

OLTC FUNCTION, SELECTION & OPERATION

13 – 15 DECEMBER 2016, KUALA LUMPUR, MALAYSIA

PAST TESTIMONIALS

“It helped to improve my knowledge of OLTC “

“To have a better appreciation of the design and operation of transformer and OLTC”

“This course is very informative as it is related to our daily work”

“It is a very informative course that can help increase the competency of the substation engineers”

“Good technical OLTC exposure”

Expert Course Faculty Leader



MAX PHILIPP

CIGRE member and chairman of the local A2 transformer working group

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Course Overview

This course will aid participants in the understanding of on-load tap changers (OLTC) and provide the utility world with greater appreciation and knowledge of OLTC's selection and function.

Course Objectives

At the end of the 3-day seminar the participants have learned:

- How an OLTC works
- To make decisions concerning OLTC with regards to operation, maintenance, troubleshooting
- How the mechanical part in your power transformer works.

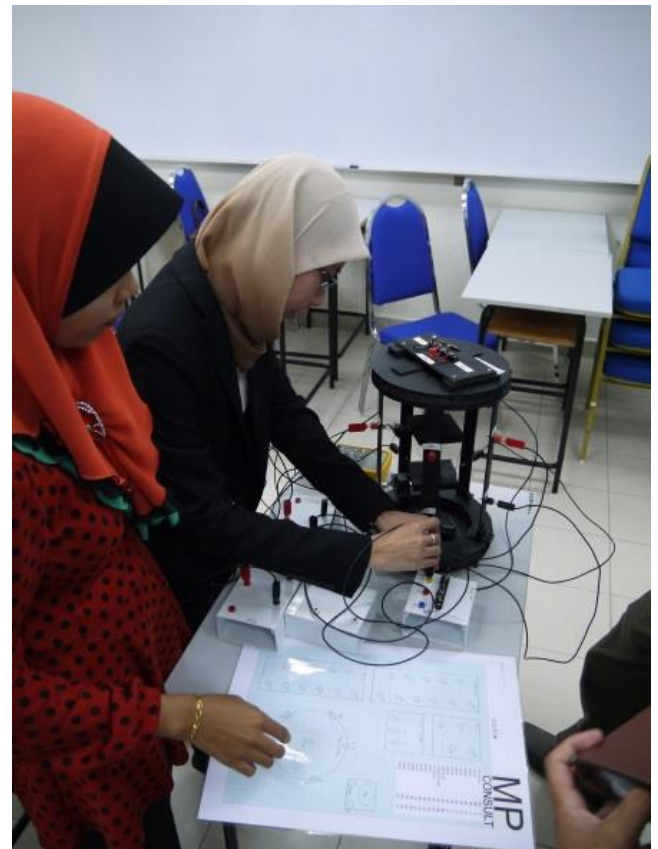
Delivery Method

We have separated this course into 2 stages to achieve maximum learning experience

This 3 day course will be held at the MPC training centre where all participants will get a full hands on experience translating the theoretical learning experience into a practical experience.

Who Should Attend

This course is designed for middle to senior asset engineers, asset managers and engineers dealing with specification, operation, maintenance and protection engineers.



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3 Day Course Outline

Day 1

Function, Selection and Operation

- **Function** — Historical background, Operating Principle & Modern Types of Tap Changers
- With the help of special designed training models the function of the tap selector and diverter switch will be explained in a hands on method for better understanding
- **Selection** — Application in Transformer Windings, Calculations of Main Parameters & Examples of Standard Transformer Ratings
- **Operation** — Commissioning, Routine Checks, Asset Management, Maintenance Strategies, Automatic Voltage Regulator & Parallel Control of Transformer & On line Oil Filter Unit

During day one the group will undergo exercises to better understand the function and operation of the OLTC tap selector and diverter switch

With the demo model the participants will learn the different windings (Main, coarse/fine and tap winding) How to connect to the tap selector.

