

Training Title

TRANSFORMERS, RMU SWITCHGEARS AND CIRCUIT BREAKERS

Training Duration

5 days

Training Date

Ref EE121	Transformers, RMU Switchgears and Circuit Breakers	5	30 Sept – 4 Oct '18	\$4,250	Dubai, UAE
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In any of the 5 star hotels. The exact venue will be informed once finalized.

Training Fees

- 4,250 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

Language: English

WHO SHOULD ATTEND:

This course is intended for Electrical Engineers, Electrical Supervisors and Electrical Technicians engaged in the commissioning, testing, start-up, troubleshooting, maintenance and repair of Electrical Equipment and Control Systems. Because the methods and examples are generic, trainee from all industries especially oil and gas fields will benefit. Participants need no specific requirements other than good understanding of electricity and magnetism and some relevant experience

TRAINING METHODOLOGY

The course is designed to maximise delegate benefit from the outset. The goals of each participant are discussed to ensure their needs are fulfilled as far as possible. Questions are encouraged throughout particularly at the daily wrap up sessions. This provides opportunities for participants to discuss specific issues and if possible find appropriate solutions. Case studies are employed to highlight particular points and appropriate video material used to illustrate particular conditions.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

TRAINING OUTCOMES

- Following the attendance at this course, participants will return to their respective organizations equipped with new or refreshed skills to ensure that each power components related to the industrial substations are tested and maintained in a fashion that ensures reduced costs and or start-up delays plus identified faults or problems are repaired and the underlying causes are identified and eliminated to reduce further failures ,

DAILY OUTLINE

Day-1

1.1. Introduction

- Student introduction
- Purpose Of Electrical Maintenance
- The golden triangle of Maintenance
- Electrical safety rules related to power Electrical Equipments
 - Electrical Definitions
 - Documentation and Notices
 - Safety Equipment
 - Persons
 - Rules For Initiation Of Work
 - Electrical Permit to Work Certificate
 - Sanction for Test Certificate
 - Limitation of Access Certificate
 - Electrical Isolation Certificate

1.2. Electrical Distribution System

- References
- Distribution System Back ground
 - Transmission system configuration
 - System types
 - Radial systems
 - Ring Main Units configurations
- Substation rating & Arrangements
- verifying correct condition and operation of the switchgear
 - Visual Inspections
 - Mechanical Inspections and Tests
 - Electrical Tests
 - Functional Operation Test
 - Review of Testing and Inspection Results
 - Trouble shooting

Day-2

1.3. Air Circuit Breaker

- Construction
- Operation C/H
- Rating And name plate data
- Protection C/H
- Applications

1.4. Vacuum Circuit Breaker

- Construction
- Operation C/H
- Rating And name plate data
- Protection C/H
- Applications

Day-3

1.5. Oil Circuit Breaker

- Construction
- Operation C/H
- Rating And name plate data
- Protection C/H
- Dissolved Gas Analysis
- Applications

1.6. Verifying Correct Condition , Maintenance And Operation Of Air , Vacuum & Oil Circuit Breakers

- Visual Inspections
- Mechanical inspection and tests
- Electrical Tests
- Review of testing and inspection results

Day-4

1.7. Power Transformers

1.7.1.Transformers types

- Distribution transformers
 - ANSI Liquid filled
 - Unit and substations transformers
 - Pad Mounted transformers
- Single and three phases
- Power transformers ;large , medium and small transformers
- Voltage Transformer (VT) and current transformers (CT's)

1.7.2.Accessories & Protective Devices

- Double Float Buchholz relay

- Dial Type Contact Thermometer
- Magnetic oil –Level Indicator
- Protective devices for hermetically sealed transformers
- Pressure Relief device
- Dehydrating Breather
- Bushing Current transformer
- Additional accessories
- Protective relaying

1.7.3. General diagnostic

- Insulation Resistance and Polarization Index
- Turns Ratio and Excitation Current
- Capacitance and Power Factor
- Winding Resistance
- Recovery Voltage Measurement
- Frequency Response Analysis
- Interpretation of test results
- Oil Quality Analysis
- Dissolved Gas Analysis

Day-5

1.7.4. Ground Grid Systems

- Purpose
- Grounding theory
- Types of test equipment
- Inspection
- Testing

1.7.5. Open session for questions, answers and case studies

Case Studies, Last Day Review, Discussions & Pre & Post Assessments will be carried out.

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