



EE104: TAMCO High Voltage Switchgears



Training Description:

High voltage equipment plays an important role in the safe distribution of electrical power. The equipment needs to be operated in a safe manner securing continuity of supply to consumers. The course focuses mainly on the installation, operation and maintenance of high voltage switchgear and equipment, with reference to auxiliary equipment necessary for its operation. Technical aspects of switching devices as well as their maintenance requirements are briefly included in the course in order to understand the risks associated with switchgear operation. Aspects of modern maintenance techniques in asset managements will be covered at the level appropriate for this course.

Protection systems are installed to prevent faults from damaging electrical plant and to initiate isolation of faulted sections in order to maintain continuity of supply elsewhere on the system.

The course will highlight:

- The roles of MV and HV switchgears
- Compression principles of circuit breakers
- Application and installation of vacuum interrupters
- Importance of maintenance and testing
- Protective relays and characteristics

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Understand the operations and types of TAMCO high voltage switchgears
- ✓ Develop management and implementation of safe work systems
- ✓ Design coordination of maintenance activities and maintaining system safety
- ✓ Apply air and gas insulated switchgear operations and maintenance
- ✓ Explain the various types of protective relays
- ✓ Analyse troubleshooting and repair of high voltage switchgears

Training Designed for:

This course is intended for the following personnel; Electrical Engineers, Maintenance Technicians, Electrical Supervisors, Engineering Professionals, Managers of the electrical engineering department.

Training Program:

DAY ONE:

- ❖ PRE-TEST
- ❖ Introduction
- ❖ The Role and Importance of the Medium and High Voltage Air Insulated and Gas Insulated Switchgears in Power Systems
 - Circuit breakers, ring mains unit and earth switches
 - Switchgear symbols on single-line diagrams
 - Switchgear selection
 - Substation switchgear layouts
 - Substation arrangements



- Auto-reclosers
- Air insulated switchgear verses Gas insulated switchgears
- Live tank and dead tank HV circuit breakers

DAY TWO:

❖ Sulphur HexaFlouride (SF6) and Vacuum Circuit Breakers

- Compression principles
- SF6 hazards and test equipments
- Dead and Live tank HV circuit breakers
- Operation mechanisms of HV circuit breakers
- Vacuum interrupters operation and maintenance
- Types of vacuum circuit breaker characteristics
- Other applications and installations of vacuum interrupters
- Vacuum contactors

DAY THREE:

❖ TAMCO High Voltage Switchgears Components, Operation and Maintenance

- Air insulated switchgear
- Gas insulated switchgear
- Single busbar switchgear
- Double busbar switchgear
- TAMCO switchgear special features
- Ring mains unit
- Neutral earth resistors
- Container sub station

DAY FOUR:

❖ Maintenance and Testing of TAMCO High Voltage Switchgears

- Importance of maintenance and testing
- Maintenance strategies
- Preventive and condition-based maintenance services
- Installation and commissioning
- Documentation requirements
- Maintenance post commissioning
- Infrared testing
- Typical switchgear alarms

DAY FIVE:

❖ Protection and Types of Relay of High Voltage Installation Incorporating TAMCO Switchgears

- Characteristics of switching devices
- Fault currents
- Short circuit current situation
- Protective relay types and characteristics
- Busbar arrangement protection schemes
- Numerical and solid-state relays
- Differential relays
- Wrap up session with Q&A





- ❖ Course Conclusion
- ❖ POST-TEST and EVALUATION

Training Requirements:

“Hands-on practical sessions, equipment and software will be applied during the course if required and as per the client’s request”.

Please note that the above topics can be amended as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

As per the course location - This rate includes participant’s manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

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|---------------|-------------------------------|
| 07:45 - 08:00 | Morning Coffee / Tea |
| 08:00 - 10:00 | First Session |
| 10:00 - 10:20 | Recess (Coffee/Tea/Snacks) |
| 10:20 - 12:20 | Second Session |
| 12:20 - 13:30 | Recess (Prayer Break & Lunch) |
| 13:30 - 15:00 | Last Session |

For training registrations or in-house enquiries, please contact:

Aisha Relativo: aisha@cmc-me.com

Tel.: +971 2 665 3945 or +971 2 643 6653 | Mob.: +971 52 2954615

Training & Career Development Department

