

Regional Data Analysis For MCEMAX[®] Syllabus

Course Format:

Students should complete the Introduction to MCEMAX course and have at least six months experience operating the MCEMAX tester before attending a Data Analysis course. Students should come prepared to share their own success stories as well as challenges they have encountered while working with the MCEMAX.

The MCEMAX Data Analysis course begins with a refresher on the operation of the MCEMAX and a review of the fundamentals of Fault Zone Analysis. The course will then continue with a study of how faults develop in motor components and strategies for testing complex motor circuits. The class will also examine case studies with real-life examples demonstrating how MCEMAX testing may be used to examine each Fault Zone in a motor circuit, and how Advanced Spectral Analysis may be used to monitor mechanical components being driven by the motor.

Day 1

At the beginning of the course, each student will complete a questionnaire that allows them to evaluate their understanding of Fault Zone Analysis and the operation of the MCEMAX. The instructor will then lead a discussion covering the basics of Fault Zone Analysis while discussing in detail each topic on the questionnaire. The discussion will include both offline (de-energized) Motor Circuit Evaluation (MCE[®]) and online (EMAX) testing.

Day 2

The instructor will lead a discussion of the primary stresses that lead to motor failures and the use of Fault Zone Analysis to evaluate the condition of a motor circuit using both online and offline tests. This discussion will cover real examples of motor faults using both case studies and the students' own data.

Day 3

On the final day of the course, the class will discuss special testing applications, such as how to test Variable Frequency Drive and DC Drive circuits, and how to perform EMAX testing with various types of low voltage distribution systems. The instructor will facilitate a discussion on how to use Advanced Spectral Analysis to evaluate mechanical components. The students will also have the opportunity to present their own data and analyze it with the instructor's assistance.

NOTE 1: Students are expected to bring examples of successes they have had with the MCEMAX to share with the rest of the class. The course will be more rewarding when students are willing to share their experiences running a motor testing program with other students.

NOTE 2: The instructor will emphasize group discussions using the databases of the various facilities attending the course. Students are expected to bring data from specific motors as well as questions about the data that they wish to discuss with the instructor and the other students. By focusing on the students' own data, the course can take advantage of the group's experiences and lessons learned.