

ELECTRICAL SUBSTATION AUTOMATION 2019

RICHMOND, BC

APRIL 1-2, 2019

EDMONTON, AB

APRIL 3-4, 2019

WINNIPEG, MB

APRIL 8-9, 2019

TORONTO, ON

APRIL 10-11, 2019



STUDENTS RECEIVE

- FREE 100-PAGE DIGITAL ELECTRICAL TESTING AND MAINTENANCE HANDBOOK (VALUE \$20)
- \$100 COUPON TOWARD ANY FUTURE ELECTRICITY FORUM EVENT (RESTRICTIONS APPLY)
- 1.4 CONTINUING EDUCATION UNIT (CEU) CREDITS
- FREE MAGAZINE SUBSCRIPTION (VALUE \$25.00)
- COURSE MATERIALS IN PAPER FORMAT

REGISTER TODAY AND SAVE!!

2-DAY TRAINING

\$799



ELECTRICAL SUBSTATION AUTOMATION TRAINING AGENDA

DAY ONE

INTRODUCTION TO ELSSI AND SA

- WHAT IS AN IED?
- WHAT IS ELSSI?
- SUBSTATION INTEGRATION AND AUTOMATION LEVELS
- INTEGRATION VERSUS AUTOMATION
- COMMUNICATION PATHS FROM SUBSTATION
- ENTERPRISE INTEROPERABILITY
- IEC 61850

SUBSTATION INTEGRATION AND AUTOMATION TECHNICAL ISSUES

- SYSTEM RESPONSIBILITIES
- OPEN SYSTEMS
- SUBSTATION AUTOMATION APPLICABILITY
- BENEFITS OF OPEN SYSTEM APPROACH
- SYSTEM ARCHITECTURE
- DATA ACQUISITION AND CONTROL LEVEL
- INFORMATION INFRASTRUCTURE LEVEL
- SUBSTATION HOST PROCESSOR
- SUBSTATION LOCAL AREA NETWORK
- CONTROL DEVICES / USER INTERFACE
- COMMUNICATION INTERFACES
- ONE/Common DATA REPOSITORY
- REDUCTION IN DATABASES

PROTOCOL STANDARDS INDUSTRY ACTIVITIES

- IEEE PES SUBSTATIONS COMMITTEE
- DNP USER GROUP
- UCA AND DNP COMPARISON

SCADA SYSTEMS EVOLUTION AND OVERVIEW

- EVOLUTION FROM 1830 TO PRESENT
- USES OF SUPERVISORY SYSTEMS
- SYSTEM HARDWARE
- SYSTEM SOFTWARE FUNCTIONS

SCADA SYSTEM ARCHITECTURES

- DATA ACQUISITION, SUPERVISORY CONTROL AND DATA EXCHANGE
- HISTORICAL INFORMATION SYSTEM
- POWER APPLICATIONS (ONLY THOSE CHANGED BY RTOS/ISOS)
- USER INTERFACE
- SUPPORTING SOFTWARE
- HARDWARE CONFIGURATIONS

SCADA INTEGRATION WITH OTHER SYSTEMS

- FUNCTIONS PERFORMED
- INTERFACING DIFFERENT SYSTEMS
- PRINCIPLES OF SYSTEMS ARCHITECTURE

SCADA SYSTEM IMPLEMENTATION AND MAINTENANCE

- SYSTEM CONSTRAINTS
- IMPLEMENTATION CONSIDERATIONS

DAY TWO

WHAT WOULD SUBSTATION SCADA LOOK LIKE?

- DISTRIBUTED LAN CONFIGURATION
- DESIGN ISSUES FOR CONSIDERATION
- EQUIPMENT PHOTOGRAPHS
- SA TRAINING SIMULATOR (SATS)

SUBSTATION FUNCTIONS

- AUTOMATIC LOAD RESTORATION
- ADAPTIVE RELAYING
- REMOTE CONTROLLED FUSE SAVING
- EQUIPMENT CONDITION MONITORING

FEEDER AUTOMATION EQUIPMENT

- FAULT LOCATION, ISOLATION, AND SERVICE RESTORATION (FISR)
- OTHER USES OF AUTOMATED SWITCHES
- SYSTEM COMPONENTS
- COMMUNICATION FACILITIES
- CONTROL PANELS
- FEEDER AUTOMATION CATEGORIES
- MANUAL
- SEMI-AUTOMATIC
- FULLY AUTOMATIC
- FEEDER AUTOMATION APPROACHES
- CENTRALIZED
- SUBSTATION CENTERED
- PEER-TO-PEER
- TRAINING SIMULATOR
- PRACTICAL MATTERS

