

Planned Course: Physics I Unit: DC Electrical Circuits	Course Number: S403 Grade Level: 11-12	Department: Science	
Estimated Time: 4 weeks	Level/Track:	Date Approved: 8/24/09	
PA Academic Standards	Core Concepts (in question format) • Skills/Knowledge	Activities/Strategies/Study Skills (identify some activities as remedial or enrichment activities)	Assessments (include types and topics)

<p>3.1.12 Unifying Themes</p> <p>A. Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.</p> <p>B. Apply concepts of models as a method to predict and understand science and technology.</p> <p>C. Assess and apply patterns in science and technology.</p> <p>D. Analyze scale as a way of relating concepts and ideas to one another by some measure.</p> <p>3.2.12 Inquiry and Design</p> <p>A. Evaluate the nature of scientific and technological knowledge.</p> <p>B. Evaluate experimental information for appropriateness and adherence to relevant science processes.</p>	<p>► What is an electrical circuit?</p> <ul style="list-style-type: none"> • Understand that electric current flow is in a complete path. • Describe circuits using elementary schematic diagrams. • Describe circuits using voltage or current sources as well as resistors and resistive loads such as simple light bulbs. • Describe the function of simple circuit elements in a DC circuit. (conductor, resistor, battery, switch, inductor, capacitor) • Discuss and use Ohms Law to relate Resistance, Difference in potential and current flow. <p>► What is an open circuit?</p> <ul style="list-style-type: none"> • Construct and identify diagrams of circuits 	<ul style="list-style-type: none"> • Study text • Take notes on additional explanations from lectures • Do homework problems from text and worksheets • Take notes on explanations from lectures. • Engage in discussions of circuit elements and their use in defining DC Circuits. • Demonstrate problem solving techniques at the blackboard. • Do computer research on DC Circuits. • Answer homework questions from text and/or worksheets. (Ch 34 pgs 696 thru 701, Ch 35 pgs 714 thru 719) • Use scientific method while performing laboratory experiments. • In first lab study Ohms Law • Study text Chapter(s) 34, 35 Ac and DC Circuits • Perform laboratory experiments dealing with: Electrical circuit design. 	<ul style="list-style-type: none"> • Completion of homework. • Discussion of homework assignments. • Class participation in discussions of topics surrounding everyday events illustrating the assignments. • Written reports of laboratory exercises. • Class participation • Written Chapter test • Written pop quiz(s) • Written reports of laboratory exercises • Teacher observation of performance in LAB environment. • Computer modeling of problems using IP
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<p>C. Apply the elements of scientific inquiry to solve multi step problems.</p> <p>D. Analyze and use the technological design process to solve problems.</p>	<p>that are classified as open (no current flow).</p> <p>► What is a closed circuit?</p> <ul style="list-style-type: none"> • Construct and identify diagrams of circuits that are closed and capable of current flow. • Identify circuits that are short circuited. <p>► What is the potential difference across a source?</p> <ul style="list-style-type: none"> • Describe potential difference across an open source. Identify internal resistance in a short circuited source. <p>► What is the potential difference across a circuit load?</p> <ul style="list-style-type: none"> • Identify measuring points and calculate potential difference across various circuit elements identified as loads. 		
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	▶ How are equivalent resistances calculated? <ul style="list-style-type: none"> • Calculate the equivalent resistance of a series circuit. • Calculate the equivalent resistance of a parallel circuit. • Calculate the equivalent resistance of a complex series parallel circuit. 				