

# **TRANSFORMER DIAGNOSTIC METHODS, SELECTION, MAINTENANCE, TROUBLESHOOTING AND LIFETIME EXTENSION**



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## **TRAINING TITLE**

TRANSFORMER DIAGNOSTIC METHODS, SELECTION, MAINTENANCE, TROUBLESHOOTING AND LIFETIME EXTENSION

## **VENUE**

Dubai, UAE

## **DURATION**

5 Days

## **DATES**

07 - 11 August 2022

## **PRICE**

US\$4,000 per attendee including training material/handouts, morning/afternoon coffee breaks and Lunch buffet.

## **TRAINING INTRODUCTION**

The accurate diagnostic of the transformer is very important to establish the degree of the aging of transformers. Several experimental tests and theoretical analyses have been carried out to obtain parameters associated with the advances on understanding failure processes and troubleshooting.

The collect relevant data from the analysis can be interpreted and quantified so that a clear picture of the transformer condition is formed. However, this diagnostic data can help to:

- ▶ Avoid catastrophic failures e.g. fires following flash over.
- ▶ Extend the period of maximum load carrying capability for transformers.
- ▶ Select which units that need service and maintenance.
- ▶ Extend lifetime of the transformer.
- ▶ Avoid the high cost of transformer replacement.

The aim of this course is to enrich and update the knowledge and skills of the participants for achieving a correct diagnostic analysis, interpretation the laboratory analyses, learning new development analysis methods, understanding the effect of the thermal and electrical stress on the transformer, maintenance methods and troubleshooting process.

The course is interactive and consists of many practical examples and workshops from manufacturing and service industry, which have been designed and structured to enable the delegates to set up and manage continuous improvement projects in their organizations on completion of the course.

### **TRAINING OBJECTIVES**

- Familiarize participants to the tools and techniques for achieving continuous improvement such as chemical/physical/electrical analysis, run chart, cause and effect diagrams, histograms, and flow charts.
- To provide skills, knowledge and understanding of principles and practices of the application of transformer diagnostic analysis.
- To solve the transformer problems.
- To achieve an advance maintenance methods.
- To provide ability to organize and implement continuous improvement projects in the organizations of the participants.

### **TRAINING AUDIENCE**

Engineers, Technicians, Chemist who work in the transformer field i.e. Maintenance Section, Electrical Section, Laboratory, etc. In addition, the course is also available to Management Representatives (MR) and Departmental Managers and Supervisors to select the correct diagnostic analysis quotation.

### **TRAINING OUTLINE**

Transformer Fundamental

Transformer Review

Cooling System

Winding Design

Transformer Configuration

Core designs

Transformer Types

Preservation Sealing Systems

Bladder Failure (Gas Accumulator) Relay

Pressure Relief Device

Sudden Pressure Relay

Buchholz Relay  
Tap Changer  
Protective Relay  
Switch Gear  
Insulating Oil Composition  
Insulating Paper Composition  
Transformer Oil Types  
Thermal Effects  
Hot Spots Temperature  
Static Electrification Phenomenon  
Energy Losses  
Mode of Heat Transfer  
Oxidation and Degradation of Insulation System  
Corrosive Sulfur Effect  
Insulation System Aging Factors  
Transformer Aging Measurement  
On-site Electrical Tests  
Dissolve Gas Analysis (DGA)  
Gas Diagnostic Methods  
Fault Gas Generation Rates  
Chemical and Physical Diagnostic Analysis  
Estimation Diagnostic Analysis  
New development Methods of Diagnostic Analysis  
Means and Need for Condition Monitoring  
Transformer Lifetime Extension Methods

## **TRAINING CERTIFICATE**

**MAESTRO CONSULTANTS** Certificate of Completion for delegates who attend and complete the training course

## **METHODOLOGY**

Our courses are highly interactive, typically taking a case study approach that we have found to be an effective method of fostering discussions and transferring knowledge. Participants will learn by active participation during the program through the use of individual exercises, questionnaires, team exercises, training videos and discussions of “real life” issues in their organizations. The material has been designed to enable delegates to apply all of the material with immediate effect back in the workplace.