

# Assessment: Course Four Column



## Courses (CTE) - Electrical Systems Technology

### ELM 126: Motor Maintenance

Course Outcomes	Assessment Measures	Results	Actions
<p><b>Apply basic troubleshooting procedures to motors</b> - Apply basic troubleshooting procedures to motors used in industry to include disassembly and reassembly of motors of various horse power and enclosures</p> <p><b>Course Outcome Status:</b> Active  <b>Next Assessment:</b> 2021-2022  <b>Start Date:</b> 10/20/2017</p>	<p><b>Assignment - Project</b> - Brought into the shop a variety of motors (4) and had the students disassemble, inspect and re-assemble them.</p> <p><b>Criterion:</b> Correct dis assembly and re-assembly of the motor to include removal of the rotor for visual inspection and check for shorts. opens or visable damage within the motor.</p>	<p><b>Reporting Period:</b> 2016-2017  <b>Criterion Met:</b> Yes</p> <p>The students performed well with this task as this was a hands-on oriented exercise with the use of tools, lifting devices and teamwork.</p> <p>The Criterion for this exercise was definitely met. (10/20/2017)</p>	<p><b>Action:</b> During this course next year, it is my plan to take all the students on an inspection of larger motors in use in industry to observe 4160 VAC motors in use and correct storage of larger high-voltage motors when in storage. (10/20/2017)</p>
<p><b>Identify causes of motor failure in industry.</b> - Identify causes of motor failure in industry. Focus on bearings and lubrication procedures.</p> <p><b>Course Outcome Status:</b> Active  <b>Next Assessment:</b> 2021-2022  <b>Start Date:</b> 10/20/2017</p>	<p><b>Exam</b> - A variety of handouts were given to the students covering lubrication, care and maintenance and technical information on motor bearings.</p> <p><b>Criterion:</b> A comprehensive exam was administered to the students including hand-out material and a Chapter from their text on Motor Failure</p>	<p><b>Reporting Period:</b> 2016-2017  <b>Criterion Met:</b> Yes</p> <p>The test results on the Final Exam were very good, averaging 86% for all subjects covered. Student knowledge in these areas was increased and proven on the exam. (10/20/2017)</p>	<p><b>Action:</b> Arrange a tour of the Newmont Gold Strike Mine electrical to include the Mill 6 area and the Acid Plant where motors of this size, and larger, are in use. (10/20/2017)</p>
<p><b>Apply correct test procedures with meters and various other instruments</b> - Apply correct test procedures with meters and various other instruments such as Meggers, PF Meters, and DVM's.</p>	<p><b>Assignment - Project</b> - An electronic megger as well as a hand-crank megger were used to check motor insulation values. Fluke Digital Volt Meters were also used to check for continuity between the meter leads</p>	<p><b>Reporting Period:</b> 2016-2017  <b>Criterion Met:</b> Yes</p> <p>All students showed themselves to be proficient with the use of Meggers and DVM's as they were used on the disassembled motor to make insulation checks and testing. Correct re-assembly of the motor and re-check of the</p>	<p><b>Action:</b> Perform insulation testing on larger sized conductors and/or trailing cables to include residential checks on feeder cables for correct installation. (10/20/2017)</p>

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<p><b>Course Outcome Status:</b> Active</p> <p><b>Next Assessment:</b> 2021-2022</p> <p><b>Start Date:</b> 10/20/2017</p>	<p>and motor grounds. A technical document on Basic Insulation Testing was also used for explaining testing procedures, time measurements, and testing of transformers.</p> <p><b>Criterion:</b> Lab use, Exam</p>	<p>insulation levels with test instruments provided. (10/20/2017)</p>	