex cyber security challenges successfully.
40103	Cyber security: Strategy for electricity distribution management system and security considerations	This session will cover some strategies and methods in creating effective cyber security architectures for substation and distribution automation systems. We will also look at products which are robust enough to withstand cyber-attacks in the first place, and resilient enough to recover in the event of security compromise while keeping the device functional and executing its core functionality even during an attack period. This is achieved by a defense in depth strategy starting from product design through to independent security tests.
40104	ABB Cyber Security Service: Services to improve and maintain your assets' resilience and reliability	Keeping up with the latest best practices for process and safety procedures is a continuous effort. In cyber security, this is even more challenging. Companies struggle to define an effective strategy to address the variety and constantly changing threat landscape. ABB offers a comprehensive portfolio of cyber security services that enable customers to evolve seamlessly, with regulations or other needs, and without losing their investment. These services provide customers with improved resilience, reliability, availability and resource allocation, as well as compliance where relevant.
40106	Solving the challenge of control system cyber security maintenance	Operators of power plants are implementing cyber security programs in an increasing number of markets, whether required by regulation or motivated by emerging threats. Cyber security management tools and services which are tailored to support industrial control systems are key to winning the battle. Owners needs vary from consulting and implementation to continuous operation and maintenance programs. These challenges require new solutions to improve plant cyber security while not compromising the overall operational reliability.
40107	Audit ready for NERC version 6?	Audits under NERC CIP version 6 are in full swing, and early results are in. An industry expert will provide an overview of the feedback coming back to the industry from both the entities' and regional auditors' perspective. We will summarize the guidance coming out of these early audits and provide color commentary on the interpretations of the standard that are the most challenging for both the auditors and the entities. We will then hear directly from our customer panel about their experiences for both preparation for the audit and their interaction during the audit process.
40108	Cyber security: The present state and where the future will lead	Forget the hype and hysteria, industrial control systems today are truly under attack. Unplanned downtime is the enemy, and manufacturers need to understand that security is a moving target. What works today may not work tomorrow. In a lively free-flowing question and answer session, hear how end users, solution providers, standards organizations and suppliers plan to stay one step ahead of the bad guys.

40109	Ukraine: Anatomy of a cyber-directed power outage	In December 2015, the first confirmed case of a cyber attack disrupting electrical service occurred in the Ukraine, which was followed up again in December 2016. Three separate distribution level utilities were attacked, causing wide-spread power outages. This session will review the attacker's techniques and defensive mechanisms for disrupting the attack. We will review key performance indicators (KPIs) for use in cyber defense and how measuring these can improve your organization's cyber readiness. We will also review tools and techniques for collecting evidence following a successful cyber attack.
40110	Cyber security in the supply chain	Security in the supply chain is a growing concern, including what needs to be considered and where the challenges are. This session will give insight on how ABB deals with cyber security in the supply chain.
40111	Developing a workforce to master cyber security challenges	It's often said that the human is the weakest link when dealing with cyber security risks. But how do we deal with this weakest link? How do we assure the right level of competencies throughout our organizations? This session will bring together thought leaders who are actively involved in training tomorrow's workforce.
40112	Putting your data in the cloud: A risky dream or just dreamed up risks?	The Internet of Things (IoT) brings undisputed benefits to any asset owner, whether it is increased productivity and efficiency, reduced downtime or better visibility. In order to fully leverage all these benefits, however, automation systems need to be connected with outside networks, and data needs to be made available to applications in the cloud. This session will show how asset owners can fully leverage the benefits of IoT without compromising security.

Business Forum

Effective Project Management

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	40201	Top 10 change management tips to boost project success
	2:15 PM	3:15 PM	40202	Thoughts from Albert Einstein still apply today
	3:30 PM	4:30 PM	40203	Stop and think!: Strategies for critical thinking in a business environment
3.14.2017	1:00 PM	2:00 PM	40204	Theory vs. reality: A collision in project management
	2:15 PM	3:15 PM	40205	Critical success factors vs. risk
	3:30 PM	4:30 PM	40206	The Zone of Confusion: Managing ambiguity in projects
3.15.2017	1:00 PM	2:00 PM	40207	A technical genius my grandfather: Humor in project management
	2:15 PM	3:15 PM	40208	Earned Value: A hated necessity
	3:30 PM	4:30 PM	40209	Harvesting the benefits of an EICT contractor in oil and gas project execution
3.16.2017	1:00 PM	2:00 PM	40210	UX design: The next project management dilemma
	2:15 PM	3:15 PM	40211	Product Breakdown Structure: Breaking down this underutilized tool
	3:30 PM	4:30 PM	40212	Managing risks through team collaboration and effective project management

COURSE CODE	SESSION TITLE	ABSTRACT
40201	Top 10 change management tips to boost project success	Successful implementation of new systems and tools is about more than just technology implementation! Even with great project management, companies can miss out on realizing the full return on their investment by not focusing enough on the people side of the project. To increase adoption, utilization and proficiency of those impacted by the project, a comprehensive change management approach must be applied. In this session, participants will learn key change management best practices to help implementation projects meet their objectives, on time and on budget.
40202	Thoughts from Albert Einstein still apply today	The thought processes of the famous inventor still apply today. Examples of his quotes that continue to resonate include: 'If you can't explain it to a six year old, you don't understand it yourself.' 'You never fail until you stop trying.' 'Everything must be made as simple as possible. But not simpler.' 'Genius is 1% talent and 99% percent hard work...' 'Always do what's right; this will gratify some and astonish the rest.' 'Only those who attempt the absurd can achieve the impossible.' 'You can never solve a problem on the level on which it was created.'
40203	Stop and think!: Strategies for critical thinking in a business environment	Imagine if you could solve a problem once and it would go away. Or, if you could implement a solution that really works, or seize upon opportunities before it is too late. This presentation offers a structured approach for tackling problems, opportunities and decisions that will ultimately help you get better results - whether you are innovating, managing crises or planning for the future. The presentation addresses the five types of critical thinking needed in business environments: strategic thinking, tactical thinking, analytical thinking, innovative thinking and implicative thinking.
40204	Theory vs. reality: A collision in project management	Most project managers realize that a by-the-book approach to project management doesn't always work well in practice. To fully understand project management, it must be tested and tried in real-life scenarios. Variations in clients, companies, cultures, and team members can dramatically change the experience of managing a project, and that kind of perspective isn't easily learned from reading a book. While possessing a theoretical foundation is essential to managing projects, leadership and adaptation skills are what's really going to drive success in any circumstance.
40205	Critical success factors vs. risk	Project managers are responsible for identifying and managing potential risks, as well as determining a projects Critical Success Factors (CSF). When the CSF are missing, the risk muscle in a project manager puckers. To avoid an uphill battle, it’s important that project managers understand the dynamics between CSFs and project risks and identify any existing CSFs in the team environment. In this session, participants will learn how to create a risk management plan that outlines the relationships between CSFs and risk, and gain tools on how to better communicate with project sponsors about risk mitigation strategies.
40206	The Zone of Confusion: Managing ambiguity in projects	When it comes to delivering a project in scope and on budget, project managers and executive management do not always see eye-to-eye, leading to the Zone of Confusion (ZOC). The ZOC is an area of discontent for both parties as they both want to see a project completed successfully. Management sets the budget and expects project managers to deliver according to the scoped time and resources available. However, a change in scope or poorly-determined budgets and resources can leave project managers frustrated and feeling like they are being set up to fail. Managing the ZOC from both perspectives is key to ensuring project success and keeping teams engaged.

40207	A technical genius â€“ my grandfather: Humor in project management	The concepts of innovation and project management are not exclusive to our careers. Having the ability to see a problem or opportunity and determine creative ways to address the issues is an invaluable skill. My grandfather, Carl Rolen, lived to be 99 years old and never stopped looking for opportunities to solve problems his last patent arrived on his 89th birthday! From teaching project principles to a five-year-old to getting Ohio State University to fund failure mode analysis on his invention, his humor and philosophies on project management in the real-world can help managers break through the noise to reap the benefits.
40208	Earned Value: A hated necessity	If you're looking to take a snapshot of your projects or businesss health, you may go one of two routes Earned Value Analysis or Balance Sheet Analysis. Both of these processes examine the project/business from a financial, portfolio management and project management perspective. Depending on the lens, the method of measurement and results will differ. It is then up to the project manager to understand and communicate the differences in a way that is clear to the team. Using the earned value visualization tools can be beneficial in helping project managers to keep their work simple while engaging their teams.
40209	Harvesting the benefits of an EICT contractor in oil and gas project execution	In challenging and changing market conditions it is more important than ever for vendors, contractors and end users in the oil and gas industry to be more competitive together. Effective project execution with minimized risk and increased use of cost-effective solutions is key to enable investments in the industry. Engaging ABB as the main Electrical, Instrumentation, Control and Telecoms (EICT) contractor provides benefits of an integrated delivery and enables engineering contractors, yards and end users to execute their projects more effectively.
40210	UX design: The next project management dilemma	Gathering requirements is a complex process that often stumps project managers. They may look to sales, marketing or business analysts to help them determine requirements, but ultimately, they need to manage the process. User experience design offers a different perspective/process for project managers to gather requirements. Learning to integrate UX design into projects can enhance the viability of the projects output. However, it is important to remember that gathering someones intended experience is different from determining the needs. This presentation will share an example and approach for determining those needs through a UX lens.
40211	Product Breakdown Structure: Breaking down this underutilized tool	Theres often a gap between gathering requirements, identifying scope, and understanding the work necessary to develop the scope. Most stakeholders are not interested in the intricacies of the work, but instead are focused on the delivery of the products/services. This is where the Product Breakdown Structure (PBS) helps bridge these two concepts for the stakeholders. The PBS is created by breaking down the product/ service into the smallest deliverable components that are defined by the requirements. It is helpful in mapping the delivery of the products against the timeline of the project as well as showing how changes in requirements can affect other products due to interdependencies.
40212	Managing risks through team collaboration and effective project management	Successful project execution requires more than just adopting the latest project management software and tools. Capital intensive and high-risk engineering, procurement and construction (EPC) substation projects require a combination of utility experience, effective communication procedures and a well-developed project execution plan. This presentation will explore how upfront planning and communication are key ingredients for success when dealing with high-risk substation EPC projects.

Business Forum

Peer-to-Peer Discussions

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	2:15 PM	3:15 PM	40301	Millennial panel discussion
	3:30 PM	4:30 PM	40302	Is your utility ready for wireless network hypergrowth?
3.14.2017	1:00 PM	2:00 PM	40303	Big data: What can I do with all this information?
	2:15 PM	3:15 PM	40304	Keep the power flowing: Engage with your electrical peers from the oil, gas and chemicals industry
	3:30 PM	4:30 PM	40305	Asset health: How do you get started with smart asset management?
3.15.2017	1:00 PM	2:00 PM	40306	Automation in the oil, gas and chemical industry: Sharing insights and experiences
	2:15 PM	3:15 PM	40307	Managing telecommunications challenges in the oil, gas and chemicals industry

COURSE CODE	SESSION TITLE	ABSTRACT
40301	Millennial panel discussion	Millennials, generally described as 18-to-34-year-olds, have moved past Generation X to become the largest generation in the American workforce. In reality, there are strong similarities between millennials and the generations that have preceded them. However, there are many ways in which this growing segment of the workforce is different. They have strong beliefs and expectations that extend to the workplace. There are a number of key learnings employers can use to address concerns regarding attracting, acquiring, developing, and retaining this generation of workers.
40302	Is your utility ready for wireless network hypergrowth?	Utilities are building wireless communications networks at a pace twice as fast as the cellular industry did. During the 20-year timeframe when the cellular industry grew from 25 million to 350 million network connected devices, they were able to rely on vendor partners to help them with their network build out. Today, utilities need a technology and services company, like ABB, that understands both the wireless communications business and the utility business, and that offers meaningful assistance in the form of portfolio breadth, network management and turnkey implementation capabilities.
40303	Big data: What can I do with all this information?	Customers are inquiring more and more about data. With memory getting cheaper, customers are asking what data they need to store, what information can help their process, and if we have people who can analyze the data to help improve their productivity and lower their cost. This session is a great opportunity for you to discuss with ABB experts, and to share and learn from your peers.
40304	Keep the power flowing: Engage with your electrical peers from the oil, gas and chemicals industry	End users and operators face an unreliable power supply in many parts of the world. Voltage sags, surges and outages are common. Energy costs can be volatile, legislation is becoming more stringent, and there can be significant differences in regulations as companies start to operate in different countries. How do you manage these and other challenges, and still keep the power flowing through your plant, pipeline or platform? Join this discussion to ask questions, share experiences and network with other electrical professionals from all sectors of the oil, gas and chemicals industry.
40305	Asset health: How do you get started with smart asset management?	Many organizations want to transition to condition-based, or predictive, maintenance of assets. However, many are not sure how to do it. Where do you start? When do you start? Which assets should you monitor? Which monitoring technology do you choose? The good news is, you don't need to eat the elephant in one bite; there are a myriad of options, and partnering with an asset monitoring expert who can guide you and your team through the process will reduce headaches and ensure success. This interactive discussion will include advice on getting started, best practices and what to avoid.
40306	Automation in the oil, gas and chemical industry: Sharing insights and experiences	As technology advances and the workforce shifts to a new generation, the oil, gas and chemical industry is seeing a greater need to automate. Plus, with more assets being operated beyond their originally expected operating lives, companies are taking a hard look at the systems, processes and equipment they have in order to increase efficiency, maximize production and save money. How are you being tasked with managing these challenges? Join this discussion to ask questions, share experiences and network with other automation professionals from all sectors of the industry.

