



5th Edition

HIGH VOLTAGE [HV] SUBSTATION DESIGN

Join our BII World global industry expert & instructor:
Vukan Polimac and transform your learning experience.



20 Hours Virtual Learning Experience

16 - 19 November 2026

08:00 - 13:00 | Eastern Standard Time (EST/USA)

www.biiworld.com

COURSE OVERVIEW:

HV Substations play an important role in the electric power systems. A properly planned and designed substation is essential for the reliable operation of a power system network. A new substation would need to be built to meet the requirements of growing loads and operation under changing competitive markets. Upgrading of existing substations would require a comprehensive knowledge of the substation as well as the power system(s).

This 4 - Day Online Course covers all aspects of medium and high voltage substation design including regulatory requirements and general design considerations from feasibility through technical specification and tendering to the detail design. A practical understanding of planning, design, technical specification application and a step-by-step approach of the substation design process is explained as well as design documentation for each design stage. Health & safety and environmental issues relevant for the design are covered in this comprehensive course.

LEARNING OBJECTIVES:

1. Learn the latest criteria and practical techniques for the design of HV substations
2. Understand a step-by-step approach of the substation design process from initial site survey, substation concept, technical specification to the detail design of equipment
3. Gain knowledge of the technical requirements, configuration philosophies
4. Obtain information of design practices and work processes
5. Learn how to specify equipment for a new substation
6. Comprehend how to manage substation design
7. Have a comprehensive understanding of substation components
8. Acquire intelligence of substation layout and busbar design
9. Help engineers and technicians to work with confidence to ensure continuous supply with complete reliability by minimizing interruptions
10. Acknowledge the safety considerations of substations
11. Understand the environmental aspects of substation design and critical factors involved
12. Get awareness of reliability considerations and maintenance considerations in the design stage
13. Understand the technical aspects involved in the selection of major equipment in substations
14. Familiarization of substation earthing design
15. Recognise design documentation from general arrangement to schematic diagrams
16. Ascertain how to manage the design



WHO SHOULD ATTEND:

This course is intended for:

- Design Engineers/Technicians
- Industrial and Utility Engineers/Technicians
- Managers of design engineering departments
- Electrical Engineers/Technicians
- Commissioning Engineers/Technicians
- Consulting Engineers/Technicians
- Planners of Power Systems
- Project Engineers
- Safety Professionals

Others who want a knowledge of a substation design.





VUKAN POLIMAC

... your **EXPERT TRAINER** for this Course.

Vukan Polimac is a Fellow of IET, well established British technical expert and manager, recognized leader in power industry in UK and worldwide for over 30 years. His technical expertise, management and business development skills includes all aspects of transmission and distribution power systems planning and integration of railway systems, asset management and connections to power networks where he provides solutions to technical problems and manages support to other field experts in complex assignments.

A senior executive and consultant managing technical side of the business in major organizations developing business and managing a group to undertake design, construction, and commissioning of T&D projects as well as railway systems on multimillion projects such as Great Western Railways Electrification Project and London Underground. Vukan has recently evaluated connection options of Moorside nuclear plan to the 400kV National Grid system.

An Expert Training Facilitator currently providing a series of practical training sessions on Power Systems for technical and non-technical professionals (engineers, economists, lawyers, bankers, investors), Load Forecasting, Transmission and Distribution Planning with Economic aspects, Relay Protection, Energy Efficiency and Substation and OHL Design, Power Quality Concepts of Traction systems, in the Far East, Middle East, Europe, APAC and Africa.

The range of courses are tailored to clients needs and requirements. He has applied integrated solutions in project management, asset management, carried out feasibility analysis on energy management solutions including cost vs. benefit analysis accounting for the Whole Life Cost in Power System. Leader in implementation of modern design, asset, and construction management (presenting work in conferences in London and oversees on Building Information Modeling BIM, Whole Life Cost concepts, Energy Strategy for major utilities and companies etc.)

He applies innovations in sustainable and renewable energy. Leading in latest technology equipment design and specifications for energy storage (Fly wheels, invertors in power exchange between the power systems, large energy storage such as pumps reversible hydro plants), due diligence studies and environmental assessment, regulatory aspects in setting company's budget and tariffs.