The difference between Linear, coarse/fine and reversing operation will be explored and tested.

Day 2& 3

This training will take place indoors at the MP Consult training center where you will get hands-on experience on a complete routine service of an actual OLTC.

- Safety briefing before working on HV equipment
- General setup OLTC, Motor Drive unit & drive shafts (Test operations to bring the equipment into the "Adjustment Position"

Climbing on top of the transformer to:

- Checking OLTC position with Motor Drive position
- Removing drive shaft protection cover
- Removing horizontal drive shaft
- Closing the valves to the conservator
- Opening the OLTC head cover
- Removing diverter switch insert
- Replacing the cover.

Once the crane has brought the diverter switch to our working table:

- Diverter switch support is removed
- Energy accumulator is removed
- Diverter switch is brought into middle position
- Contact shells are removed



During this process you will have opportunity to have hands on experience with the equipment.

A routine OLTC service is being performed during all these processes.



Once we have gone through all the required steps of a routine service we will reassemble the diverter switch and reinstall the diverter switch into the compartment and close it. After this we will perform test operation to verify correct assembly. The final step will be to adjust the OLTC with the Motor Drive unit.

- Further to the routine in section the participants will learn:
- Different ratings: 300, 350, 500 and 600 A Star point (3Phase) OLTC
- Modular setup of single phase OLTC 800, 1200 and 1500 A
- What are the differences and how to determine?
- Importance of symmetrical coupling OLTC and MDU
- OLTC protective devices, PRD, Diaphragm
- Selector switch OLTC
- Winding resistance measurement (Static)
- Dynamic OLTC function measurement
- Motor current wave form and analysis
- Acoustic OLTC operation measurement

Testing and Certification:

At the end of the third day the participants will do a written multiple test. Upon successful passing the test the participants will be certified to have received the know-how about the procedure involved in the function, selection and routine maintenance of an OLTC diverter switch.

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Your Expert Faculty

Max Philipp has over 25 years' experience in the field of Transformers, Substations and Management. With a record of directing business strategy, managing start up situations and negotiating business agreements. Extensive experience gained in international operations, strategic management and marketing and a technical expertise in the field of High Voltage Regulation, Transformers and Substations. From Hands on to managing teams in the Asset Management of Substations and especially Power Transformers give him the right background to pass on his wealth of experience. His customer base includes Power Utilities, High & Medium Voltage Substations, Transformer Manufacturers and Industrial customers in the Asia Pacific region. As a Consultant and Trainer, his technical expertise includes:

***Voltage regulation, *Commissioning of OLTC, *Selection Criterias for Power Transformers, *Technical Understanding & Evaluation of Products and *Fault Prevention & Damage Investigation.**

In his previous engagements Max Philipp has worked for Maschinenfabrik Reinhausen GmbH of Germany. In his career he has founded and run 2 subsidiaries from scratch. The first one is in Australia and his last engagement was as Managing Director to set up Reinhausen Asia Pacific in Kuala Lumpur. Due to his previous engagement's he has established deep contacts all over Asia Pacific Power Industry.

Max Philipp is a CIGRE member and is the chairman for the Transformer Working Group A2.

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OTHER AVAILABLE COURSES

- [4 Pillars of Transformer Condition](#)
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Frequently Asked Questions (FAQs)

1. Does PowerEdge have other programmes than those listed?

We have more than 200 programmes that we are capable of running. All we need is for you to contact us and request for the preferred programme and we will be able to develop it.

2. Where is PowerEdge based?

PowerEDGE is headquartered in Singapore but we run our training programmes in different venues around Asia.

3. What does PowerEdge do?

We are a Power & Utilities Training Specialist.

4. Can this course be done in our city?

It absolutely can. Get in touch with us to request for a training programme to be carried out in your city.

5. Can you reduce the price of our preferred course?

While our price has been reduced before it is even launched, we are always happy to help you with further discounts.