40307	Managing telecommunications challenges in the oil, gas and chemicals industry	Oil, gas and chemical companies face a host of challenges when it comes to the telecommunications systems. From integrating disparate SCADA and communication systems, to production sites and assets in remote locations, to the increasing use of mobile technology, cloud computing and BYOD policies, managing your telecommunications needs can seem more daunting than ever before. Bring your questions, theories and war stories to this roundtable discussion and see how your telecommunications peers in the oil, gas and chemicals industry are handling similar challenges.

Interactive Technical Training

Distribution Automation

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	3:15 PM	70001	Design, implement and test redundant network in substations and utilities
	3:30 PM	4:30 PM	70002	System reliability advancements achieved through modern DFR evaluation tools.
3.14.2017	10:15 AM	11:30 AM	70003	Optimizing SCADA networks with IEC 61850 MMS
	1:00 PM	3:15 PM	70004	Relion technology builds cost effective schemes to improve safety and efficiency of operations
	3:30 PM	4:30 PM	70005	SCADA control applications using DNP3.0, Modbus, and IEC 61850 MMS
3.15.2017	10:00 AM	11:30 AM	70006	Optimizing SCADA networks with IEC 61850 MMS
	1:00 PM	3:15 PM	70007	Design, implement and test redundant network in substations and utilities
	3:30 PM	4:30 PM	70008	Automated substation event notification capabilities provide faster evaluation and response time
3.16.2017	10:00 AM	11:30 AM	70009	Optimizing SCADA networks with IEC 61850 MMS
	1:00 PM	3:15 PM	70010	Relion technology builds cost effective schemes to improve safety and efficiency of operations
	3:30 PM	4:30 PM	70011	System reliability advancements achieved through modern DFR evaluation tools.

COURSE CODE	SESSION TITLE	ABSTRACT
70001	Design, implement and test redundant network in substations and utilities	When IEC 61850 GOOSE is used in substations and utilities, a redundant network is a critical requirement with GOOSE implementation. This hands-on session will focus on the designing of a redundant network with parallel redundancy protocol (PRP) and media redundancy protocol (MRP) with ABB Relion® relays and ABB Ethernet switches. The hands-on exercise includes designing a redundant network, wiring and configuring ABB relays and Ethernet switches, setup of a virtual LAN (VLAN), watching communications on the redundant network, and testing and troubleshooting redundant communication.
70002	System reliability advancements achieved through modern DFR evaluation tools.	This session will focus on understanding the digital fault recorder (DFR) capabilities of modern protective relaying, including advanced configuration capabilities and evaluation of case studies.
70003	Optimizing SCADA networks with IEC 61850 MMS	This session will discuss IEC 61850 Manufacturing Message Specification (MMS) configuration of COM600 and a Relion relay, and acquaint the user with the benefits it offers. MMS is a client-server based communication protocol and is based on the concept of a client polling a server for data. In addition, the server can also generate an event upon change of state and send that information to the client in an unsolicited manner.
70004	Relion technology builds cost effective schemes to improve safety and efficiency of operations	The configuration of a Relion distribution relay consists of connections between an application's functions according to the needs of a particular functional application. The configurations can be easily modified to user specific requirements by using the application configuration tool (ACT). This session will cover some simple yet practical examples of ACT logic applications that can be applied in Relion relays for a variety of applications. The students will develop and test applications like breaker delay closing, pole disagreement and zone sequence coordination logic.
70005	SCADA control applications using DNP3.0, Modbus, and IEC 61850 MMS	In this session, various control applications will be discussed for SCADA using the COM600.
70006	Optimizing SCADA networks with IEC 61850 MMS	This session will discuss IEC 61850 Manufacturing Message Specification (MMS) configuration of COM600 and a Relion relay, and acquaint the user with the benefits it offers. MMS is a client-server based communication protocol and is based on the concept of a client polling a server for data. In addition, the server can also generate an event upon change of state and send that information to the client in an unsolicited manner.
70007	Design, implement and test redundant network in substations and utilities	When IEC 61850 GOOSE is used in substations and utilities, a redundant network is a critical requirement with GOOSE implementation. This hands-on session will focus on the designing of a redundant network with parallel redundancy protocol (PRP) and media redundancy protocol (MRP) with ABB Relion relays and ABB Ethernet switches. The hands-on exercise includes designing a redundant network, wiring and configuring ABB relays and Ethernet switches, setup of a virtual LAN (VLAN), watching communications on the redundant network, and testing and troubleshooting redundant communication.
70008	Automated substation event notification capabilities provide faster evaluation and response time	Modern equipment allows greater detailed event notifications than the typical SCADA alarm point. This session will demonstrate advanced automated substation event notifications, and show how specific event information, including digital fault recorder (DFR) records, can be sent directly to an individuals network PC, phone or email. The direct notification of responsible individuals with pertinent information can greatly reduce outage time and get the correct resources onsite quickly.

70009	Optimizing SCADA networks with IEC 61850 MMS	This session will discuss IEC 61850 Manufacturing Message Specification (MMS) configuration of COM600 and a Relion relay, and acquaint the user with the benefits it offers. MMS is a client-server based communication protocol and is based on the concept of a client polling a server for data. In addition, the server can also generate an event upon change of state and send that information to the client in an unsolicited manner.
70010	Relion technology builds cost effective schemes to improve safety and efficiency of operations	The configuration of a Relion distribution relay consists of connections between an application's functions according to the needs of a particular functional application. The configurations can be easily modified to user specific requirements by using the application configuration tool (ACT). This session will cover some simple yet practical examples of ACT logic applications that can be applied in Relion relays for a variety of applications. The students will develop and test applications like breaker delay closing, pole disagreement and zone sequence coordination logic.
70011	System reliability advancements achieved through modern DFR evaluation tools.	This session will focus on understanding the digital fault recorder (DFR) capabilities of modern protective relaying, including advanced configuration capabilities and evaluation of case studies.

Interactive Technical Training

Drives, PLCs, Servos & Motion 1

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	3:15 PM	70101	ACS380 AC drive configuration: Hands-on experience
	3:30 PM	4:30 PM	70102	Drive-to-drive communications - fiber: Hands-on experience
3.14.2017	10:15 AM	11:30 AM	70103	ACS380 AC drive configuration: Hands-on experience, part 1
	1:00 PM	2:00 PM	70104	ACS380 AC drive configuration: Hands-on experience, part 2
	2:15 PM	4:30 PM	70105	IEC 61131-3 programming: Hands-on experience
3.15.2017	10:00 AM	11:30 AM	70106	Functional safety option (FSO) and the ACS880: Hands-on experience, part 1
	1:00 PM	2:00 PM	70107	Functional safety option (FSO) and the ACS880: Hands-on experience, part 2 (cont. from part 1)
	2:15 PM	4:30 PM	70108	ABB drives and RSLogix 5000 controllers: Ethernet
3.16.2017	10:00 AM	11:30 AM	70109	Adaptive programming for the ACS880: Hands-on experience, part 1
	1:00 PM	2:00 PM	70110	Adaptive programming for the ACS880: Hands-on experience, part 2
	2:15 PM	4:30 PM	70111	DCS800 DC drive configuration: Hands-on experience

COURSE CODE	SESSION TITLE	ABSTRACT
70101	ACS380 AC drive configuration: Hands-on experience	This Interactive Technical Training and hands-on lab provide an overview of the ACS380 AC drive and demonstrate the key software characteristics that make it the optimal solution for general industrial applications, pumps and fans, including an energy savings calculator. During this workshop, you have access to the ACS380 demo case and the opportunity to work with several of the unique software features that make this product extremely flexible for a variety of applications.
70102	Drive-to-drive communications - fiber: Hands-on experience	This Interactive Technical Training and hands-on lab will allow the participant to explore the backward compatibility of fiber optic communications between the ACS800 and ACS880 AC drives. Participants with obtain instruction in the installation, set-up and programming of drives in a fiber network, in leader-follower (master-follower) configuration. Applications using backward compatibility will be explored.
70103	ACS380 AC drive configuration: Hands-on experience, part 1	This Interactive Technical Training and hands-on lab provide an overview of the ACS380 AC drive and demonstrate the key software characteristics that make it the optimal solution for general industrial applications, pumps and fans, including an energy savings calculator. During this workshop, you have access to the ACS380 demo case and the opportunity to work with several of the unique software features that make this product extremely flexible for a variety of applications.
70104	ACS380 AC drive configuration: Hands-on experience, part 2	This Interactive Technical Training and hands-on lab provide an overview of the ACS380 AC drive and demonstrate the key software characteristics that make it the optimal solution for general industrial applications, pumps and fans, including an energy savings calculator. During this workshop, you have access to the ACS380 demo case and the opportunity to work with several of the unique software features that make this product extremely flexible for a variety of applications.
70105	IEC 61131-3 programming: Hands-on experience	This Interactive Technical Training and hands-on lab will provide an overview of IEC 61131-3 programming language, which is common to ABB PLCs and the 'All Compatible' drive offerings. In this session, participants will create their own basic program to communicate and control an AC drive.
70106	Functional safety option (FSO) and the ACS880: Hands-on experience, part 1	This Interactive Technical Training and hands-on lab will provide an overview of functional safety option (FSO), which is a safety option required in many ACS880 applications. This session provides participants with instruction in the installation, wiring and commissioning of the FSO-12 module, with Drive Composer Pro as the PC tool used to create safety option modifications. The course includes examples of applications needing safety functions. Previous experience with the ACS880 AC drive and Drive Composer Pro is required.
70107	Functional safety option (FSO) and the ACS880: Hands-on experience, part 2 (cont. from part 1)	This Interactive Technical Training and hands-on lab will provide an overview of functional safety option (FSO), which is a safety option required in many ACS880 applications. This session provides participants with instruction in the installation, wiring and commissioning of the FSO-12 module, with Drive Composer Pro as the PC tool used to create safety option modifications. The course includes examples of applications needing safety functions. Previous experience with the ACS880 AC drive and Drive Composer Pro is required.
70108	ABB drives and RSLogix 5000 controllers: Ethernet	This Interactive Technical Training and hands-on lab provides an opportunity to review the RSLogix 5000 PLC interface with ABB drives, focusing on the ACS880 drives. In addition, ABB's eCO PLC interface with ABB drives will be explored, as well as various other PLC manufacturers. An in-depth look at add-on instructions (AOI) and user-defined data types (UDT) will be taken, as well as how simple procedures allow for a multitude of flexible configurations.

70109	Adaptive programming for the ACS880: Hands-on experience, part 1	This Interactive Technical Training and hands-on lab uses the ACS880 AC drive. Participants who already have experience with the ACS880 AC drive will learn how they can expand the application solutions available with every ACS880 AC drive. In this advanced workshop, participants will learn to exploit the adaptive programming (AP) features and will create their own application solutions inside the drive. Previous experience with the ACS880 AC drive is required, and experience with Drive Composer Pro is recommended.
70110	Adaptive programming for the ACS880: Hands-on experience, part 2	This Interactive Technical Training and hands-on lab uses the ACS880 AC drive. Participants who already have experience with the ACS880 AC drive will learn how they can expand the application solutions available with every ACS880 AC drive. In this advanced workshop, participants will learn to exploit the adaptive programming (AP) features and will create their own application solutions inside the drive. Previous experience with the ACS880 AC drive is required, and experience with Drive Composer Pro is recommended.
70111	DCS800 DC drive configuration: Hands-on experience	Discover the key software and performance characteristics that enable the DCS800 DC drive to perform a multitude of motor control applications. During this Interactive Technical Training and hands-on lab, you will have access to the DCS800 demo case and the opportunity to commission the drive from start to finish and then edit parameters to configure the drive for application specific tasks.