Professional Registration Fellow of IET, Institute of Engineering and Technology, UK Chartered Engineer Member of IEEE Ex Member of CIGRE and working group for HV Power Systems Senior Member, South African Institute of Electrical Engineers Professional Engineer, SMEIT Engineers



mithun.siddartha@biiworld.com



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PRESENTATIONS:

Day 1:

09:00 - Pre-Course Intro – Delegate

Expectation Briefing

Substations Overview:

- Substations in Power Systems
- Substations Overview
- Substation Types

Planning New Substations:

- Planning Overview
- Planning Methodology
- Power System Design

S/S Design Overview:

- S/S Design Overview
- S/S Design Structural Diagram

S/S Feasibility Design:

- Site Selection
- Feasibility Optimal Design
- Appraisal
- Feasibility Design Example

Post Session Q & A

14:00 - End of Day 1

Day 2:

09:00 - Review of Day 1

Technical Specification:

- Specification Concept
- General Requirements
- Specifying Plant
- Specification for Switchgear
- Specification for Transformers
- Specification for HV
- Connections
- Specification for S/S Earthing System

Technical Specification:

- Specification for LVAC Supply
- Specification for LVDC Supply
- Specification for Protection
- Specification for Control
- Specification for Civil Works

Post Session Q & A

14:00 - End of Day 2



PRESENTATIONS:

Day 3:

09:00 - Review of Day 2

Tendering Process:

- Inquiry Document
- Tender Criteria
- Tender Review
- Contract Award

Health & Safety in Projects:

- Methodology for H&S
- Managing Health & Safety in Projects
- Designer Duties
- Health & Safety Plan
- Risk Assessment

Post Session - Q & A

14:00 - End of Day 2

Day 4:

09:00 - Review of Day 3

Initial Contract Design:

- Overview
- Single Line Diagrams
- Layouts
- S/S Earthing System
- Selecting HV Switchgear
- Transformers
- Selecting HV Connections
- Selecting Protection
- Selecting Control System
- Selecting Multicore Cables

Managing Design:

- Detail Design Documentation
- Competency in the Design
- Design Coordination & Approvals

Detail Design

- Detail Design Overview
- Civil Design
- LVAC System
- LVDC System
- Switchgear
- Transformers
- HV Connections
- Protection
- Control System

Post Session - Q & A (Day 1 - 4)

14:00 - End of Course



Masterclass Maintenance & Reliability Practitioners

Facilitator : Ramesh Gulati
In-Person Training



This 3-Day in-person workshop would help to understand the fundamentals of maintenance, reliability, and asset management principles. The knowledge you gain in this workshop will help you effectively implement best practices (BP) to make a difference at your workplace. In addition, this workshop will review the body of knowledge (BoK) of maintenance, reliability & asset management-related certification, and guide to be successful in the CMRP exam.

Our expert trainer Ramesh Gulati, PE, CRE, CRL, CAMA, CMRP, CMRT, has been in the maintenance and reliability and asset management field for more than 50 years. Broad background in operations analysis, performance measurement – metrics, plant reliability & maintenance process improvement tools/techniques – CBM/PdM, TPM, RCM etc., and implementation of asset management systems (ISO Certified).

[CLICK HERE](#)

Date : 21 - 23 September, 2026
Location : Toronto, Canada

To access this course agenda.

Masterclass Maintenance & Reliability Practitioners

Facilitator : Michael Eisenbise
In-Person Training



Equipment must be safe, reliable, and process variability must be eliminated. Your employees must be motivated and supported with targeted training and a robust and efficient organizational structure. This 3 - Day in-person course is designed to heighten the learning experience and to provide an immersive training environment that maximizes the interaction between attendees and the instructor, and between the attendees.

Michael Eisenbise the facilitator for this course has 43 years of maintenance technology and reliability experience. He is a Certified Maintenance and Reliability Professional (CMRP) with the Society for Maintenance and Reliability Professionals Certifying Organization (SMRPCO), a Certified Plant Engineer (CPE) with the Association of Facility Engineers (AFE), a Certified Plant Maintenance Manager (CPMM) with the AFE, and a Certified Reliability Leader (CRL) with the Association of Asset Management Professionals. He is also a registered Professional Engineer (PE) in Florida.

