



**Asia Masters Center**

## Maintenance Of Electric Generators





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### ➔ Course Objective

- Elaborate on different types of power system generation
- Discuss operations of the steam and gas turbines
- Examine different types excitation systems
- Explore different types of switch gear associated with generator systems
- Identify automatic voltage regulating techniques and governors
- Describe troubleshooting techniques and online monitoring

### ➔ Target Audience

- Electrical Engineers
- Electrical Supervisors
- Electrical Technicians
- Electrical Project Engineers



## Course Outline

- **DAY 1**
- **Definitions, Communications Protocols, Interpretation and Use of Drawings, Maintenance Planning and The Use of Test Equipment**
- Generator Systems AC and DC components
- Operation and Maintenance of Generator Systems
- Thermal Power Generation
- Synchronous Machine Stator Construction and Characteristics
- Synchronous Machine Rotor Construction and Characteristics
- Instrumentation associated with Generator Systems
- Single Line Diagrams
- IEC 61850 and GOOSE
- **DAY 2**
- **The methods of generator excitations and importance of reactive power**
- Functions and Construction of the Automatic Voltage Regulator (AVR)
- Functions and Construction of the Governors
- Over Fluxing
- Types of Excitation Systems
- Self-excitation vs. Brushless
- Effects of over Excitation
- Effects of under Excitation
- Reactive power relationship to Excitation
- **DAY 3**
- **Economical and mechanical impacts on over and under excitation control systems**
- Control Systems for Excitation
- Impact of over Excitation

- Impact of under Excitation
- Importance of the Capability Curve
- Interpreting the Capability Curve
- Generator Stator Thermal Effects
- Generator Rotor Thermal Effects
- Improvements of Generators Excitation Systems
- Day 4
- **The Generator Circuit Breaker, Operation of Generator Step Up Transformer and Power Monitoring**
- Generators Circuit Breaker Construction
- Vacuum and Gas Filled Generator Circuit Breakers Characteristics
- Construction of Power Transformers
- Generator Step Up Transformer (GSU)
- GSU selection criteria
- Power Monitoring
- Load Frequency Control
- Optimisation of Generator output related to speed, frequency and excitation
- **DAY 5**
- **Common Generator Faults, Numerical Protection Relays Functionalities and Synchronisation**
- Numerical Relay Generator Protection
- Generator Earth Fault Relays
- Phase Imbalance
- Synchronisation Generator conditions and merits
- Common Generator Problems
- Cooling of Generators
- Online Monitoring of Generator
- The design of financial models for forecasting and decision-making

➤ **The Feature Of Asia Master Training And Development Center**

- we pick up the customer from the airport to the hotel.
- we give the participant training bag includes all the necessary tools for the course.
- Working within groups to achieve the best results.
- All our courses are confirmed and we do not postpone or cancel the courses regardless of the number of participants in the course.
- We can assist you in booking hotels at discounted prices if you wish to book through us.
- We offer the certificate from Asia Masters Center for Training and Administrative Development.

➔ **The Cost Of The Training Program Includes The Following:**

- 1) Scientific article on flash memory.
- 2) Training Room.
- 3) Training.
- 4) Coffee break.
- 5) The training bag includes all the tools for the course.



## Asia Masters Center

### Price (USD)

Communicate with the training department  
to know the participation fees

➤ **There are offers and discounts for groups**

### The details of the bank account

Bank name: CIMB Bank Berhad

Account name: Asia Masters Center SDN. BHD

Bank account number: 80-0733590-5

Swift code: CIBBMYKL

IBAN: Null