Interactive Technical Training

Drives, PLCs, Servos & Motion 2

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	3:15 PM	70201	ACS880 AC drive configuration: Hands-on experience
3.14.2017	10:15 AM	11:30 AM	70202	ABB drives and RSLogix 5000 controllers - Ethernet, part 1
	1:00 PM	2:00 PM	70203	ABB drives and RSLogix 5000 controllers - Ethernet, part 2
	2:15 PM	4:30 PM	70204	Drive/PLC connectivity, 'basic' interface: Hands-on experience
3.15.2017	10:00 AM	11:30 AM	70205	Fieldbus communications protocols (PLCs to Drives) and PC tools: Hands-on experience, part 1
	1:00 PM	2:00 PM	70206	Fieldbus communications protocols (PLCs to drives) and PC tools: Hands-on experience, part 2
	2:15 PM	4:30 PM	70207	AC500 PLC and HMI communications to the ACS880 via Ethernet
3.16.2017	10:00 AM	11:30 AM	70208	Fieldbus communications protocols (PLCs to drives) and PC tools: Hands-on experience, part 1
	1:00 PM	2:00 PM	70209	Fieldbus communications protocols (PLCs to drives) and PC tools: Hands-on experience, part 2
	2:15 PM	4:30 PM	70210	ABB automation builder software and AC500 PLC controlling a MicroFlex e190 servo drive via EtherCAT

COURSE CODE	SESSION TITLE	ABSTRACT
70201	ACS880 AC drive configuration: Hands-on experience	This Interactive Technical Training and hands-on lab provides an overview of the ACS880 AC drive and demonstrates the key software characteristics that make it the optimal solution for any industrial application. During this workshop, you have access to the ACS880 demo case and the opportunity to commission the drive from start to finish, and then edit parameters to configure the drive for application specific tasks and performance applications.
70202	ABB drives and RSLogix 5000 controllers - Ethernet, part 1	This Interactive Technical Training and hands-on lab provides an opportunity to review the RSLogix 5000 PLC interface with ABB drives, focusing on the ACS880 drives. In addition, ABB's eCO PLC interface with ABB drives will be explored, as well as various other PLC manufacturers. An in-depth look at add-on instructions (AOI) and user-defined data types (UDT) will be taken, as well as how simple procedures allow for a multitude of flexible configurations.
70203	ABB drives and RSLogix 5000 controllers - Ethernet, part 2	This Interactive Technical Training and hands-on lab provides an opportunity to review the RSLogix 5000 PLC interface with ABB drives, focusing on the ACS880 drives. In addition, ABB's eCO PLC interface with ABB drives will be explored, as well as various other PLC manufacturers. An in-depth look at add-on instructions (AOI) and user-defined data types (UDTs) will be taken, as well as how simple procedures allow for a multitude of flexible configurations.
70204	Drive/PLC connectivity, 'basic' interface: Hands-on experience	This Interactive Technical Training and hands-on lab provides a 'basic' overview of the drive-PLC communications interface. This session is intended for those individuals new to PLC control systems. An ABB PLC will be used to demonstrate how a drive can easily be controlled through connectivity rather than hard-wired inputs/outputs. The communications interface will be explored, which will apply to a multitude of industrial applications. During this workshop, 'hard-wired' I/O drive control will be reviewed, followed by an exploration of how a PLC communications control method can optimize a drive system.
70205	Fieldbus communications protocols (PLCs to Drives) and PC tools: Hands-on experience, part 1	This Interactive Technical Training and hands-on lab will provide an overview of communication protocols for industrial applications with ABBâ€™s AC and DC drives and the PC tools they use. We will briefly discuss the various protocols, and then participants will configure and establish communications control with the drive using Modbus TCP/IP communications and PC tools for the ACS880. Additionally, the participant will learn how to use the associated driveâ€™s PC tool through an instructor-led, hands-on session and through a self-directed lab for establishing the communications link.
70206	Fieldbus communications protocols (PLCs to drives) and PC tools: Hands-on experience, part 2	This Interactive Technical Training and hands-on lab will provide an overview of communication protocols for industrial applications with ABB’s AC and DC drives and the PC tools they use. We will briefly discuss the various protocols, and then participants will configure and establish communications control with the drive using Modbus TCP/IP communications and PC tools for the ACS880. Additionally, the participant will learn how to use the associated drives PC tool through an instructor-led, hands-on session and through a self-directed lab for establishing the communications link.
70207	AC500 PLC and HMI communications to the ACS880 via Ethernet	This hands-on lab provides attendees with the ability to download and modify their own basic program using an ABB AC500 PLC to communicate with the CP600 HMI over Ethernet connections. The HMI will represent a typical drive panel control circuit. Remote software tools will be used to control and explore the HMI and PLC project. All of these tools are part of the Automation Builder Software Suite.

70208	Fieldbus communications protocols (PLCs to drives) and PC tools: Hands-on experience, part 1	This Interactive Technical Training and hands-on lab will provide an overview of communication protocols for industrial applications with ABB's AC and DC drives and the PC tools they use. We will briefly discuss the various protocols, and then participants will configure and establish communications control with the drive using Modbus TCP/IP communications and PC tools for the ACS880. Additionally, the participant will learn how to use the associated drives PC tool through an instructor-led, hands-on session and through a self-directed lab for establishing the communications link.
70209	Fieldbus communications protocols (PLCs to drives) and PC tools: Hands-on experience, part 2	This Interactive Technical Training and hands-on lab will provide an overview of communication protocols for industrial applications with ABBâ€™s AC and DC drives and the PC tools they use. We will briefly discuss the various protocols, and then participants will configure and establish communications control with the drive using Modbus TCP/IP communications and PC tools for the ACS880. Additionally, the participant will learn how to use the associated drives PC tool through an instructor-led, hands-on session and through a self-directed lab for establishing the communications link.
70210	ABB automation builder software and AC500 PLC controlling a MicroFlex e190 servo drive via EtherCAT	ABB Automation Builder Software with the PLCopen motion library can be used to perform real-time motion control of MicroFlex e190 AC Servo Drives with the AC500 PLC and EtherCAT Master Communication module. This hands-on training demonstrates motion applications including relative move and homing commands.

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Interactive Technical Training

Electrification Product Solutions

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	70301	ABB control panel solutions
	2:15 PM	3:15 PM	70302	Corrosion solutions
	3:30 PM	4:30 PM	70303	Arc flash solutions
3.14.2017	10:15 AM	11:30 AM	70304	Grounding/bonding solutions
	1:00 PM	2:00 PM	70305	ABB control panel solutions
	2:15 PM	3:15 PM	70306	Corrosion solutions
	3:30 PM	4:30 PM	70307	Arc flash solutions
3.15.2017	10:00 AM	11:30 AM	70308	Grounding/bonding solutions
	1:00 PM	2:00 PM	70309	Surge protection solutions
	2:15 PM	3:15 PM	70310	Integrating safety and protection components in energy storage systems
	3:30 PM	4:30 PM	70311	Low voltage smart circuit breaker makes microgrids simpler and more cost-effective
3.16.2017	10:00 AM	11:30 AM	70312	Low voltage smart circuit breaker makes microgrids simpler and more cost-effective
	1:00 PM	2:00 PM	70313	Integrating safety and protection components in energy storage systems

COURSE CODE	SESSION TITLE	ABSTRACT
70301	ABB control panel solutions	Consider this: a simple control panel containing eleven components, with five possible vendors for each product, yields 605 individual product choices (11x5x11). The number of possible configurations of products in the control panel are 48,828,125 (5 to the 11th power). In other words, it's a lot. It should be obvious that the best course of action is to limit the number of vendors you deal with, to lower your risk. In this session we will review the extensive ABB product portfolio, and how it can meet your needs to design and build a reliable, cost-effective control panel.
70302	Corrosion solutions	Steel corrosion is a costly problem; in fact, the annual direct cost of metallic corrosion worldwide is around $2.2 trillion USD. North America is a large contributor to these annual costs, as the annual cost of corrosion in the U.S. is estimated at over $400 billion. Though steel corrosion, whether in atmospheric, soil, water or other exposures, is a natural phenomenon, estimates show 25-30 percent could be stymied if proper corrosion protection methods were employed. This session will allow participants to evaluate the effects of corrosion and possible solutions for prevention.
70303	Arc flash solutions	Do you want to provide your employees with a safe and protected environment to ensure everyone goes home to their families?Â ABB solutions such as arc flash protection provide you with peace of mind knowing that this is possible. Topics will include learning the importance of arc flash protection with Arc Guard TVOC-2, a review of the new communication module available, and the Internet of Things (IoT) and connectivity to Emax 2 power circuit breakers, combining ABB solutions.
70304	Grounding/bonding solutions	Proper grounding and bonding are primary factors for safety and the delivery of quality power throughout a facility. During this session, we will formally define both grounding and bonding. The dangers associated with overcurrent faults will be explored, and we'll show how Blackburn Compression Products Systems deliver a safe, verifiable solution for properly grounding and bonding an electrical system. Participants will leave knowing how to mitigate threats to electrical systems and personnel through proper grounding and bonding.
70306	Corrosion solutions	Steel corrosion is a costly problem; in fact, the annual direct cost of metallic corrosion worldwide is around $2.2 trillion USD. North America is a large contributor to these annual costs, as the annual cost of corrosion in the U.S. is estimated at over $400 billion. Though steel corrosion, whether in atmospheric, soil, water or other exposures, is a natural phenomenon, estimates show 25-30 percent could be stymied if proper corrosion protection methods were employed. This session will allow participants to evaluate the effects of corrosion and possible solutions for prevention.
70307	Arc flash solutions	Do you want to provide your employees with a safe and protected environment to ensure everyone goes home to their families?Â ABB solutions such as arc flash protection provide you with peace of mind knowing that this is possible. Topics will include learning the importance of arc flash protection with Arc Guard TVOC-2, a review of the new communication module available, and the Internet of Things (IoT) and connectivity to Emax 2 power circuit breakers, combining ABB solutions.
70308	Grounding/bonding solutions	Proper grounding and bonding are primary factors for safety and the delivery of quality power throughout a facility. During this session, we will formally define both grounding and bonding. The dangers associated with overcurrent faults will be explored, and we'll show how Blackburn Compression Products Systems deliver a safe, verifiable solution for properly grounding and bonding an electrical system. Participants will leave knowing how to mitigate threats to electrical systems and personnel through proper grounding and bonding.

70309	Surge protection solutions	Only 20 percent of surges come from an external source, such as lightning or something as large as utility load switching surge. There are a number of sources for internally generated transients. This session will allow you to evaluate different types of surge protection devices, the effects of surges, and how they can be detrimental to your equipment. You will also review some of the National Electric Code requirements for where surge protection must be used, NEMA application guidelines, and IEEE test standards, and how they are implemented within ABB products.
70310	Integrating safety and protection components in energy storage systems	In this session, we will review industry trends in energy storage, including long-term growth forecast and different types of energy storage. Understand the critical aspects of integrating safety and component protection in state-of-the-art energy storage systems and applications.
70311	Low voltage smart circuit breaker makes microgrids simpler and more cost-effective	Distributed renewable energy resources, power grid resiliency and complete system integration are the main drivers for the new microgrid approach in the electrical distribution. Microgrids are networks where loads and generators can work together in a controlled and coordinated way, either connected to the main grid or stand alone. ABB Emax 2 is the all-in-one innovation able to protect, monitor and manage microgrid resources thanks to its software-based advanced capabilities.
70312	Low voltage smart circuit breaker makes microgrids simpler and more cost-effective	Distributed renewable energy resources, power grid resiliency and complete system integration are the main drivers for the new microgrid approach in the electrical distribution. Microgrids are networks where loads and generators can work together in a controlled and coordinated way, either connected to the main grid or stand alone. ABB Emax 2 is the all-in-one innovation able to protect, monitor and manage microgrid resources thanks to its software-based advanced capabilities.
70313	Integrating safety and protection components in energy storage systems	In this session, we will review industry trends in energy storage, including long-term growth forecast and different types of energy storage. Understand the critical aspects of integrating safety and component protection in state-of-the-art energy storage systems (ESS) and applications.

Interactive Technical Training

Essential Automation

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	70401	Compact HMI: Introduction to programming of Compact HMI SCADA
	3:30 PM	4:30 PM	70402	Freelance 2016: Introduction to programming a Freelance 2016 DCS
3.14.2017	10:15 AM	11:30 AM	70403	Compact HMI: Introduction to programming of Compact HMI SCADA
	1:00 PM	2:00 PM	70404	Freelance 2016: Introduction to programming a Freelance 2016 DCS
	2:15 PM	3:15 PM	70405	Panel Builder 800: Programming basics for Process Panel Version 6
	3:30 PM	4:30 PM	70406	Compact Control Builder: Programming basics for AC800M
3.15.2017	10:00 AM	11:30 AM	70407	Compact HMI: Introduction to programming of Compact HMI SCADA
	1:00 PM	2:00 PM	70408	Panel Builder 800: Programming basics for Process Panel Version 6
	2:15 PM	3:15 PM	70409	Compact Control Builder: Programming basics for AC800M
	3:30 PM	4:30 PM	70410	Freelance 2016: Introduction to programming a Freelance 2016 DCS
3.16.2017	10:00 AM	11:30 AM	70411	Compact HMI: Introduction to programming of Compact HMI SCADA
	1:00 PM	2:00 PM	70412	Freelance 2016: Introduction to programming a Freelance 2016 DCS

COURSE CODE	SESSION TITLE	ABSTRACT
70401	Compact HMI: Introduction to programming of Compact HMI SCADA	This course will show users how configure aspect and connectivity of Compact HMI, ABB's object oriented SCADA system, and configuration of operator graphics using PG2 Graphics in Compact HMI.
70402	Freelance 2016: Introduction to programming a Freelance 2016 DCS	This course will cover how to set up Freelance 2016 DCS, and four different types of reports that are available in the Freelance system.
70403	Compact HMI: Introduction to programming of Compact HMI SCADA	This course will show users how configure aspect and connectivity of Compact HMI, ABB's object oriented SCADA system, and configuration of operator graphics using PG2 Graphics in Compact HMI.
70404	Freelance 2016: Introduction to programming a Freelance 2016 DCS	This course will cover how to set up Freelance 2016 DCS, and four different types of reports that are available in the Freelance system.
70405	Panel Builder 800: Programming basics for Process Panel Version 6	This hands-on training is an introduction to programming using Panel Builder 800 to communicate with AC800M using Manufacturing Message Specification (MMS). It will teach the basics of building graphics using standard libraries and configuration to set up communication with AC800M. It also describes how the data exchanged can be achieved using the built-in drivers.
70406	Compact Control Builder: Programming basics for AC800M	This course will introduce process libraries for Compact Control Builder for AC800M. It will teach the use of process libraries and communication setup to process panels using access variables.
70407	Compact HMI: Introduction to programming of Compact HMI SCADA	This course will show users how configure aspect and connectivity of Compact HMI, ABB's object oriented SCADA system, and configuration of operator graphics using PG2 Graphics in Compact HMI.
70408	Panel Builder 800: Programming basics for Process Panel Version 6	This hands-on training is an introduction to programming using Panel Builder 800 to communicate with AC800M using Manufacturing Message Specification (MMS). It will teach the basics of building graphics using standard libraries and configuration to set up communication with AC800M. It also describes how the data exchanged can be achieved using the built-in drivers.
70409	Compact Control Builder: Programming basics for AC800M	This course will introduce process libraries for Compact Control Builder for AC800M. It will teach the use of process libraries and communication setup to process panels using access variables.
70410	Freelance 2016: Introduction to programming a Freelance 2016 DCS	This course will cover how to set up Freelance 2016 DCS, and four different types of reports that are available in the Freelance system.
70411	Compact HMI: Introduction to programming of Compact HMI SCADA	This course will show users how configure aspect and connectivity of Compact HMI, ABB's object oriented SCADA system, and configuration of operator graphics using PG2 Graphics in Compact HMI.
70412	Freelance 2016: Introduction to programming a Freelance 2016 DCS	This course will cover how to set up Freelance 2016 DCS, and four different types of reports that are available in the Freelance system.

