Understanding Electrical Motors: Theory, Repair and Application

This course will combine the theoretical and practical aspects of the motor design, application, operation and maintenance of electrical motors, and allow you to better manage motor selection, operations and repair maintenance required to optimize your rotating systems.

**Theory**
- The Motor Family
- Basic AC Motor Theory
- Typical AC Induction Motor Constructions
- Energy Efficient Motors (Magnetic Iron & Copper Selections)
- Various Motor Bearing Arrangements
- Understanding NEMA Standards (Enclosures, Frame Sizes, & Nameplates)
- Available Motor Mounting Arrangements
- Understanding Insulation Classes, Material Types & Temperature Rise
- Motor Speed-Torque Curves vs Motor Mechanical Loading
- Understanding Motor Service Factor
- The Important Motor Protection Concepts
- Installation, Testing & Commissioning

**Repair**
- Shaft Design, Connected Loads & Bearing Application
- Roller vs Ball Bearings
- Insulation Testing
- VPI
- Importance of Dynamic Balance, Some concepts
- Motor Winding & Connection Configurations
- Effects of Variable Speed drive output on windings & Bearings
- Effects of Voltage & Current Unbalance
- Maintenance, Lubrication & troubleshooting
- Careful storage & handling of electric motors

**Application**
- Motor Starting Methods, Voltage & Start Time Issues
- Connected Load Types & Load Inertias
- Concerns with Speeds above Synchronous Design Speed
- Motor Protection concepts
- Installation, Testing & Commissioning
- High Efficiency motors
- Fault Protection

**Instructors**

**Theory** - Mike MacDonald, FEC, P.Eng. President, JM MacDonald & Associates Ltd.
Mike has over 39 years experience in the application, operational maintenance and repair of large and intermediate sized AC electrical machinery and their associated controls in heavy industrial environments.

**Repair** - Joe Koncovy P. Eng. Plant Manager, Source Atlantic, Engineered Products & Services
With over 25 years of experience in the Industrial rotating equipment industry, Joe is currently the manager of the Engineered Products & Services division of Source Atlantic.

**Applications** - Tom Sisk P. Eng President, Sisk Consulting Inc
Tom brings over 37 years of experience in electrical design and implementation, and currently operates his own consulting firm while contributing to electrical publications and offering continuing education courses.

**Course Materials**
All course materials provided, including a copy of the Electrical Engineering Pocket Handbook and Recommended Practice for the Repair of Rotating Electrical Apparatus

**Cost:** $495 Per Person (plus tax). Lunch and refreshments provided.

**Time & Location**
**Location:** Source Atlantic Training Center 331 Chesley Drive, Saint John, NB
**Time:** 8:30 am - 4:30 pm
**Date:** TBD

**Questions?**
Contact Julie Boudreau 506.658.4973 boudreau.julie@sourceatlantic.ca

**Please fax completed form to Julie Boudreau at 506.632.0220**

Name: ____________________________________________________________

Company: _________________________________________________________

Phone: ___________________________________________________________

Email: _____________________________________________________________

Paid by  □ Mastercard  □ Visa  □ P.O. □ Cheque payable to Source Atlantic

Credit Card or P.O. #: _______________________________________________

Expiry Date: _______________________________________________________

Number of Participants □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ __

**NOTE:** Course will be subject to cancellation if there are not a sufficient number of participants. Standard cancellation policy applies to all registrations.