[CLICK HERE](#)

Date : 21 - 23 October, 2026
Location : Nashville, Tennessee, USA

[CLICK HERE](#)

Date : 02 - 04 December, 2026
Location : Tampa, Florida, USA

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Date : 04 - 06 November, 2026
Location : Edmonton, Alberta, Canada

Masterclass Maintenance & Reliability Practitioners

Facilitator : **Michael Eisenbise**
Date : **14 - 18 September 2026**
Timings : **09:00 - 13:00 Eastern Standard Time (EST)**



Equipment must be safe, reliable, and process variability must be eliminated. Your employees must be motivated and supported with targeted training and a robust and efficient organizational structure. This online course is designed to heighten the learning experience and to provide an immersive training environment that maximizes the interaction between attendees and the instructor, and between the attendees.

Michael Eisenbise the facilitator for this course has 43 years of maintenance technology and reliability experience. He is a Certified Maintenance and Reliability Professional (CMRP) with the Society for Maintenance and Reliability Professionals Certifying Organization (SMRPCO), a Certified Plant Engineer (CPE) with the Association of Facility Engineers (AFE), a Certified Plant Maintenance Manager (CPMM) with the AFE, and a Certified Reliability Leader (CRL) with the Association of Asset Management Professionals. He is also a registered Professional Engineer (PE) in Florida.

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Data Science | Industrial AI for Maintenance & Reliability Optimization

Facilitator : **Diego Galar**
Date : **28 September - 01 October 2026**
Timings : **08:00 - 12:00 Eastern Standard Time (EST)**



This 4 Day online course dives into the cutting-edge application of data science and AI to optimize Maintenance & Reliability processes. Designed for professionals in high-value asset-intensive sectors, it explores diagnostics, prognostics, predictive maintenance, and advanced analytics. The total 16hrs sessions will have key topics which will include the integration of digital twins, hybrid models, and context-aware systems, as well as managing black swan events and leveraging prescriptive analytics for proactive decision-making. Case Studies and Real-World examples will be discussed too during this interactive and immersive training.

Dr. Diego Galar is a Full Professor in the Division of Operation and Maintenance Engineering at Luleå University of Technology (LTU), where he significantly contributes to the fields of maintenance, reliability, and industrial technologies. Additionally, he serves as the Research & Technology Director at Sisteplant (Spain), specializing in predictive maintenance solutions and condition monitoring.

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Maintenance Best Practices for Leadership & Supervision

Facilitator : **Andy Gager**
Date : **05 - 08 October 2026**
Timings : **09:00 to 15:00 Eastern Standard Time (EST)**



Join this 4-Day Online Course to enhance your performance and strengthen your workforce by improving your Leadership & Supervisory skills and be confident that you can be successful in meeting the difficult challenges of today's business world. Supervisors are the first line of management in any organization. This workshop is highly valuable for future, newly promoted, or experienced leaders, managers, or supervisors.

Andy Gager the facilitator of these two courses; he is recognized as an industry leading expert in facilitation, global implementations of operations best practices, maintenance systems, and supply chain with over 20 years of industry experiences ranging from warehousing operations to plant management and also over 20 years of consulting and facilitating trainings. He has worked extensively in the manufacturing, oil & gas, food & beverage, facility management, power gen, pharma, and transportation industries.

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SAP Maintenance

Facilitator : **Greg Olynyk**
Date : **13 - 16 October 2026**
Timings : **09:00 - 13:00 Eastern Standard Time (EST)**



This 4 Day online course provides an overview of SAP Asset Management, Master Data Management, and Plant Maintenance. You will learn about asset structures and review common transactions that are essential to Plant Maintenance. By the end of this course, you will be able to perform preventative and corrective maintenance, manage master data as well as transactional data such as notifications and work orders.

Greg Olynyk is a senior SAP consultant and educator, with more than a 30+ years' experience in software course design and instruction. Since 2003, he has specialized in SAP PM and Document Management in regards to instructional design and delivery, master data creation and cleansing, preventative maintenance planning and SAP PM & DMS configuration. He has also performed SAP wellness assessments and recommendations as the Plant Maintenance lead for various companies.

