

High Voltage Machines Training

Improve electrical machine maintenance in your business by training staff in common standard inspection, test and maintenance procedures. This training includes classroom presentations consisting of four modules over 8 hours.

Training Outline

The following modules will be covered during this training;

- High voltage machine design and assembly
- Failure mechanisms common to machines
- Electrical test descriptions, selection and interpretation
- Visual inspection protocols and procedures
- Core inspection and wedge surveys
- Safety hazards in undertaking visual inspections
- Practical application of test and visual inspection procedures
- Inspection reporting

Learning Outcomes

The following outcomes will be achieved through completion of this training.

Attendees will be able to:

1. Identify and describe the function of machine components
2. Identify and describe different insulation types in stator and rotor windings
3. Describe the failure mechanisms common to high voltage machines
4. Describe electrical test appropriate for testing for the presence of particular failure mechanisms in electrical machines
5. Undertake a visual inspection on a high voltage machine following standard protocols
6. Describe typical El-cid inspection procedure
7. Identify common symptoms of failure mechanisms
8. Relate observed condition of machine windings to reliability
9. Understand safe working practice when undertaking testing of electrical machines
10. Understand the safe working limits when applying voltage to windings during electrical testing

Training Location

We can conduct training on-site for your business, alternatively we can organise off-site facilities.

Who should participate?

Engineers, service technicians, electrical and mechanical maintenance personnel, who have beginner or intermediate level experience with motors and generators and their operation.

Inclusions

- Specified training course
- Course notes
- Online assessment
- Certificate of attendance



Participation in this course may be eligible for CPD. Please check with your authorising body for full details.



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Training Program Outline

Following is the program for the training;

Machine Design and Assembly

Module 1 Duration: 2 hours

- Frame assembly
- Stator and rotor core construction
- Stator windings
- Rotor windings
- Stator insulation systems

Common Failure Mechanisms

Module 2 Duration: 2 hours

- Description of failure modes
- Failure mechanism symptoms
- Stator and insulation failure mechanisms
- Stator core failure mechanism
- Rotor winding failure mechanisms

Electrical Test Theory: Set-up & Interpretation

Module 3 Duration: 2 hours

- Insulation resistance testing
- Polarisation index testing
- Stator and rotor winding resistance readings
- Stator/Rotor impedance testing
- RSO Testing
- Tan Delta testing
- HV DC Testing
- Polarisation/Depolarisation Testing
- Partial Discharge Testing
- Rotating Diode integrity testing
- RTD integrity testing

Machine Inspections: Theory, Execution & Interpretation

Module 4 Duration: 2 hours

- Stator winding visual inspections
- Stator core visual inspection
- Rotor winding visual inspections
- El-cid core inspection
- Wedge tap survey

Assessment Method

Upon completion of this training, participants will be assessed for competencies by completing an online multiple choice examination within one week of the training. A certificate of attendance will be presented to each attendee.

Presenter

Mike Davis is an Electrical Engineer with over 40 years' experience in rotating equipment, essentially centred on the repair, redesign and maintenance of electrical rotating plant.

He has developed an intense academic interest in machine failure mechanisms and root cause analysis of electrical machinery failure, and has presented papers throughout Australia, New Zealand, United States of America, South East Asia and South Africa.

Over the last 20 years Mike has developed tailored machines training courses which have been presented to end users in USA, NZ, Australia, South Africa, Indonesia, Singapore and Malaysia.

Mike has been actively involved in several Australian Standard committees and also undertaken a statutory role as an accredited assessing authority for the New South Wales Department of Minerals and Energy.



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