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Interactive Technical Training

Measurement Made Easy

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	4:30 PM	70501	Flow measurement primer: Theory, selection and operation
3.14.2017	10:15 AM	11:30 AM	70502	Valve positioner calibration: Optimize your valve control
	1:00 PM	4:30 PM	70503	Level measurement primer: Theory, selection and operation
3.15.2017	10:00 AM	11:30 AM	70504	Introduction to instrumentation and how new digital devices help improve plant performance
	1:00 PM	3:15 PM	70505	Loop configuration: How to configure a simple control loop
	3:30 PM	4:30 PM	70506	Use of QR codes on existing products for improved product maintenance
3.16.2017	10:00 AM	11:30 AM	70507	Pressure transmitter configuration: How to configure a pressure transmitter
	1:00 PM	4:30 PM	70508	Analyzer primer: Theory, selection and operation

COURSE CODE	SESSION TITLE	ABSTRACT
70501	Flow measurement primer: Theory, selection and operation	This session provides one hour of introduction on theory, selection and applications, followed by two hours of hands-on experience with different flow technologies. Attendees will obtain a basic understanding of which flow technology is best for a particular application type, how that flow technology works and why it is important. Flow technology covered will include electromagnetic, vortex and swirl, variable area, Coriolis mass, thermal mass, and differential pressure (DP) flow.
70502	Valve positioner calibration: Optimize your valve control	In this hands-on training, learn how to install and calibrate a digital positioner on a valve.
70503	Level measurement primer: Theory, selection and operation	This session provides one hour of introduction on theory, selection and applications, followed by two hours of hands-on experience with different level technologies. Attendees will obtain a basic understanding of which level technology is best for a particular application type, how that level technology works and why it is important. Level technology covered will include laser, guided wave radar, magnetostrictive, magnetic level gauge, ultrasonic, level switches, and vibrating fork.
70504	Introduction to instrumentation and how new digital devices help improve plant performance	This hands-on session introduces different types of instrumentation found in a typical plant and how new digital technology built into the devices helps improve plant performance. Instrumentation featured will include flowmeters, pressure transmitters and sensors, temperature transmitters and sensors, level measurement, valve positioners, actuators, recorders, and indicators.
70505	Loop configuration: How to configure a simple control loop	In this hands-on training session, attendees will learn how to configure a single loop control using a controller and measurement device.
70506	Use of QR codes on existing products for improved product maintenance	This session will provide a live demonstration showing how QR codes can be implemented in ABB continuous gas analyzer products and can be used to accelerate troubleshooting and fault diagnosis.
70507	Pressure transmitter configuration: How to configure a pressure transmitter	This hands-on session will cover basic pressure transmitter set up. The target audience would be system integrators, epic installers and plant service/maintenance personnel.
70508	Analyzer primer: Theory, selection and operation	This session provides one hour of introduction on theory, selection and applications, followed by two hours of hands-on experience with different analyzer technologies. Attendees will obtain a basic understanding of common types of liquid and gas analyzers found in industrial applications and why that analyzer technology is important. Analyzer technology covered will include combustible gas, online liquid and gas, and continuous water analysis.

Interactive Technical Training

Medium Voltage Services

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	70601	ADVAC models 2, 3 and 4: What's the difference?
	2:15 PM	4:30 PM	70602	ADVAC and AMVAC advanced medium voltage vacuum circuit breaker: Operation, maintenance, applications
3.14.2017	10:15 AM	11:30 AM	70603	ABB low voltage Emax 2 circuit breaker: Modular technology replacement for the SACE Emax breaker
	1:00 PM	3:15 PM	70604	ADVAC and AMVAC advanced medium voltage vacuum circuit breaker: Operation, maintenance, applications
	3:30 PM	4:30 PM	70605	ADVAC models 2, 3 and 4: What's the difference?
3.15.2017	10:00 AM	11:30 AM	70606	ABB low voltage Emax 2 circuit breaker: Modular technology replacement for the SACE Emax breaker
	1:00 PM	3:15 PM	70607	ADVAC and AMVAC advanced medium voltage vacuum circuit breaker: Operation, maintenance, applications
	3:30 PM	4:30 PM	70608	ADVAC models 2, 3 and 4: What's the difference?
3.16.2017	10:00 AM	11:30 AM	70609	ABB low voltage Emax 2 circuit breaker: Modular technology replacement for the SACE Emax breaker
	1:00 PM	3:15 PM	70610	ADVAC and AMVAC advanced medium voltage vacuum circuit breaker: Operation, maintenance, applications
	3:30 PM	4:30 PM	70611	ADVAC models 2, 3 and 4: What's the difference?

COURSE CODE	SESSION TITLE	ABSTRACT
70601	ADVAC models 2, 3 and 4: What's the difference?	This course offers a hands-on comparison of each model of ADVAC vacuum circuit breakers and the available spares for each. Students will have the opportunity to see what has changed between the models and understand how to address their existing fleet.
70602	ADVAC and AMVAC advanced medium voltage vacuum circuit breaker: Operation, maintenance, applications	An ABB field service engineer will provide hands-on training for the ADVAC and AMVA advanced medium voltage circuit breakers. One model of each breaker will be available for practical training. Training will include applications of the breakers, operational performance for each breaker, maintenance requirements and available spare parts necessary for breaker life cycle maintenance. A review of the primary differences between breaker styles will be included. Attendees will receive electronic copies of ADVAC and AMVAC breaker information bulletins, FAQ with solutions and spare parts lists.
70603	ABB low voltage Emax 2 circuit breaker: Modular technology replacement for the SACE Emax breaker	This hands-on training will show the new advancements and features available from the upgraded Emax 2 circuit breaker. Attendees will review ABB low voltage Emax 2 circuit breaker operation and maintenance, including a side-by-side comparison with SACE Emax circuit breaker. A review of low voltage switchgear, roll-in replacement and motor control center applications will be included in the discussion. Practical training showing operating of circuit breaker as well as preventive and corrective maintenance activities will also be included.
70604	ADVAC and AMVAC advanced medium voltage vacuum circuit breaker: Operation, maintenance, applications	An ABB field service engineer will provide hands-on training for the ADVAC and AMVAC advanced medium voltage circuit breakers. One model of each breaker will be available for practical training. Training will include applications of the breakers, operational performance for each breaker, maintenance requirements and available spare parts necessary for breaker life cycle maintenance. A review of the primary differences between breaker styles will be included. Attendees will receive electronic copies of ADVAC and AMVAC breaker information bulletins, FAQ with solutions and spare parts lists.
70605	ADVAC models 2, 3 and 4: What's the difference?	This course offers a hands-on comparison of each model of ADVAC vacuum circuit breakers and the available spares for each. Students will have the opportunity to see what has changed between the models and understand how to address their existing fleet.
70606	ABB low voltage Emax 2 circuit breaker: Modular technology replacement for the SACE Emax breaker	This hands-on training will show the new advancements and features available from the upgraded Emax 2 circuit breaker. Attendees will review ABB low voltage Emax 2 circuit breaker operation and maintenance, including a side-by-side comparison with SACE Emax circuit breaker. A review of low voltage switchgear, roll-in replacement and motor control center applications will be included in the discussion. Practical training showing operating of circuit breaker as well as preventive and corrective maintenance activities will also be included.
70608	ADVAC models 2, 3 and 4: What's the difference?	This course offers a hands-on comparison of each model of ADVAC vacuum circuit breakers and the available spares for each. Students will have the opportunity to see what has changed between the models and understand how to address their existing fleet.
70609	ABB low voltage Emax 2 circuit breaker: Modular technology replacement for the SACE Emax breaker	This hands-on training will show the new advancements and features available from the upgraded Emax 2 circuit breaker. Attendees will review ABB low voltage Emax 2 circuit breaker operation and maintenance, including a side-by-side comparison with SACE Emax circuit breaker. A review of low voltage switchgear, roll-in replacement and motor control center applications will be included in the discussion. Practical training showing operating of circuit breaker as well as preventive and corrective maintenance activities will also be included.

70609	ABB low voltage Emax 2 circuit breaker: Modular technology replacement for the SACE Emax breaker	This hands-on training will show the new advancements and features available from the upgraded Emax 2 circuit breaker. Attendees will review ABB low voltage Emax 2 circuit breaker operation and maintenance, including a side-by-side comparison with SACE Emax circuit breaker. A review of low voltage switchgear, roll-in replacement and motor control center applications will be included in the discussion. Practical training showing operating of circuit breaker as well as preventive and corrective maintenance activities will also be included.
70610	ADVAC and AMVAC advanced medium voltage vacuum circuit breaker: Operation, maintenance, applications	An ABB field service engineer will provide hands-on training for the ADVAC and AMVAC advanced medium voltage circuit breakers. One model of each breaker will be available for practical training. Training will include applications of the breakers, operational performance for each breaker, maintenance requirements and available spare parts necessary for breaker life cycle maintenance. A review of the primary differences between breaker styles will be included. Attendees will receive electronic copies of ADVAC and AMVAC breaker information bulletins, FAQ with solutions and spare parts lists.
70611	ADVAC models 2, 3 and 4: What's the difference?	This course offers a hands-on comparison of each model of ADVAC vacuum circuit breakers and the available spares for each. Students will have the opportunity to see what has changed between the models and understand how to address their existing fleet.

COURSE CODE	SESSION TITLE	ABSTRACT
70701	A comprehensive review of components, connectivity and compliance of solar inverters	From sun to socket, ABB offers the most comprehensive solar offering. The components inside the inverter, the software connectivity, the utility interconnectivity and the code compliance span the expertise of ABB Solar. Join us for a hands-on training that includes a sophisticated sales guide, elements of installation tips and tricks, safety, inverter selection for design excellence, elite software monitoring solutions, bankable utility interconnections, and code compliance. Get it all here with ABB Solar interactive Interactive Technical Training.
70702	A comprehensive review of components, connectivity and compliance of solar inverters	From sun to socket, ABB offers the most comprehensive solar offering. The components inside the inverter, the software connectivity, the utility interconnectivity and the code compliance span the expertise of ABB Solar. Join us for a hands-on training that includes a sophisticated sales guide, elements of installation tips and tricks, safety, inverter selection for design excellence, elite software monitoring solutions, bankable utility interconnections, and code compliance. Get it all here with ABB Solar interactive Interactive Technical Training.
70703	A comprehensive review of components, connectivity and compliance of solar inverters	From sun to socket, ABB offers the most comprehensive solar offering. The components inside the inverter, the software connectivity, the utility interconnectivity and the code compliance span the expertise of ABB Solar. Join us for a hands-on training that includes a sophisticated sales guide, elements of installation tips and tricks, safety, inverter selection for design excellence, elite software monitoring solutions, bankable utility interconnections, and code compliance. Get it all here with ABB Solar interactive Interactive Technical Training.
70704	A comprehensive review of components, connectivity and compliance of solar inverters	From sun to socket, ABB offers the most comprehensive solar offering. The components inside the inverter, the software connectivity, the utility interconnectivity and the code compliance span the expertise of ABB Solar. Join us for a hands-on training that includes a sophisticated sales guide, elements of installation tips and tricks, safety, inverter selection for design excellence, elite software monitoring solutions, bankable utility interconnections, and code compliance. Get it all here with ABB Solar interactive Interactive Technical Training.