6. Can you change the dates of the course?

If you have a special requested date, let us know and we will arrange another session for you.

7. Who are the companies that will be participating?

This varies from a diversity of Power Operators, Regulators, Financiers, to Vendors in the Power & Utilities industry.

8. Where is the venue for the course?

We usually engage a 4 to 5 star hotel meeting room to ensure the comfort of our participants.

9. How many delegates should we expect for each course?

This varies from 15 to 20 participants. Class sizes are kept small to allow trainers to focus better on each participant.

10. What are the different payment modes?

We accept Visa/MasterCard, cheques, bank transfers and cash on site.

11. Is accommodation included when I sign up for a course?

Accommodation is not included in the course fee but we are always happy to advise on available accommodations.

12. Can I get a cheaper accommodation through PowerEdge?

We will be pleased to help you negotiate a better rate with hotels.

13. Is lunch provided during the course?

We provide lunch and 2 tea breaks every day during our training programmes.

14. Are the training materials included once I have signed up for a course?

Yes, training and course materials are included in the course fee.

15. Will there be a certificate for the course?

Yes, there will be a certificate of participation upon completion of a course.

16. Who are PowerEdge trainers?

They are expert consultants and practitioners with many years of experience in the subject matter that they deliver on.

17. Are PowerEdge trainers competent?

We have received numerous favourable feedbacks on our trainers from past participants.

18. Can PowerEdge assist with Visa travel applications?

We can assist in advising you on the relevant procedure(s) and embassies/consulates that provide Visa for travel purposes.

19. Can we purchase training materials without attending a course?

Unfortunately this option is not available as training materials are specially developed for courses.

20. Can course content be tweaked to cater to our needs?

Of course! Just let us know your request and we will get the trainer to assist in carrying it out.

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	PER PARTICIPANT	EARLY BIRD	GROUP OF 3
3 Day Programme	MYR 4,500 Per Participant	MYR 4,050.00 Per Participant	MYR 4,000.00 Per Participant

ATTENDEE DETAILS

Name Job title

Tel Department Email

Name Job title

Tel Department Email

Name Job title

Tel Department Email

Name Job title

Tel Department Email

Name Job title

Tel Department Email

COMPANY DETAILS

Organisation name Industry.....

Address

Postcode..... Country.....

Tel Fax.....

PAYMENT METHODS

By Cheque/ Bank Draft: Make Payable to PowerEdge Pte Ltd.

By Telegraphic Transfer: Please quote AE1 with the remittance advise

Account Name: PowerEdge Pte. Ltd.

Bank Code: 7339 Branch code: 686 Account Number: 686-253386-001 Swift Code: OCBCSGSG

Bank Address: 65 Chulia Street OCBC Centre, Singapore 049513

All bank charges and payment in Singapore dollars (SGD) to be borne by payer. Please ensure that PowerEdge Pte Ltd receive the full invoiced amount.

PAYMENT POLICY

Payment is due in full at the time of registration. Full payment is mandatory for event attendance. I agree to PowerEdge Pte Ltd. payment terms

* GST- Exclusive price is only applicable for overseas corporate customers subject to qualifying conditions.

CANCELLATIONS & SUBSTITUTIONS

You may substitute delegates at any time. POWEREDGE PTE LTD does not provide refunds for cancellations. For cancellations received in writing more than seven (7) days prior to the training course you will receive a 100% credit to be used at another POWEREDGE PTE LTD training course for up to one year from the date of issuance. For cancellations received seven (7) days or less prior to an event (including day 7), no credits will be issued. In the event that POWEREDGE PTE LTD cancels an event, delegate payments at the date of cancellation will be credited to a future POWEREDGE PTE LTD event. This credit will be available for up to one year from the date of issuance. In the event that POWEREDGE PTE LTD postpones an event, delegate payments at the postponement date will be credited towards the rescheduled date. If the delegate is unable to attend the rescheduled event, the delegate will receive a 100% credit

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