

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: ELEC 241 Department: Electrical Engineering Tech.

Course Title: Fund. Of Motor Control Semester: Spring Year: 1999

Objectives/Competencies

Course Objective	Competencies
1. Understand circuit layouts, connections and symbols.	1. Demonstrate by exam an understanding of circuit symbols. 2. Demonstrate by exam an understanding of pushbuttons, relays, contactors, timing relays, switches. 3. Demonstrate by wiring control pilot devices in a practical circuit.
2. Analyze basic control circuits.	1. Demonstrate by exam an understanding of two and three wire control. 2. Demonstrate by setting up complex control circuits in the lab. 3. Demonstrate by exam interlocking methods of control.
3. Understand fundamental trouble shooting techniques.	1. Demonstrate by using an ohmmeter how to locate a defective control device. 2. By exam, analyze series and parallel or combination circuits for shorts or opens applying Ohms law.
4. Understand AC reduced voltage starters.	

Course Objective	Competencies
<p>5. Understand and apply time delay logic.</p> <p>6. Analyze accelerating and decelerating methods.</p> <p>7. Wire and test a forward and reversing motor control circuit.</p> <p>8. Understand and use a calculator to solve AC problems.</p> <p>9. Be able to measure AC current, voltage and resistance.</p>	<ol style="list-style-type: none"> 1. Demonstrate in the lab how a reduced voltage starter works. 2. By exam, analyze a reduced voltage starter circuit. <ol style="list-style-type: none"> 1. By experiment, show an on delay and an off delay timing application. 2. By exam, solve timing diagram problems. <ol style="list-style-type: none"> 1. By exam, show an understanding of acceleration and deceleration. <ol style="list-style-type: none"> 1. Troubleshoot with a VOM a forward and reversing motor control circuit. 2. By exam, solve trouble shooting problems. 3. By experiment, measure voltage and current in a capacitor circuit using AC or DC. 4. By exam, solve complex electrical AC and DC capacitive problems. <ol style="list-style-type: none"> 1. Solve AC electrical problems using scientific notation, engineering prefixes using standard engineering. <ol style="list-style-type: none"> 1. In the lab, take standard AC electrical measurements using a digital multimeter. 2. In the lab, use the oscilloscope to measure AC or DC voltages phase angle and frequency.

Course Objective	Competencies
10. Be able to build simple AC electrical circuits. 11. Understand impedance, reactance, apparent power, reactive power and real power.	<ol style="list-style-type: none">1. In the lab, build AC electrical circuits using a schematic drawing.1. In the lab, measure AC voltage and current and determine impedance and/or reluctance of a complex capacitor inductor resistor circuit.2. By exam, solve complex AC problems solving for impedance, apparent power, reactive power and real power.