Interactive Technical Training

Symphony Plus

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	70801	S+ Operations: Hands-on Interactive Technical Training, part 1
	2:15 PM	3:15 PM	70802	S+ Operations: Hands-on Interactive Technical Training, part 2
	3:30 PM	4:30 PM	70803	S+ Alarm Manager: Hands-on Interactive Technical Training
3.14.2017	1:00 PM	2:00 PM	70804	Symphony Plus Security Workplace: Hands-on Interactive Technical Training
	2:15 PM	3:15 PM	70805	S+ hardware: Hands-on Interactive Technical Training, part 1
	3:30 PM	4:30 PM	70806	S+ hardware: Hands-on Interactive Technical Training, part 2
3.15.2017	10:00 AM	11:30 AM	70807	S+ High Performance HMI: Hands-on Interactive Technical Training
	1:00 PM	2:00 PM	70808	S+ Operations: Hands-on Interactive Technical Training, part 1
	2:15 PM	3:15 PM	70809	S+ Operations: Hands-on Interactive Technical Training, part 2
	3:30 PM	4:30 PM	70810	S+ Alarm Manager: Hands-on Interactive Technical Training
3.16.2017	10:00 AM	11:30 AM	70811	S+ Engineering: Hands-on Interactive Technical Training, part 1
	1:00 PM	2:00 PM	70812	S+ Engineering: Hands-on Interactive Technical Training, part 2
	2:15 PM	3:15 PM	70813	S+ High Performance HMI: Hands-on Interactive Technical Training

COURSE CODE	SESSION TITLE	ABSTRACT
70801	S+ Operations: Hands-on Interactive Technical Training, part 1	This one-hour, hands-on Interactive Technical Training session will teach participants about Symphony Plus human machine interface (HMI). The student will be introduced to the Symphony Plus architecture and the function of the different components, navigation within the SPlus Operation Explorer, and graphic elements. This session will include lab exercises to support the instructor's lecture. This is part one of a two-part series.
70802	S+ Operations: Hands-on Interactive Technical Training, part 2	This one-hour, hands-on Interactive Technical Training session will teach participants about Symphony Plus human machine interface (HMI). The student will be introduced to the Symphony Plus architecture and the function of the different components, navigation within the SPlus Operation Explorer, and graphic elements. This session will include lab exercises to support the instructor's lecture. This is part two of a two-part series.
70803	S+ Alarm Manager: Hands-on Interactive Technical Training	Participants will receive a hands-on experience in alarm analysis using ABBâ€™s integrated alarm manager solution. In this workshop, participants will go through the process of forming queries, run reports to view, and analyze KPIs about the alarm system. This information will then be discussed in context of alarm system performance improvements, and attendees will then formulate a practical way to get a plantâ€™s alarms under control.
70804	Symphony Plus Security Workplace: Hands-on Interactive Technical Training	Participants will receive a hands-on experience in patch management, antivirus management and disaster recovery using ABBâ€™s Security Workplace maintain package. In this workshop, participants will go through administrating a typical monthly Microsoft patching and antivirus signature update cycle, as well as running a full bare-metal recovery from the Security Workplace console.
70805	S+ hardware: Hands-on Interactive Technical Training, part 1	This one-hour, hands-on Interactive Technical Training session will introduce the student to Symphony Plus architecture and function of the different components. Topics discussed in this session will include SPlus communications, set up of SPlus controllers, basic function codes, and configuration changes using engineering tools. This session will include lab exercises to support the instructor's lecture. This is part one of a two-part series.
70806	S+ hardware: Hands-on Interactive Technical Training, part 2	This one-hour, hands-on Interactive Technical Training session will introduce the student to Symphony Plus architecture and function of the different components. Topics discussed in this session will include SPlus communications, set up of SPlus controllers, basic function codes, and configuration changes using engineering tools. This session will include lab exercises to support the instructor's lecture. This is part two of a two-part series.
70807	S+ High Performance HMI: Hands-on Interactive Technical Training	Participants will receive a hands-on experience in engineering and maintaining ABBâ€™s new High Performance HMI (HP HMI) graphics. In this workshop, participants will learn the configuration tips and tricks to provided extensive context (including information from multiple objects) into single symbol/faceplate to increase operator effectiveness. Hands-on examples, such as changing the normal operating range indicator, will help the participant see how easily the HP HMI solution can be updated and maintained.
70808	S+ Operations: Hands-on Interactive Technical Training, part 1	This one-hour, hands-on Interactive Technical Training session will teach participants about Symphony Plus human machine interface (HMI). The student will be introduced to the Symphony Plus architecture and the function of the different components, navigation within the SPlus Operation Explorer, and graphic elements. This session will include lab exercises to support the instructor's lecture. This is part one of a two-part series.

70809	S+ Operations: Hands-on Interactive Technical Training, part 2	This one-hour, hands-on Interactive Technical Training session will teach participants about Symphony Plus human machine interface (HMI). The student will be introduced to the Symphony Plus architecture and the function of the different components, navigation within the SPlus Operation Explorer, and graphic elements. This session will include lab exercises to support the instructor's lecture. This is part two of a two-part series.
70810	S+ Alarm Manager: Hands-on Interactive Technical Training	Participants will receive a hands-on experience in alarm analysis using ABB’s integrated alarm manager solution. In this workshop, participants will go through the process of forming queries, run reports to view, and analyze KPIs about the alarm system. This information will then be discussed in context of alarm system performance improvements, and attendees will then formulate a practical way to get a plantâ€™s alarms under control.
70811	S+ Engineering: Hands-on Interactive Technical Training, part 1	This one-hour, hands-on Interactive Technical Training session will show students how to set up OPC tags, create reports from a history server, and set up network distribution classes. This session will include lab exercises and networked computers to help simulate the environment discussed in the instructor's lecture. This is part one of a two-part series.
70812	S+ Engineering: Hands-on Interactive Technical Training, part 2	This one-hour, hands-on Interactive Technical Training session will show students how to set up OPC tags, create reports from a history server, and set up network distribution classes. This session will include lab exercises and networked computers to help simulate the environment discussed in the instructor's lecture. This is part two of a two-part series.
70813	S+ High Performance HMI: Hands-on Interactive Technical Training	Participants will receive a hands-on experience in engineering and maintaining ABB’s new High Performance HMI (HP HMI) graphics. In this workshop, participants will learn the configuration tips and tricks to provided extensive context (including information from multiple objects) into single symbol/faceplate to increase operator effectiveness. Hands-on examples, such as changing the normal operating range indicator, will help the participant see how easily the HP HMI solution can be updated and maintained.

Interactive Technical Training

System 800xA

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	70901	System 800xA Control Builder engineering tool: Hands-on Interactive Technical Training, part 1
	2:15 PM	3:15 PM	70902	System 800xA Control Builder engineering tool: Hands-on Interactive Technical Training, part 2
3.14.2017	10:15 AM	11:30 AM	70903	System 800xA Process Portal A HMI: Hands-on Interactive Technical Training, part 1
	1:00 PM	2:00 PM	70904	System 800xA Process Portal A HMI: Hands-on Interactive Technical Training, part 2
	2:15 PM	3:15 PM	70905	System 800xA cyber security: Hands-on Interactive Technical Training, part 1
	3:30 PM	4:30 PM	70906	System 800xA cyber security: Hands-on Interactive Technical Training, part 2
3.15.2017	10:00 AM	11:30 AM	70907	System 800xA xStream Engineering methods for Select I/O: Hands-on Interactive Technical Training
	1:00 PM	2:00 PM	70908	System 800xA cyber security: Hands-on Interactive Technical Training, part 1
	2:15 PM	3:15 PM	70909	System 800xA cyber security: Hands-on Interactive Technical Training, part 2
3.16.2017	10:00 AM	11:30 AM	70910	System 800xA Process Portal A HMI: Hands-on Interactive Technical Training, part 1
	1:00 PM	2:00 PM	70911	System 800xA Process Portal A HMI: Hands-on Interactive Technical Training, part 2

COURSE CODE	SESSION TITLE	ABSTRACT
70901	System 800xA Control Builder engineering tool: Hands-on Interactive Technical Training, part 1	This one-hour, hands-on Interactive Technical Training session will introduce participants to System 800xA, and will cover basic system architecture and fundamental configuration skills using the ControlBuilder engineering tool. This session will include lab exercises to support the instructor's lecture. This is part one of a two-part series.
70902	System 800xA Control Builder engineering tool: Hands-on Interactive Technical Training, part 2	This one-hour, hands-on Interactive Technical Training session will introduce participants to System 800xA, and will cover basic system architecture and fundamental configuration skills using the ControlBuilder engineering tool. This session will include lab exercises to support the instructor's lecture. This is part two of a two-part series.
70903	System 800xA Process Portal A HMI: Hands-on Interactive Technical Training, part 1	This one-hour, hands-on Interactive Technical Training session will teach participants about the System 800xA console and PG2 Graphics. Topics to be discusses are operator workplace, graphic elements and faceplates, and graphic displays. This session will include lab exercises to support the instructor's lecture. This is part one of a two-part series.
70904	System 800xA Process Portal A HMI: Hands-on Interactive Technical Training, part 2	This one-hour, hands-on Interactive Technical Training session will teach participants about the System 800xA console and PG2 Graphics. Topics to be discusses are operator workplace, graphic elements and faceplates, and graphic displays. This session will include lab exercises to support the instructor's lecture. This is part two of a two-part series.
70905	System 800xA cyber security: Hands-on Interactive Technical Training, part 1	This one-hour, hands-on Interactive Technical Training session that will teach the student about cyber security services used to protect your ABB system. Topics to be covered are patch management, antivirus, malware remediation and disaster recovery. There will be lab exercises associated with the patch management portion of this session. This is part one of a two-part series.
70906	System 800xA cyber security: Hands-on Interactive Technical Training, part 2	This one-hour, hands-on Interactive Technical Training session that will teach the student about cyber security services used to protect your ABB system. Topics to be covered are patch management, antivirus, malware remediation and disaster recovery. There will be lab exercises associated with the patch management portion of this session. This is part two of a two-part series.
70907	System 800xA xStream Engineering methods for Select I/O: Hands-on Interactive Technical Training	System 800xA 6.1 introduces a new engineering approach optimized for parallel project execution and the new Select I/O. It changes the way engineering is done with new tools and processes and reduces dependencies between project tasks. As a result, there is no need to consider hardware topology for application engineering. Attend this hands-on session to learn how hardware independent engineering works with the new Select I/O and how it can help increase the efficiency of your engineering and streamline execution of late changes as well as commissioning.
70908	System 800xA cyber security: Hands-on Interactive Technical Training, part 1	This one-hour, hands-on Interactive Technical Training session that will teach the student about cyber security services used to protect your ABB system. Topics to be covered are patch management, antivirus, malware remediation and disaster recovery. There will be lab exercises associated with the patch management portion of this session. This is part one of a two-part series.
70909	System 800xA cyber security: Hands-on Interactive Technical Training, part 2	This one-hour, hands-on Interactive Technical Training session that will teach the student about cyber security services used to protect your ABB system. Topics to be covered are patch management, antivirus, malware remediation and disaster recovery. There will be lab exercises associated with the patch management portion of this session. This is part two of a two-part series.

70910	System 800xA Process Portal A HMI: Hands-on Interactive Technical Training, part 1	This one-hour, hands-on Interactive Technical Training session will teach participants about the System 800xA console and PG2 Graphics. Topics to be discusses are operator workplace, graphic elements and faceplates, and graphic displays. This session will include lab exercises to support the instructor's lecture. This is part one of a two-part series.
70911	System 800xA Process Portal A HMI: Hands-on Interactive Technical Training, part 2	This one-hour, hands-on Interactive Technical Training session will teach participants about the System 800xA console and PG2 Graphics. Topics to be discusses are operator workplace, graphic elements and faceplates, and graphic displays. This session will include lab exercises to support the instructor's lecture. This is part two of a two-part series.

Interactive Technical Training
Wireless Communications

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	3:15 PM	71001	Introduction to ABB Wireless
	3:30 PM	4:30 PM	71002	Introduction to narrowband point-to-multipoint and point-to-point products from ABB Wireless
3.14.2017	10:15 AM	11:30 AM	71003	Advanced configuration of TropOS broadband mesh routers from ABB Wireless
	1:00 PM	3:15 PM	71004	Introduction to ABB Wireless
	3:30 PM	4:30 PM	71005	Introduction to narrowband point-to-multipoint and point-to-point products from ABB Wireless
3.15.2017	10:00 AM	11:30 AM	71006	Advanced configuration of TropOS broadband mesh routers from ABB Wireless
	1:00 PM	3:15 PM	71007	Introduction to ABB Wireless
	3:30 PM	4:30 PM	71008	Introduction to narrowband point-to-multipoint and point-to-point products from ABB Wireless
3.16.2017	10:00 AM	11:30 AM	71009	Advanced configuration of TropOS broadband mesh routers from ABB Wireless
	1:00 PM	3:15 PM	71010	Introduction to ABB Wireless
	3:30 PM	4:30 PM	71011	Introduction to narrowband point-to-multipoint and point-to-point products from ABB Wireless

COURSE CODE	SESSION TITLE	ABSTRACT
71001	Introduction to ABB Wireless	ABB Wireless provides a family of products to enable the communication of critical information from remote and disparate locations often underserved by communications options. Building on top of industry standards, ABB Wireless products build a communication network which automatically and dynamically self-creates, self-optimizes and self-heals from component failures to ensure high-availability access to important information at the source of its creation. Instructor-led discussions and hands-on labs will reinforce the industry-leading capabilities provided by ABB Wireless products.
71002	Introduction to narrowband point-to-multipoint and point-to-point products from ABB Wireless	ABB Wireless products can provide backhaul support to remote locations needing data connectivity. Many locations requiring communications and networking are located in rural or remote locations, far from the networking capabilities of a utility or carrier or too expensive due to monthly, never-ending service charges. ABB Wireless products offer options to serve these locations without the ongoing fees that carriers charge. Radio options are available via protected, licensed offerings, or shared-spectrum, unlicensed offerings â€' both of which have their unique capabilities and strengths.
71003	Advanced configuration of TropOS broadband mesh routers from ABB Wireless	ABB Wireless products have constantly been updated and improved, offering new, advanced services for communication network managers. In this presentation, we will highlight and demonstrate the new features and services which have been made available since the roll-out of our fourth generation hardware and software release 8.0.
71004	Introduction to ABB Wireless	ABB Wireless provides a family of products to enable the communication of critical information from remote and disparate locations often underserved by communications options. Building on top of industry standards, ABB Wireless products build a communication network which automatically and dynamically self-creates, self-optimizes and self-heals from component failures to ensure high-availability access to important information at the source of its creation. Instructor-led discussions and hands-on labs will reinforce the industry-leading capabilities provided by ABB Wireless products.
71005	Introduction to narrowband point-to-multipoint and point-to-point products from ABB Wireless	ABB Wireless products can provide backhaul support to remote locations needing data connectivity. Many locations requiring communications and networking are located in rural or remote locations, far from the networking capabilities of a utility or carrier or too expensive due to monthly, never-ending service charges. ABB Wireless products offer options to serve these locations without the ongoing fees that carriers charge. Radio options are available via protected, licensed offerings, or shared-spectrum, unlicensed offerings â€' both of which have their unique capabilities and strengths.
71006	Advanced configuration of TropOS broadband mesh routers from ABB Wireless	ABB Wireless products have constantly been updated and improved, offering new, advanced services for communication network managers. In this presentation, we will highlight and demonstrate the new features and services which have been made available since the roll-out of our fourth generation hardware and software release 8.0.
71007	Introduction to ABB Wireless	ABB Wireless provides a family of products to enable the communication of critical information from remote and disparate locations often underserved by communications options. Building on top of industry standards, ABB Wireless products build a communication network which automatically and dynamically self-creates, self-optimizes and self-heals from component failures to ensure high-availability access to important information at the source of its creation. Instructor-led discussions and hands-on labs will reinforce the industry-leading capabilities provided by ABB Wireless products.