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Advanced Worldclass MRO Storeroom Control

Facilitator : **Dr. John Ross**
Date : **23 - 25 November 2026**
Timings : **09:00 - 14:00 Eastern Standard Time (EST)**

MRO Storeroom Management is a 3-day online training course designed to assist MRO Storeroom Operations with achieving maximum efficiency and effectiveness. Attendees will learn new methods and techniques to gain an understanding of best practices for well-organized Materials Management and will benefit from our interactive and adult learning techniques, while also receiving a firsthand understanding at developing a world class storeroom operation. Regardless of your level of expertise, this course will provide you with the framework and tools to develop and deploy a best-in-class MRO Program and take full advantage of the best practices and strengths of your organization.

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John Ross is a Certified Maintenance Reliability Professional (CMRP) and a noted author on the subject of equipment and maintenance reliability. Greatly experienced in a multitude of industries: aviation, aeronautics, manufacturing, transportation, marine, food and beverage, pharmaceuticals, pet food, mining, facilities maintenance, utilities, power generation and distribution, oil, gas, ethanol, chemical plants, and natural gas.



Maintenance Planning Scheduling and Control (MPSC)

Facilitator : **Dr. John Ross**
Date : **30 November - 03 December 2026**
Timings : **09:00 - 14:00 Eastern Standard Time (EST)**

In today's dynamic industrial landscape, the ability to effectively plan and schedule maintenance is crucial for minimizing equipment downtime and maximizing the productivity of your workforce. This 4 day online course will empower you with the knowledge and tools necessary to develop and execute robust maintenance plans that streamline operations, enhance reliability, and ensure that your technicians spend more time executing work than waiting for assignments.

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Does BII Online Virtual Training have the same value as traditional classroom training?

Yes, BII Online Virtual Training offers participants; same training system as in-person, i.e face-to-face engagement with instructors, course material, interactive participation of all delegates, and personal support that they would expect to find in a traditional classroom.

What are main features of your online courses? Are they on-demand? Is it different content from the in-person offering?

The content of the virtual training is similar to the in-person sessions and customized presentation makes it a richer online learning experience. As always, we will share presentation materials with attendees for later reference.

The online courses are not on-demand and recordings cannot be purchased. They are set on scheduled dates, live with an instructor and co-host via webinar software. While the day is shorter than an in-person session (4hrs vs 8hrs), timing are adjusted to accommodate attendees in different time zones and allow more time for one-on-one conversations via the Q & A.

What are the technical requirements for participation in a virtual course?

All you need to participate in virtual training are:

- Desktop or Laptop or Tablet Computer, and Internet connection
- Webcam
- Headset with built-in microphone

Can I attend an online training session if I have a Macintosh computer?

Yes, Our Online training systems does allow Macintosh computers, PCs, and computers running Linux to easily enter any of our online training sessions.

What type and version of browser will I need for online classes?

It is recommended that you use the latest version of Firefox, Chrome or Internet Explorer for Windows and Firefox or Safari for Mac. Each of these is available for free download and also suggested you have the PDF Reader

How do I have access to the trainer for questions?

As in the classroom, you will see the trainer in front of you and have the opportunity to ask questions at any time - all via audio and video transmission.

Is there a mute option within an online training session to minimize background noise from my audio connection?

Yes, the Mute button will display to the right of your name as you hover your mouse over your name shown in the Participants panel on the top, right side of the Web conferencing screen.

What if I miss few sessions of the online training program?

The training will be simultaneously recorded which will be provided to you as per request & requirement

Do I get a Certificate at the end?

Yes, you will get a PDF version of your certificate of completion



Please complete this form and send it back to
mithun.siddartha@biiworld.com

Event Code: OL HS 26

Delegate Details

- Name: Mr/Mrs/ Ms
.....
Job Title:
Email:
- Name: Mr/Mrs/ Ms
.....
Job Title:
Email:
- Name: Mr/Mrs/ Ms
.....
Job Title:
Email:

PAYMENT METHOD:

CREDIT CARD ☐

The secured payment link will be shared/sent

WIRE TRANSFER OR BANK TRANSFER ☐

Authorization and Acceptance of Sales Contract & Terms & Conditions

I hereby declare I am authorised to sign this contract and terms
& conditions in the name of the company/organisation:

