

Topic: Electric Machines and Flicker Contribution

Date: May 29, 2014

Time: 8:00am- 5:00pm

Location: JSU Engineering Building Auditorium, 1650 John R. Lynch Street, Jackson, MS

PDH: 8 Contact Hours

Cost: \$50 for all students, \$60 for non-student PES members, \$75 for all others

Register: https://meetings.vtools.ieee.org/meeting_view/list_meeting/25977

Presenters: Dr. Ebrahim Amiri, Dale McDonald, Tom Field

Abstract: This course covers many topics in theoretical and practical interactions of electric motors with the electric power system. Motor operational theory will include the basic principle of energy conversion, three phase and single phase induction motors, and three phase synchronous cylindrical and salient pole machines. Design of electric machines will cover the NEMA classes along with their rotor construction, speed torque characteristics and applications, and enclosure types. Motor starting methods including full start, wye-delta, auto-transformer, primary reactor, primary resistor, partial winding, soft start, VFD, and synchronous field controls will be discussed. The effects of frequency, voltage, and power factor on motor starting will also be covered along with manufacturer's data. Motor stopping as well as loading effects on the current waveshape and mechanical loading variation effects on the current waveshape will be presented. Finally, the course will discuss the effect of source impedance variations on the resultant voltage supply of the machines and the IEEE standards on voltage flicker with examples of motor starting, stopping, and load variations.

Dr. Ebrahim Amiri is currently an Assistant Professor of Electrical and Computer Engineering at Jackson State University (JSU) in Jackson, Mississippi, where his current research interests include electric machines, electric drives, and power electronics. He serves as the newsletter editor for the IEEE Mississippi Section, and as a co-chair of the SSCET Power Track for 2014.

Dale McDonald of Natchez Electric works with Substation Transformers and equipment and as an Application Engineer with poly-phase induction motors, Variable Frequency Drives (VFDs), and Large Synchronous motors, including Synchronous control.

Tom Field currently works for Entergy in Transmission Design Basis where he is responsible for the real time simulator lab and university research. He is a member of several IEEE working groups in the IEEE PES, IEEE SA, and IEEE IAS.



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