71008	Introduction to narrowband point-to-multipoint and point-to-point products from ABB Wireless	ABB Wireless products can provide backhaul support to remote locations needing data connectivity. Many locations requiring communications and networking are located in rural or remote locations, far from the networking capabilities of a utility or carrier or too expensive due to monthly, never-ending service charges. ABB Wireless products offer options to serve these locations without the ongoing fees that carriers charge. Radio options are available via protected, licensed offerings, or shared-spectrum, unlicensed offerings â€’ both of which have their unique capabilities and strengths.
71009	Advanced configuration of TropOS broadband mesh routers from ABB Wireless	ABB Wireless products have constantly been updated and improved, offering new, advanced services for communication network managers. In this presentation, we will highlight and demonstrate the new features and services which have been made available since the roll-out of our fourth generation hardware and software release 8.0.
71010	Introduction to ABB Wireless	ABB Wireless provides a family of products to enable the communication of critical information from remote and disparate locations often underserved by communications options. Building on top of industry standards, ABB Wireless products build a communication network which automatically and dynamically self-creates, self-optimizes and self-heals from component failures to ensure high-availability access to important information at the source of its creation. Instructor-led discussions and hands-on labs will reinforce the industry-leading capabilities provided by ABB Wireless products.
71011	Introduction to narrowband point-to-multipoint and point-to-point products from ABB Wireless	ABB Wireless products can provide backhaul support to remote locations needing data connectivity. Many locations requiring communications and networking are located in rural or remote locations, far from the networking capabilities of a utility or carrier or too expensive due to monthly, never-ending service charges. ABB Wireless products offer options to serve these locations without the ongoing fees that carriers charge. Radio options are available via protected, licensed offerings, or shared-spectrum, unlicensed offerings both of which have their unique capabilities and strengths.

Plenary Sessions
Chemical, Oil & Gas

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.14.2017	10:15 AM	11:30 AM	30001	**Innovation in project execution is causing the oil, gas and chemicals industry to think differently** Some of the chemical, oil and gas industry's biggest problems today are capital project delays and budget overruns. Aligning technology, processes and standardization reduces risk and lowers cost. Learn about this significant industry trend, how an integrated approach can help bring projects back on track, and how new innovative control system technologies can reduce dependencies, compressing schedules and driving down cost. Get insight on how large oil and gas companies like ExxonMobil are using these technologies to think differently and change the way the industry is approaching projects.
3.15.2017	10:00 AM	11:30 AM	30002	**How digitalization is driving the chemical, oil and gas industry's next level of operations** The chemical, oil and gas industry has been collecting and managing massive amounts of data for decades. Now, new technologies and the growth in connected devices promises to make even more data available to support operations. But how can you make sure the right data gets to the right people at the right time, in order to make the best business decisions possible? This panel will examine how analytics can be used to optimize production efficiency, maintenance strategies and asset management through data transformation.
3.16.2017	10:00 AM	11:30 AM	30003	**Designing for business transformation and the future of energy production** Oil and gas production is moving into harsher environments. Pipelines are coming under increased public scrutiny and regulatory pressures. Refining and chemical processing plants that opened in remote locations years ago now have communities nearby, adding to existing safety and environmental considerations. Plus, the industry as a whole is facing a major shift in workforce demographics. This panel will look at current technologies and trends that are shaping the chemical, oil and gas facilities of the future.

Plenary Sessions
Food & Beverage

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.14.2017	10:15 AM	11:30 AM	30101	**Leveraging digitalization to solve todayâ€™s food and beverage challenges** Consumer and business forces are driving rapid advancements in the food & beverage industry. Navigating these mega-shifts can be challenging especially while adhering to ever higher standards for safety and regulatory compliance. Fortunately there are tools and technologies that can help. Attend this informative session to discover how connectivity, smart sensors and operational intelligence can drive better traceability, improve productivity, reduce inventory, improve overall equipment effectiveness and provide better capacity planning.

Plenary Sessions
Infrastructure

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.14.2017	10:15 AM	11:30 AM	30201	**Digitization of industry: Don't be left behind** More data has been created in the past two years than in the entire history of the human race. At the moment, less than 0.5 percent of all data is ever analyzed and used. Where will we store all of this data? How will we keep it secure? How can you use this data to improve your operations? Join this session to discuss these trends and how you can benefit from them, rather than be left behind.
3.15.2017	10:00 AM	11:30 AM	30202	**Urbanization and sustainability initiatives drive innovative transportation solutions** As populations continue to shift towards urban areas and the focus on environmental impacts becomes more important, there is a great demand for more modes of mass transportation. Without public transportation, congestion costs in the U.S. would be an additional $21 billion annually. Join this session to discuss plans to expand electrified transportation in growing cities and learn about innovative electrification solutions that require less infrastructure.
3.16.2017	10:00 AM	11:30 AM	30203	**Intelligent infrastructure for smart cities** Cities around the world are challenged to sustainably accommodate increasing populations, or to become more sustainable, competitive and livable. This session will cover critical infrastructure in cities, including everything from the supply of power, water and heat, to the automation of the factories, buildings and homes we work and live in.

Plenary Sessions
Manufacturing Industry

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.14.2017	10:15 AM	11:30 AM	30301	**The future of industrial technology** The future of manufacturing has never looked brighter than it does today, due to capabilities provided by additive manufacturing, remote monitoring, disruptive technologies, virtual reality, smart devices, wireless communications, and automation and process control. The Internet of Things (IoT) continues to connect us and our systems in ways we never thought possible. Join our panel to discuss trends in both the industry overall and at ABB that will keep our customers and their processes competitive, productive and efficient in the years to come.
3.15.2017	10:00 AM	11:30 AM	30302	**Taking safety from compliance to culture** Safety is an issue that knows no bounds. It touches home, work, employees, customers and consumers. While the government has implemented rules for the workplace with which we must comply, companies are finding that there is more to a safety program than compliance. Behavior-based training and awareness can mean the difference between momentary compliance or permanently changing our habits, processes and the way we think of the space around us.
3.16.2017	10:00 AM	11:30 AM	30303	**U.S. Department of Energy extended product rules for pumps, fans and air compressors** The U.S. Department of Energy (DOE) has issued energy efficiency rules that affect basic pumps, fans and air compressors. Additionally, energy indexes for extended products (basic device with motor or motor plus drive) are defined that provide guidance for energy used on such products. The rules will go into effect within five years. Energy advocates are working with public utilities to develop a rebate system which will reduce the first cost of implementation for users.

Plenary Sessions
Power Generation

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.14.2017	10:15 AM	11:30 AM	30401	**Energy is in everything that we do** The future of energy generation is filled with uncertainties. Even so, utilities, federal and state governments and industry must prepare for our future supplies of power. Some things are certain: the need to deliver energy reliably and sustainably, while lowering environmental impact. We can expect to see tighter efficiency and carbon regulations, stronger emissions controls, continued fuel switching from coal to gas, and further penetration of renewables. Learn the differences and similarities among government, industry and utilities as to how they are approaching the future.
3.15.2017	10:00 AM	11:30 AM	30402	**The future of power plant operations** Power generators are under growing pressure to increase the reliability and performance of their fleets, while reducing spending and increasing revenues and margins. However, many plants today are constrained by aging assets and systems, dated work processes and work flows, and an ever-smaller workforce undergoing a generational shift. Listen to this expert panel discuss their vision of how to manage, protect and optimize plant assets, improve day-to-day operations and maintain a knowledgeable plant staff, while utilizing the latest technologies and the Industrial Internet of Things (IIoT).

Plenary Sessions

Process Industry

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.14.2017	10:15 AM	11:30 AM	30501	**The future of industrial technology** The future of manufacturing has never looked brighter than it does today, due to capabilities provided by additive manufacturing, remote monitoring, disruptive technologies, virtual reality, smart devices, wireless communications, and automation and process control. The Internet of Things (IoT) continues to connect us and our systems in ways we never thought possible. Join our panel to discuss trends in both the industry overall and at ABB that will keep our customers and their processes competitive, productive and efficient in the years to come.
3.15.2017	10:00 AM	11:30 AM	30502	**Improving productivity in process industries through operational effectiveness** Sustaining capital productivity, utilizing assets to their fullest and providing a safe work environment for employees are some of the main challenges for industry today. Every management team dealing with these challenges needs to understand the opportunities available to make their processes more efficient and their operators more effective through concepts such as procedural automation, control room design, human machine interface standards and advanced alarm management.
3.16.2017	10:00 AM	11:30 AM	30503	**Moving predictive maintenance programs to the next level** Predictive maintenance is the way to move forward. Everyone agrees, but how do we integrate all the pieces of the puzzle? The Internet of Things (IoT) has promised to provide more information at lower costs. The challenge is how this information can be effectively used to improve operations. Does the cost of predictive maintenance programs offset the cost of downtime and poor performance? What about change management; do we have the right amount of patience and persistence? Our panelists will share their opinions and experience with the participants.

Plenary Sessions
Renewables

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.14.2017	10:15 AM	11:30 AM	30601	**The future of renewables: A panel discussion** In 2015, about 13 percent of the total U.S. energy consumption was made up of renewable sources. This number will continue to grow, but there is still a lot of uncertainty. How quickly will renewables increase their share of the energy mix? What sources will be the most widely adopted? What roadblocks stand in the way? Join this session to discuss the trends with industry experts.
3.15.2017	10:00 AM	11:30 AM	30602	**Regulations that will push renewables to the next level** Every energy source requires some form of incentive before it can become competitive, but what regulations are needed to truly give renewables the push to being the preferred form of energy? The U.S. has committed to the U.N. and 185 other countries to reduce our emissions by 26-28 percent by 2025. We‘ve seen federal tax credit extensions and the expansion of state-wide incentives, such as energy storage tax credits or commitments to becoming 100 percent renewable. See how these regulations are affecting the market and what they will look like in the future.
3.16.2017	10:00 AM	11:30 AM	30603	**The grid of the future: Stronger, smarter and greener** The changing generation landscape, including increased renewable penetration, is not without challenges. The grid, which was originally built for one-way power flow, has had to adapt and will continue to evolve. Industry experts will share insights into what the grid of the future will look like and will cover best practices and innovative technologies that will elevate reliability and security while efficiently integrating distributed energy resources (DERs) and other generation sources.

Plenary Sessions

Transmission & Distribution

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.14.2017	10:15 AM	11:30 AM	30701	**Building a business case for grid-tied microgrids** Utilities are under a lot of pressure from consumers, policy makers and regulators to improve grid reliability and resiliency. Many utilities are considering microgrid technology for added reliability during extreme events, but they are struggling to build a clear business case. It's easy to understand the value a microgrid can provide during an extended outage, but what is often overlooked is the range of functions that the microgrid asset can perform when it is connected to the larger network. Attend this informative session to examine the additional value streams of microgrid technology.
3.15.2017	10:00 AM	11:30 AM	30702	**Leveraging technology to manage risk, optimize reliability and improve operations** Unlike ever before, the power industry is facing unprecedented challenges. Aging infrastructure, new regulations and major weather events combined with capex constraints and reduced operation and maintenance budgets mandate risk-based decision making to optimize already limited resources. Listen to case studies and discover how utilities are successfully leveraging technology, intelligent devices and big data to prioritize resources, mitigate risk, maximize reliability and improve operations.
3.16.2017	10:00 AM	11:30 AM	30703	**The grid of the future: Stronger, smarter and greener** The changing generation landscape, including increased renewable penetration, is not without challenges. The grid, which was originally built for one-way power flow, has had to adapt and will continue to evolve. Industry experts will share insights into what the grid of the future will look like and will cover best practices and innovative technologies that will elevate reliability and security while efficiently integrating distributed energy resources (DERs) and other generation sources.