Name:

Date:

Signature:

Delegate Fee ☐ **USD 1299 per delegate**

20 USD administration charge and any applicable withholding or any other tax or fee will be applied

Company/Organisation Detail

Name:
Person to Contact:
Email:
Address:
.....
City:
Country:
Contact No:
Type of Business:
Website:

TERMS & CONDITIONS:

1. Payment terms: BII World LTD requires the full payment of the invoiced amount within 7 working days from the issue date of the invoice. BII World LTD reserves the right to refuse entry to any client who does not pay the invoice in full and on time. The registration fee includes: Training documentation and admission to all training sessions.

2. Cancellation by client: The client has the right to cancel his/her participation in the event. Cancellation must be received by BII World LTD in writing either by mail or fax. If the client cancels the event, he/she will get two options:

A. CREDIT NOTE: Choose 2-year credit note, BII World LTD will send all the schedule training event details throughout the year. Delegate has the right to choose and attend any of the future training programs of BII World (valid 2 years).

B. NOMINATION: In this option delegate can nominate/refer someone from his/her group/company to attend the particular training program on behalf of the actual delegate.

3. Cancellation by BII World LTD : While every reasonable effort is made to adhere to the advertised program, circumstances can arise which may cause changes in the program, including but not limited to changes in the content, date(s), or special features of the planned event. Such circumstances include but are not limited to acts of terrorism, war, extreme weather conditions, compliance with government requests, orders and legal requirements, failure of third-party suppliers to timely deliver, and failure to register the minimum target number of attendees for a given event. BII World LTD reserves the right to change the content, date(s), and/or special features of an event, to merge the event with another event, or to postpone it or cancel it entirely as appropriate under the circumstances. Client agrees that BII World LTD shall not be liable for any cost, damage or expense which may be incurred by client as a consequence of the event being so changed, merged, postponed or canceled and client agrees to hold BII World LTD harmless and to indemnify BII World LTD in case of liability caused by any such changes, mergers, postponements or cancellations.

4. Cancellation of the event: In case BII World LTD cancels an event, then client can choose any of the below mentioned options:

- BII World LTD will refund full payment to the client within 15 business days.
- Client can choose the credit option for 2 years, for more details please read term no-2 part (a)

5. Postponement of the event : In case BII World Ltd postpones the event to a new date, then client can choose any of the below mentioned options.

- The client can attend the course on the postponed dates.
- Client can choose the credit option for 2 years, for more details please read term no-2 part (a)

6. Client's identification information. By signing of this sales contract and these terms and conditions the client gives full right to BII World LTD to share the client's identification information, i.e. client's name, address, email addresses, phone numbers and names of representatives and website with other clients who participated in the same event. The client has the right to opt out of this clause by written notice to BII World LTD.

7. Governing law: This contract shall be governed by and construed in accordance with the laws of the Province of Alberta, Canada. Any disputes arising under or in connection with this registration form shall be sealed before the competent court in Canada.

8. Indemnification: To the fullest extent permitted by the law, you agree to protect, indemnify, defend and hold harmless BII World LTD, its owners, managers, partners, subsidiaries, affiliates, officers, directors, employees and agents, from and against any and all claims, losses or damages to persons or property, governmental charges or fines, penalize, and costs (including reasonable attorney's fees) (collectively "the Claims"), in any way arising out of or relating to the event that is the subject of this contract, and regardless of negligence, included but not limited to, Claims arising out of the negligence, gross negligence or intentional misconduct of BII World LTD employees, agents, contractors, and attendees; provided, however, that nothing in this indemnification shall require you to indemnify BII World LTD Indemnified parties for that portion of any Claim arising out of the sole negligence, gross negligence or intentional misconduct of the BII World LTD parties.

9. Other currencies. In case that client requests payment in other than official currency (USD), BII World LTD reserves the right to apply 5% currency risk surcharge to the actual exchange rate.

10. Other Conditions: Any terms or conditions contained in the client's acceptance which contradict or are different from the terms and conditions of this registration document shall not become part of the contract unless individually negotiated with BII World LTD and expressly accepted by BII World LTD.