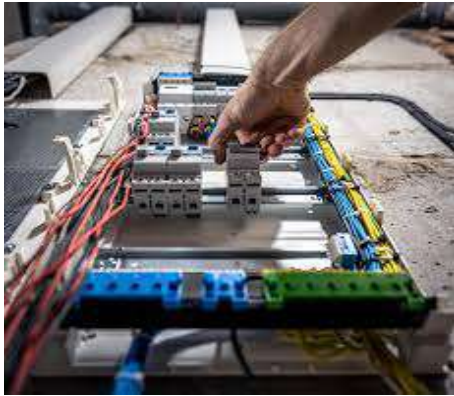




[ADVANCED] ELECTRICAL ENGINEERING WORKSHOP

Join our global industry expert & instructor:
Vukan Polimac, Independent Consultant and Trainer.



20 hours of virtual learning experience

08 - 12 September 2025

09:00 - 13:00	Atlantic Standard Time (AST)
08:00 - 12:00	Jamaica Time
09:00 - 13:00	Trinidad & Tobago Time
10:00 - 14:00	Suriname Time

Course Overview:

Electrical Engineering is research, development, manufacture, installation, operation, maintenance and management of equipment, plant and systems within the electrical, electronic, communication and computer systems. These activities can apply to electricity generation, transmission, distribution, electrical installations, electrical equipment manufacturing, instrumentation and controls systems applications, communications network, electronic plant and equipment, and also the integration and control of computer systems.

This 20 hours Online Electrical Engineering Advanced Workshop will help participants get clear and perfect understanding of power stations, transmission & distribution systems, and zone substations. It will cover both primary and secondary systems. This training course seeks to provide skills such as Power system studies and case studies; Transmission systems technical considerations; LV and MV distribution system design and operation; Substation equipment selection and specifications; Power system protection & automation; Earthing system design and applications.

By applying these engineering skills to the tasks and challenges faced in work, delegates will begin to experience breakthroughs they never thought possible.

Learning Objectives: aims to enable participants to achieve the following points:

- Model a power system by means of system parameters
- Create different load flow scenarios through different switching regimes
- How to analyze and interpret the response of the power system to different scenarios
- How to modify the power system behaviour in an area by enhancing system parameters
- Determine the location and busbar configuration of a typical substation
- Propose specifications for major substation equipment
- Create single line, layout, and schematics diagrams
- Calculate fault levels and loadings of feeders and branches
- Analyze protection logics and coordination between protection devices
- Establish communication between protection devices and controllers



TARGET AUDIENCE (Who should attend):

Job Titles :

- Senior/Principal Engineers
- Project Engineers/Professionals
- Intermediate Engineers
- Electrical Engineers/Technicians
- Technicians and System Operators
- Fire Prevention Engineer
- Engineering Managers

Following **COMPETECIES:** will be developed by participants:

- Power system load studies, fault studies, feasibility studies, reliability, and stability
- Correct selection of substation busbar configuration to ensure flexible switching and loading
- Calculation of fault levels, propose protection settings, and demonstrate protection coordination
- Transmission lines design and operation
- Distribution system configurations and design
- Switchgear types and construction
- HV cable sizing and coefficient factors
- Earthing system calculations





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, SMEITJ Engineers



zack.miller@biiworld.com



www.biiworld.com

PRESENTATIONS:

Day 1

09:00 - Pre-Course Intro – Delegate Expectation Briefing

Power System Parameters and Response:

- Important power system studies
- AC power transmission
- Power Transformers
- Power system drawings
- Power stations
- Grid network
- Smart grid
- Power transmission security
- Power distribution factors
- RLC equations
- Sinusoids & phasors
- Phasor relationships & equations
- Power types & formulas
- Single line diagram (SLD)
- Impedance model
- Power system symbols
- Voltage regulation
- Synchronous generator model
- Maximum power delivered by synchronous generator
- Reactive power flow
- Generator over-excitation
- Complex power flow on a transmission line
- VSD Harmonics
- Steady-state stability
- Transient stability

Post-Session Q&A

13:00 – End of Day 1

Day 2

09:00 – Review of Day 1

Transmission System Design Considerations

- AC transmission
- Squirrel cage AC motors
- Grid network features
- Transmission security
- Building up impedance models
- Complex power definitions
- Power factor
- Power factor compensation (PFC) techniques
- Shunt reactor compensation
- Minimum clearance distances
- Line voltage drop
- Electrical loads types and behaviour
- Single wire earth return (SWER)
- Balanced 3-phase system
- Unbalanced 3-phase systems
- Symmetrical components
- Sequence networks
- Wye-connected & delta-connected loads
- Voltage regulation
- Power angle & power transfer
- Steady state stability limit
- Transmission line terms (span, sag, cross arm, clearance)
- Transmission line surge impedance and propagation
- Overhead line conductors (AAC, AAAC, ACSR)
- Motor Control Centre (MCC)
- Bundles conductors
- Overhead line insulators
- Line supporting structure (wood & concrete poles, towers)
- Power transfer capability, current carrying capacity
- Transmission line loadability