Technological Advancements

Electrification Products Innovations

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	60001	Disruptive innovations in medium voltage products
	2:15 PM	3:15 PM	60002	Advances in monitoring, diagnostics of distribution system assets: Leveraging the Internet of Things
	3:30 PM	4:30 PM	60003	Scalable power monitoring system for medium voltage and low voltage distribution
3.14.2017	1:00 PM	2:00 PM	60004	Selection criteria for miniature circuit breakers
	2:15 PM	3:15 PM	60005	Complete medium and low voltage electrical distribution line for North America
	3:30 PM	4:30 PM	60006	Take full advantage of IEC 61850 and enable digital switchgear
3.15.2017	1:00 PM	2:00 PM	60007	2017 National Electrical Code (NEC) changes
	2:15 PM	3:15 PM	60008	ABB apparatus retrofit: OneFit solution a true plug-in technology
	3:30 PM	4:30 PM	60009	High voltage capacitor unit teardown
3.16.2017	1:00 PM	2:00 PM	60010	Best technologies for power systems optimization
	2:15 PM	3:15 PM	60011	Surge protection devices brings unprecedented safety to mission critical electrical systems
	3:30 PM	4:30 PM	60012	Mechanical connectivity and medium voltage switchgear

COURSE CODE	SESSION TITLE	ABSTRACT
60001	Disruptive innovations in medium voltage products	The past five years have seen many innovations from ABB's medium voltage products group. These innovations consist of components built around proven technologies and assembled in a product architecture that offers the customer a set of attributes never before available. With the proper architecture, millions of dollars of capex can be saved; we will offer several case studies to demonstrate this point. Many of these innovations are available on the same system with the benefits multiplying each other.
60002	Advances in monitoring, diagnostics of distribution system assets: Leveraging the Internet of Things	Advances in sensor technologies over the past two decades and the dramatic growth in the information infrastructure of the Internet of Things (IoT) have opened up new possibilities to rethink equipment maintenance. We can now monitor myriad parameters in a range of medium voltage distribution equipment at low cost, aggregate this information in either distributed or central fashion, and process it to create actionable intelligence. This session will cover how ABB is deploying asset monitoring technologies in a range of equipment and how it can use that data to deliver value to equipment users.
60003	Scalable power monitoring system for medium voltage and low voltage distribution	With increasing power demands from industry, significant costs associated with electrical downtime due to poor power quality, and benefits from self-healing networks and load shedding capabilities, a power monitoring system can be one of the most critical components of an electrical distribution system. This presentation will cover leading-edge technologies in ABB's electrification product devices and show how to fully integrate them into a metering/monitoring system. We will also discuss the scalable and flexible communication infrastructure required to gather, store and deliver this data.
60004	Selection criteria for miniature circuit breakers	Miniature circuit breakers (MCBs) are used in a wide array of applications to protect cables and loads against the damages from overload and short circuits. However, selecting the right MCB is not always easy. In this session, we will explain the different selection criteria for MCBs.
60005	Complete medium and low voltage electrical distribution line for North America	Having a complete line up of medium and low voltage switchgear and associated electrical distribution products from a global manufacturer is a requirement for the North American market. Join this session to understand the new offers, solutions and services available to the North American market for ANSI/UL switchgear and other electrical distribution products.
60006	Take full advantage of IEC 61850 and enable digital switchgear	Medium voltage (MV) switchgear used for the distribution of electrical energy is a very important element of electrical networks, with its function to ensure uninterrupted power supply to the whole network. The integration of MV sensors for current and voltage measurement combined with the latest design of protective relays, as well as the utilization of IEC 61850 communication, allows for signal distribution within the switchgear. We will show how digital switchgear can save you time, reduce your cost of ownership and give you a level of flexibility not previously possible.
60007	2017 National Electrical Code (NEC) changes	The National Electrical Code (NEC) is published every three years; 2017 is a new code year. There were more than 4,000 public inputs and more than 1,500 public comments that were sent to the National Fire Protection Association (NFPA) to create this edition of the NEC. We will present an overview of the NEC development process as well as identify important changes in the NEC that resulted from those public inputs and public comments, including five brand new articles. These changes impact the construction of electrical products as well as the safe installation of electrical products.

60008	ABB apparatus retrofit: OneFit solution a true plug-in technology	The OneFit solution is a retrofit solution and asset upgrade. OneFit is truly a plug-in technology that provides a cost-effective modernization solution with increased reliability and safety. It is interchangeable with original apparatus and new equipment. Significant modifications to the switchgear are not required, as the solution includes use of truck and other original parts with an adaptation system, thereby reducing down-time for the conversion. This OneFit solution can be used with roll-in re-placements, cradle-in-cradle and hard bus retro-fills with ANSI and IEC tested performance.
60009	High voltage capacitor unit teardown	All capacitors generally look the same on the outside, but are they really the same on the inside? We will tear down an actual capacitor unit and look at the internal construction methods, with comparisons to other models in the industry. Capacitor reliability is a big concern in the indus-try, and there are construction design features that will provide longer life and lower maintenance.
60010	Best technologies for power systems optimization	Outages, safety, voltage dips, short circuit destructive forces, transients and clearing arc flash are among the top challenges facing power system consultants. This presentation will explore innovative applications of cur-rent limiters, capacitor switching, ultra-fast grounding switches, light de-tection relays and arc resistant switchgears.
60011	Surge protection devices brings unprecedented safety to mission critical electrical systems	Surges can be caused by lighting and internal load switching, which can strike a low-voltage network system unexpectedly. Lightning discharges cause high interference voltages in industrial plants, commercial and public buildings, and residential homes. These overvoltages are trans-mitted by the line network (supply lines and electrical installations), and thus can reach unprotected, sensitive terminal devices and damage or completely destroy them. This presentation will cover how a small device protects electrical equipment from outages and downtime, and thus protects your investment.
60012	Mechanical connectivity and medium voltage switchgear	Demand to mechanically connect or close-couple medium voltage switchgear is increasing as space becomes a premium, and streamlining and simplifying electrical installations is required. This presentation will outline different types and ratings of equipment that can be close cou-pled to medium voltage switchgear to solve these issues.

Technological Advancements
Industrial Automation Innovations

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	60101	Introduction to the new high accuracy LMT series magnetostrictive transmitters
	2:15 PM	3:15 PM	60102	Improving operator performance through smart control room design
	3:30 PM	4:30 PM	60103	Innovative OEM applications utilize open and flexible design of ABB's Compact Product Suite
3.14.2017	1:00 PM	2:00 PM	60104	Take the drama out of your next project with System 800xA's new Select I/O
	2:15 PM	3:15 PM	60105	New System 800xA xStream Engineering approach for Ethernet-based single channel Select I/O
	3:30 PM	4:30 PM	60106	S+ control, communications and I/O technology update, including life cycle and evolution
3.15.2017	1:00 PM	2:00 PM	60107	Implementing and using smart instruments to improve plant performance
	2:15 PM	3:15 PM	60108	S+ Engineering product update: An integrated suite of tools for configuring Symphony Plus systems
	3:30 PM	4:30 PM	60109	Innovations in integrated condition monitoring help the oil and gas industry stay competitive
3.16.2017	1:00 PM	2:00 PM	60110	Simplifying service agreements to make it easier for oil, gas and chemicals customers to match needs
	2:15 PM	3:15 PM	60111	Business drivers, current developments and actual examples of Industrial Internet of Things
	3:30 PM	4:30 PM	60112	Five steps towards autonomous shipping and the power of integrated operations today

COURSE CODE	SESSION TITLE	ABSTRACT
60101	Introduction to the new high accuracy LMT series magnetostrictive transmitters	This session will introduce ABB's new high accuracy LMT series magnetostrictive level transmitter. The LMT is the preferred measurement solution for level and interface measurement and measurement in combination with the KM26 magnetic level gauge. Unlike other technologies, the LMT can be installed as a non-wetted/ nonintrusive device or as a wetted sensor. This technology dependably measures interface and level at the same time, while ignoring foam and other process conditions which adversely affect other non-contact and wetted technologies.
60102	Improving operator performance through smart control room design	The most important assets of a plant are the people. The challenge is to create an attractive, safe and effective environment with the human in focus. Lack of understanding of human factors, too much emphasis on technology and not enough involvement from operators in the planning phase of a control room can result in poor ergonomics and low operator performance. It is important to create a collaborative environment to encourage exchange of know-how and experience between people. Hear how smart control room design can improve operator performance and better attract the next operator generation.
60103	Innovative OEM applications utilize open and flexible design of ABB's Compact Product Suite	OEM applications require products that are flexible, easy to configure and engineer, and are open and cost effective. Attend this session to hear from an OEM who uses ABB's Compact Product Suite of products to deliver solutions for diverse projects, from composting facilities to a pharmaceutical tank farm. They will talk about how using a single product family with open communication protocols, a broad array of I/O options and the ability to connect seamlessly to almost any other system helps make their projects successful.
60104	Take the drama out of your next project with System 800xA's new Select I/O	System 800xA's newly released version 6.1 is all about helping projects to be on-time and on-budget. With over 60 percent of projects reporting cost overruns or delays, something has to change. Come to this session to find out how System 800xA's new Ethernet-based, redundant, single channel IO system, Select IO,Â can revolutionize how projects are executed by minimizing the impact of late changes and removing project task dependencies.
60105	New System 800xA xStream Engineering approach for Ethernet-based single channel Select I/O	System 800xA version 6.1 introduces a new engineering approach optimized for parallel project execution and the new Select I/O. It changes the way engineering is done with new tools and processes, and reduces dependencies between project tasks. As a result, there is no need to consider hardware topology for application engineering, cabinets can be placed as needed, and the impact of late changes is reduced. xStream Engineering provides more flexibility, less effort and fewer change orders on capital projects. In this session, learn how xStream engineering can help you become more efficient.
60106	S+ control, communications and I/O technology update, including life cycle and evolution	Achieve total plant automation with a single control and I/O platform. Symphon® Plus is the new generation of ABB's highly acclaimed Symphony family of distributed control systems. This presentation will provide detailed technical product information and status updates for the latest SD Series (Symphony DIN) and HR Series (Harmony Rack) control, communications and I/O hardware products, covering recent product releases,Â and the life cycle and evolution plans for existing HR and SD Series products.Â It will conclude with an outlook on future activities.

60107	Implementing and using smart instruments to improve plant performance	Over the past 20 years, the growth of smart instruments has accelerated and continues to provide users with greater measurement accuracy, useful diagnostics, reduced control variability and better equipment reliability. Smart instruments provide visibility to improve asset optimization and loop control functions. The advances in smart instruments will result in a truly intelligent plant that will lead to higher profitability.
60108	S+ Engineering product update: An integrated suite of tools for configuring Symphony Plus systems	This presentation reveals detailed technical information and a status update for the latest version of Symphony® Plus Engineering (SPE) tools, the software used to configure both HR Series (Harmony Rack) and SD Series (Symphony DIN) control and I/O hardware, as well as the tag databases for S+ Operations (SPO) and Process Portal A (PPA) HMIs. This session also includes product life cycle and evolution strategies for previous software versions, and concludes with an outlook on future activities.
60109	Innovations in integrated condition monitoring help the oil and gas industry stay competitive	During a challenging market, plant owners and operators are looking towards technologies that help improve productivity while lowering operations cost. A major trend to support this effort is using condition-based monitoring applications across all equipment, devices and systems to enable facilities to move from time-based maintenance to a predictive approach. In this session, we will discuss how a new solution for collaborative operations enables condition-based monitoring to yield greater operational efficiencies, better decision making and reduced maintenance costs.
60110	Simplifying service agreements to make it easier for oil, gas and chemicals customers to match needs	ABB Oil, Gas and Chemical Care is a standardized service agreement framework that has the objective of improving your operational efficiency. Starting with a current inventory of your installed assets, ABB works with you to determine services that meet your needs and applies expert people, processes and tools to perform services. This framework addresses the challenges of limited capital and operating budgets, workforce attrition, hard-to-find skills and the rapidly changing technology in industry which can increase risks related to stoppage, failures, performance issues and product defects.
60111	Business drivers, current developments and actual examples of Industrial Internet of Things	Industrial automation suppliers and users are developing digitalized, remote-enabled software and services known as the Industrial Internet of Things (IIoT). We will review IIoT business drivers, developments and applications. For example, ABB has met user demands to reduce time spent and increase frequency of advanced services to improve equipment and process performance by automating data gathering and analysis, placing it in virtual servers, and freeing experts to deliver value remotely. This has been applied in many industries, countries and systems, and we will present some of these.
60112	Five steps towards autonomous shipping and the power of integrated operations today	ABB is adding sensors and software to system deliveries on board vessels, improving data transfer storage and analysis of data to facilitate change in maritime industry. It's tapping into the possibilities of connectivity and digitalization due to improved satellite coverage and cloud computing. Our service centers utilize this information to support customers in emergency situations, in maintenance planning and in helping to optimize ship operations. Connecting vessels and owners' shoreside technical departments with ABB service centers is a new way of operating we call Integrated Operations.

