



ENGINEERING AND TECHNICAL TRAINING

Operation, Monitoring and Control of Electric Machines

5 day course

Classroom, online or in-house

Course overview

Motors and generators drive nearly every industrial process, and their failure stops production. This course covers the operation, monitoring and protection of rotating electrical machines in industrial service. Delegates work through induction and synchronous machine characteristics, starting methods and their effect on the network, speed control through variable frequency drives, protection and its coordination, and the condition monitoring techniques that give warning before a failure. Practical emphasis is placed on interpreting the signals a machine actually gives: current signature, vibration, temperature and insulation condition, and on distinguishing a developing fault from a measurement artefact.

What you will learn

- Describe induction and synchronous machine characteristics in industrial service
- Compare starting methods and their effect on the supply network
- Apply variable frequency drives for speed control and assess their side effects
- Specify and coordinate protection for a motor or generator
- Interpret current signature, vibration, temperature and insulation data
- Distinguish a developing fault from a measurement artefact
- Plan condition based maintenance for rotating electrical plant

Who should attend

- Electrical and control engineers
- Maintenance and reliability engineers and technicians
- Plant and operations engineers
- Condition monitoring specialists
- Technical supervisors responsible for rotating plant

Course outline

- 01 Induction and synchronous machines in industrial service
- 02 Starting methods and network impact
- 03 Variable frequency drives, harmonics and bearing currents
- 04 Motor and generator protection and its coordination
- 05 Condition monitoring: current signature analysis
- 06 Vibration, temperature and insulation condition assessment
- 07 Distinguishing a developing fault from an artefact
- 08 Condition based maintenance planning for rotating plant

Upcoming dates

Dates	Venue	Format	Fee per delegate
21 to 25 September 2026	Johannesburg, South Africa	Classroom	R19,950
26 to 30 October 2026	Durban, South Africa	Classroom	R19,950
18 to 22 January 2027	Online	Online	R8,500
25 to 29 January 2027	Cape Town, South Africa	Classroom	R19,950



Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afriscience.co.za, or WhatsApp us on **+27 63 479 1136**.

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