FEEDER AUTOMATION FUNCTIONS

- VAR DISPATCH
- VOLTAGE CONTROL (CONSERVATION VOLTAGE REDUCTION)
- INTEGRATED VOLT VAR CONTROL (IVVC)
COMMUNICATIONS ISSUES
- COMMUNICATION REQUIREMENTS
- COMMUNICATION TECHNOLOGIES
- FUTURE TRENDS
- SOLUTION PROVIDERS

BUILDING THE BUSINESS CASE FOR INTEGRATION AND AUTOMATION

- EVALUATION METHODOLOGY
- NEEDS ANALYSIS
- BENEFIT/COST ANALYSIS METHODOLOGY
- SAMPLE STUDY CASES

SUMMARY

- LEVELS OF INTEGRATION AND AUTOMATION
- COMMUNICATION PATHS FROM SUBSTATION
- NEW VERSUS EXISTING SUBSTATIONS
- PROTOCOL FUNDAMENTALS
- PROTOCOL CONSIDERATIONS
- NORTH AMERICAN SA PROJECTS
- RELEVANT STANDARDS
- UCA INTERNATIONAL USER GROUP (IEC 61850)

REVIEW OF EXPECTATIONS

QUESTIONS AND ANSWERS

WRAP UP AND Q&A



1 (855) 824-6131
(905) 686-1040



(905) 686-1078



ON-LINE:

www.electricityforum.com/electrical-training/substation-automation-training



MAIL:

The Electricity Forum
1885 Clements Rd., Unit 218
Pickering, ON L1W 3V4

Why not request a FREE Electrical Substation On-Site Training Course quotation directly for your company??
www.electricityforum.com/on-site-training-feedback.htm

Our on-site training courses are tailored to meet your company's specific requirements and conducted on your own premises for your employees.

Save the cost of travel and hotels and save on our regular public enrollment registration fees. Plus, our instructors can work with you in advance to determine the level of electrical training and experience of your employees and the specific applications that you would like covered.

Electrical on-site training courses are best because they are delivered using the equipment your electrical technicians use every day. This maximizes the educational value of your electrical training investment. For more information, contact:

Randy Hurst, President, *The Electricity Forum*
randy@electricityforum.com

ON-SITE TRAINING
AVAILABLE
FREE
QUOTATION

ATTENDEE INFORMATION

To receive registration fee discounts, you must **REGISTER AND PREPAY** prior to the course date.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____

PROVINCE _____

POSTAL CODE _____

E-MAIL _____

TEL () _____

FAX () _____

METHOD OF PAYMENT

Bill My Credit Card

AMEX VISA MasterCard

Card # _____

Exp. Date _____

Signature _____

Card Holders Name _____

REGISTRATION FEES

The registration fee to attend the Substation Week Course is **\$799.00** + tax.

The fee includes forum participation, refreshments. NOTE: LUNCH IS PROVIDED WITH THIS COURSE.



**REGISTER 3 DELEGATES
AT FULL PRICE
AND GET THE 4th REGISTRATION FREE!**

SAVE \$50

REGISTER AND PREPAY
14 Days prior to course date
and receive an early bird discount of \$50 off the full price.

WHEN & WHERE

RICHMOND, BC - APRIL 1-2, 2019
SANDMAN SIGNATURE VANCOUVER HOTEL & RESORT
10251 EDWARDS DRIVE
TEL: 604-278-9611

EDMONTON, AB - APRIL 3-4, 2019
SAWRIDGE HOTEL EDMONTON SOUTH
4235 GATEWAY BLVD NW
TEL: 780-438-1222

WINNIPEG, MB - APRIL 8-9, 2019
SANDMAN HOTEL & SUITES WINNIPEG AIRPORT
1750 SARGENT AVE., WINNIPEG, MB
204-775-7263

TORONTO, ON - APRIL 10-11, 2019
HAMPTON INN & SUITES BY HILTON TORONTO AIRPORT
3279 CAROGA DRIVE, MISSISSAUGA
TEL: 905-671-4730

CANCELLATION AND REFUND POLICY

Registration fees are refundable only upon receipt of written notification 10 days prior to the conference date, less a 10 per cent service charge. Substitution of participants is permissible.

The Electricity Forum reserves the right to cancel any conference it deems necessary and will, in such event, make a full refund of the registration fees.