Technological Advancements

Power Grids Innovations

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	60201	Innovative solutions for air insulated substations
	2:15 PM	3:15 PM	60202	The energy cloud: Platforms for growth across the distribution grid
	3:30 PM	4:30 PM	60203	ABB's Smart Transformer: The first monitoring solution for distribution class transformers
3.14.2017	1:00 PM	2:00 PM	60204	FOCS: Improved measurement performance for digital substations
	2:15 PM	3:15 PM	60205	New dry-type transformer technologies: The safest transformation now for sub-transmission
	3:30 PM	4:30 PM	60206	Protecting your generation assets: Exposing the lurking threats to your generator
3.15.2017	1:00 PM	2:00 PM	60207	Asset health performance model development: Unlocking the mystery to improve asset management
	2:15 PM	3:15 PM	60208	Optimizing transmission asset health with IT/OT integration
	3:30 PM	4:30 PM	60209	HVDC Light: A key enabler for solving grid challenges
3.16.2017	1:00 PM	2:00 PM	60210	New generator circuit-breaker HEC 10-170
	2:15 PM	3:15 PM	60211	Gas insulated switchgear development trends
	3:30 PM	4:30 PM	60212	Sealed AND dry: The safest transformers for extreme environments

COURSE CODE	SESSION TITLE	ABSTRACT
60201	Innovative solutions for air insulated substations	This workshop is an introduction into modern sulfur hexafluoride (SF6) switchgear. This session will cover each of ABB's current product variations and the application challenges they solve. We will also take a look behind the curtain at the innovative design features of each.
60202	The energy cloud: Platforms for growth across the distribution grid	Disruption is a prevailing theme of innovation in the 21st century. Across the energy industry, changing customer needs, evolving policy and regulation, and accelerating innovation around digital technology and distributed energy resources (DERs) are driving historic transformation. The result is a wholescale shift away from a one-way power system relying principally upon large centralized generation plants and conventional transmission and distribution (T&D) infrastructure, toward a highly networked ecosystem of two-way power flows and digitally enabled intelligent grid architecture.
60203	ABB's Smart Transformer: The first monitoring solution for distribution class transformers	Imagine being able to finally have information readily available from your office or mobile device that tells you the health of your distribution transformer fleet. Instead of waiting for a transformer to fail or sending crews out to site on a regular basis, you can make informed decisions on how to manage your fleet based on real-time data. ABB's new Smart Transformer is the first in the industry to provide monitoring for distribution class transformers. Benefits include maintenance cost reduction, outage notification, system efficiency, increased uptime and voltage monitoring.
60204	FOCS: Improved measurement performance for digital substations	Utility and grid owners now face more and more challenges in today's complex electric system: reliability, safety, efficiency, increasing power requirements and an expanding renewable energy base. The ABB high-accuracy fiber-optic current sensor (FOCS) is designed to measure both AC and DC current without any saturation. FOCSs are ideal for a variety of applications and help to minimize footprint, improve efficiency and increase revenue. This session will focus on the current challenges in the market and FOCS solutions.
60205	New dry-type transformer technologies: The safest transformation now for sub-transmission	This session will introduce the safest and most environmentally friendly transformation through 125 kV. Dry-type transformer developments have continued to push the scope envelope and now have capabilities for the sub-transmission segment. We will walk through latest achievements and case examples where users have found value from safety at levels that were previously unattainable.
60206	Protecting your generation assets: Exposing the lurking threats to your generator	Most generation stations were commissioned over 20 years ago. These critical assets are now subjected to interactions with advanced transmission technologies like static Var compensators (SVCs), series compensation and the proliferation of wind farms. Sub-synchronous oscillations (SSOs) resulting from the interaction of the dynamics in the electrical and mechanical systems can lead to major damage to the generator. This session will address how protection systems have advanced to address system conditions that endanger your generation assets, and original protection system weaknesses.
60207	Asset health performance model development: Unlocking the mystery to improve asset management	This session will provide a look into the 'brains' of asset health. It takes analytics, data and subject matter experts to develop models that are useful tools for utilities and industry. Performance models take the IT/OT (information technology/operational technology) grid system inputs and push predictive maintenance decisions out to the right individuals. The results are improved reliability, and lower operations and maintenance costs. Attend this informative session to understand all the variables that should go into a performance model and why each one is important.

60208	Optimizing transmission asset health with IT/OT integration	Utilities striving for maintenance excellence recognize that they can only reach this goal by continuing to mature their strategic asset management programs. Asset health as a concept is not new, but the combination of increasing requirements (aging equipment, retiring experts and higher reliability) and new capabilities (sensors, smart intelligent electronic devices or IEDs, communications equipment, data consolidation platforms, advanced predictive algorithms and modern user interfaces) have made this concept realizable as a strategy for transmission system operators (TSOs).
60209	HVDC Light: A key enabler for solving grid challenges	High-voltage direct current (HVDC) built on voltage source converters has gained traction in the transmission market over the last 19 years. Different applications and grid challenges has been explored and solved together with customers worldwide. The technology solutions available as well as project examples will be presented in order to show the technical merits and customer value of HVDC Light in some reference projects.
60210	New generator circuit-breaker HEC 10-170	Development of generator circuit-breaker (GCB) technology enables protection of large power plants up to over 2000 MW. The newly developed HEC 10-170 is the third generation of GCB for large power plants from ABB, starting from HEC 7/8 to HEC 9, the largest GCB in the world. Based on ABB's more than 60 years of experience, it assures protection of all types of power plants up to 1500 MW, with short circuit currents up to 170 kA.
60211	Gas insulated switchgear development trends	Gas insulated switchgear (GIS) developments include smaller footprints, less sulfur hexafluoride (SF6), alternative gas mixture and 'smarter' equipment for digital substations. The alternative gas mixture can greatly lower environmental impact due to its low global warming potential. Core components in GIS digital substations enable IEC 61850 communication throughout the entire switchgear, such as non-conventional instrument transformers, digital local control cubicle with Relion controller and Relion protection relays, monitoring of SF6 gas, and circuit-breaker and point-on-wave switching.
60212	Sealed AND dry: The safest transformers for extreme environments	Decades ago, sealed, dry-type transformers were a popular solution for PCB (polychlorinated biphenyls) transformer replacement requirements due to their incredibly low maintenance and their superior environmental and fire protection. This protection made them ideal for extreme and corrosive environments in population-dense or sensitive ecosystem areas. Since then, the technology has only improved in both safety and application. This session will go through their new applications (such as Class 1 Div 2 areas or in submersible networks) and identify their clear advantages of use.

Technological Advancements
Robotics & Motion Innovations

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.13.2017	1:00 PM	2:00 PM	60301	Arc flash classification and mitigation in large medium voltage, adjustable speed drives
	2:15 PM	3:15 PM	60302	Data use and compliance in FDA-regulated food and beverage environments.
	3:30 PM	4:30 PM	60303	Elastomeric tire coupling innovation: Maximizing driven equipment life and increasing reliability
3.14.2017	1:00 PM	2:00 PM	60304	Virtual commissioning for flexible manufacturing systems
	2:15 PM	3:15 PM	60305	Condition monitoring of low voltage motors through the Internet of Things
	3:30 PM	4:30 PM	60306	Additive manufacturing: Creating homogeneous 3D welded structures using CAD, vision and robotics
3.15.2017	1:00 PM	2:00 PM	60307	Collaborative engineering and the Internet of Things
	2:15 PM	3:15 PM	60308	Benefits of servo motors: How the technology has changed
	3:30 PM	4:30 PM	60309	An introduction to industrial robotics, now and in the future
3.16.2017	1:00 PM	2:00 PM	60310	Motor and drive standards create power drive systems
	2:15 PM	3:15 PM	60311	Power loss ride through in an adjustable speed drive system
	3:30 PM	4:30 PM	60312	Next generation of motor efficiency

COURSE CODE	SESSION TITLE	ABSTRACT
60301	Arc flash classification and mitigation in large medium voltage, adjustable speed drives	Arc flash safety is a critical subject for users as well as manufacturers. Both the Institute of Electrical and Electronics Engineers (IEEE) as well as the International Electrotechnical Commission (IEC) have safety and testing guidelines for medium voltage switchgear. This presentation will describe a method of arc flash detection and mitigation in medium voltage adjustable speed drives leveraging those guidelines. This patented method not only protects personnel, but also protects equipment from damage and in turn, maximizes availability for critical applications.
60302	Data use and compliance in FDA-regulated food and beverage environments.	The FDA 21 Code of Federal Regulations (CFR) Part 11 regulations concern all electronic systems and data dealing with regulatory safety. Industrial SCADA (supervisory control and data acquisition) functionality can structure safe and secure data in FDA-regulated environments, which not only adhere to the Part 11 regulations but also provide an efficient platform to develop regulated projects. This provides efficient engineered solutions that can reduce the necessary validation effort and promote innovation through validation-efficient development.
60303	Elastomeric tire coupling innovation: Maximizing driven equipment life and increasing reliability	Urethane tire-style couplings have become very popular across a broad range of common industrial applications. Unfortunately, for many reasons urethane tire couplings experience a number of problems from a technical standpoint, creating a range of application-based issues that lead to unexpected failures. Dodge Raptor's unique combination of natural rubber elastomeric material and patented WingLock¢ element design solves problems associated with urethane based tire couplings.
60304	Virtual commissioning for flexible manufacturing systems	Today's evolving world of manufacturing requires sophisticated and flexible systems involving automation, motion, robotics, visualization and safety. One solution for engineering productivity is to provide a holistic engineering platform that can reduce project risk up to 30 percent and on-site commissioning time by over 50 percent. A key component of this solution platform is virtual commissioning, which allows for planning and simulating the mechanical layout, programming the automation and visualization, configuring and parameterizing the drives, and integration of robotics.
60305	Condition monitoring of low voltage motors through the Internet of Things	In this session we will explore how the Internet of Things (IoT), when combined with the latest condition monitoring technologies, can help users implement a cost effective condition monitoring program. Specifically, this presentation will show the tools available to help decrease downtime, extend motor life and increase energy efficiency on low voltage induction motors. These tools include sensors, data collection devices and the latest in web-based trending and analysis.
60306	Additive manufacturing: Creating homogeneous 3D welded structures using CAD, vision and robotics	The ability to design a 3-D part in the morning, produce it from welding it in the afternoon, and machine it the following day for use is rapidly becoming a reality. Advances in the management of mass data and complex shape design is generating new ways to produce complex one-off parts through the process of welding. The flexibility of a robotic arm and software provides the perfect platform for unlimited geometry generation. Using the welding arc and solid welding wires, unique shapes such as small aluminum components for an aircraft through to civil structures like bridges can be made.

60307	Collaborative engineering and the Internet of Things	The demand for individualized production facilities is continually increasing, resulting in higher complexity of the software controlling machines and plants. Integrating upstream engineering systems enables efficient and flexible engineering, while at the same time lowering the risk of errors. The integration of zenon Editor with Automation Builder, a PLC, drives and robots allows the synchronization of hardware information and signal data for efficient data access. The session will include a live presentation of the integrated engineering workflow and shows how data consistency is ensured.
60308	Benefits of servo motors: How the technology has changed	This session will demonstrate motors starting with a DC brush servo, then show various phases of products, including the new HDS (segmented lam) servo motor. We will explain the advantages of the segmented servo design, such as improved efficiency, torque ripple, torque density and high resolution smart feedback devices. We will also discuss where and why to use servo.
60309	An introduction to industrial robotics, now and in the future	Join us for an introduction to the uses and applications of industrial robots. This presentation format discussion will include a brief history, types of robots, applications and top ten reasons for using industrial robots. We will also include safety considerations and trends of where robots are being used today and where we may see them used in the future.
60310	Motor and drive standards create power drive systems	Motors have been used with variable frequency drives (VFDs) for many years. Recently, the International Electrotechnical Commission (IEC) developed a standard for this combination. The European Committee of Manufacturers of Electrical Machines and Power Electronics (CEMEP) created 50598, which led to the International Electrotechnical Commission (IEC) 61800 standard. This presentation will discuss the standards and how they relate to U.S. Dept. of Energy-extended product rules for pumps, fans and compressors, which are referenced by energy index or savings over a baseline unit.
60311	Power loss ride through in an adjustable speed drive system	Voltage sags can cause various disturbances to electrical motors in operation, which is especially important for critical applications. The presentation will describe the behavior of electrical drives and motors during different levels of such voltage sags. Methods to mitigate such impacts caused by voltage sags will be presented in order to avoid or at least minimize unnecessary shutdowns and keep the operations running as long as possible.
60312	Next generation of motor efficiency	This session will introduce the latest ABB and Baldor advancements in AC motor efficiency technology that result in AC motor efficiencies that exceed current NEMA Premium® efficiency standards by up to four efficiency bands. This presentation will cover hybrid motor technology that combines conventional induction with the latest interior permanent magnet advances. Proper application considerations will be discussed, including operation on both sine wave and adjustable frequency power. This latest technology is currently offered in the RPM XE eXtreme Efficient product.

Women in Industry

Day-long program sponsored by EUCI

DATE	START TIME	END TIME	COURSE CODE	SESSION TITLE
3.15.2017	10:00 AM	4:30 PM	40000	**Women in Industry: Empowering Women to Leadership presented by EUCI** Leadership Development for Women in Industry is designed to enlighten and empower women across industries on creating and expanding a women's company group and gain the savvy needed to win negotiations and difficult situations during your career.