Post-Session Q&A

13:00 – End of Day 2



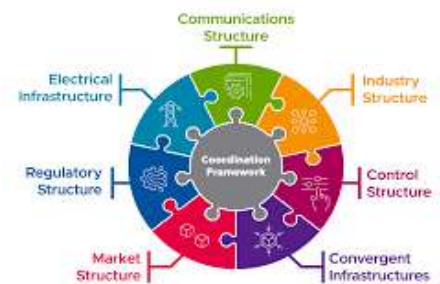
Course Outline:

Day 3

09:00 - Review of Day 2

Distribution System Design Considerations:

- Load models
- Typical characteristics of an industrial distribution system
- Distribution system types and components
- Electrical safety & power security
- Voltage classification
- Multiple voltage levels in power distribution
- Distribution configurations and redundancy
- Distribution expandability
- Distribution system planning
- Electricity demand & future growth
- Equipment sizing/ratings
- LV & HV Switchboards
- HV power cables types & sizing
- Selection of appropriate equipment
- System studies & software packages
- Embedded (in-plant) generation
- Parallel operation of utility with embedded generation
- Integrating embedded generation with plant distribution



Post-Session Q&A

13:00 – End of Day 3



Day 4

09:00 - Review of Day 3

Power System Protection:

- Protection objectives
- Protection Equipment (Over Headlines, Switchboard & Motor protection)
- Protection sensitivity, stability, and reliability
- Main & backup protection
- Symmetrical & asymmetrical faults
- Power system stability
- Impacts of electric faults
- Fuse protection
- Circuit breaker protection
- Variable Speed Drive
- Relay protection (types, functions, construction, technology)
- Trip circuit supervision (TCS)
- Per Unit (PU) system
- Fault calculations
- Protection zones & overlap
- Short circuit capacity (SCC)
- Balanced 3-phase fault
- Unbalanced single-phase-to-ground fault
- Unbalanced phase-to-phase fault
- Unbalanced phase-to-phase-to-ground fault
- Fault indicator
- Overcurrent protection
- Earth fault protection
- Lightning protection
- Protection objectives
- Protection sensitivity, stability, and reliability
- Main & backup protection
- Symmetrical & asymmetrical faults
- Power system stability
- Impacts of electric faults
- Fuse protection
- Circuit breaker protection
- Relay protection (types, functions, construction, technology)
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- Short circuit capacity (SCC)
- Balanced 3-phase fault
- Unbalanced single-phase-to-ground fault
- Unbalanced phase-to-phase fault
- Unbalanced phase-to-phase-to-ground fault
- Fault indicator
- Overcurrent protection
- Earth fault protection
- Lightning protection

Post-Session Q &A

13:00 – End of Day 4



Course Outline:

Day 5

09:00 - Review of Day 5

Earth Consideration and Design:

- Introduction
 - System Requirements
 - Safety Requirements
 - Standards and Regulations
- Earth Faults in PS
 - PS Neutral earthing
 - Calculations using Symmetrical Components
 - Earth path for Fault Currents; OHL, Cables and SS Earth mat
 - Rise of Earth Potential
 - Touch and Step Potential
- Functional Requirements for Grid Substation earthing
 - Safety, Design and Deliverables
 - Constructability, Maintainability
 - Commissioning, Testing
 - Soil Resistivity Test
- Detailed Design of Grid Substations
 - Design Procedure,
 - Data Requirements
 - Calculation guide for Ground return currents
 - Transfer of potential outside substations
 - Specification
- Installation Requirements for Grid Substations
 - Conductor sizing, metal bonding
 - Surge Arresters and VTs
 - Area for Earthing Grid
- Examples
 - HOT sites mitigation
 - Fence earthing
 - Railway substations
 - Communications Towers
 - GIS Substations



Post-Session Q &A (Day 1 - 5)

13:00 – End of Day 5 & Course



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
zack.miller@biiworld.com
mithun.siddartha@biiworld.com

Event Code: OL HS 18

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:

Company/Organisation Detail

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

Name:

Date:

Signature:

Delegate Fee ☐ **USD 1199 per delegate**

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

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.