# Georgia Standards of Excellence

**High School Curriculum Map**

**Course Title:** AP Physics C: Electricity & Magnetism  
**State ID:** 40.084204  
**District Abbreviation:** SCI 407-408

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td><strong>Unit 1:</strong> Forces and Electric Fields</td>
<td><strong>Unit 7:</strong> Faraday’s Law and Induction</td>
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<tr>
<td>6 Weeks</td>
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<tr>
<td><strong>Unit 2:</strong> Electric Fields and Potential</td>
<td><strong>Unit 5:</strong> Magnetism</td>
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<td>6 Weeks</td>
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<td><strong>Unit 3:</strong> Gauss’s law</td>
<td><strong>Unit 6:</strong> Ampere’s Law</td>
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<td><strong>Unit 4:</strong> Circuits</td>
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<tr>
<td>GSE Standards: SP 5. a, b</td>
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<td>GSE Standards: SP 5. e</td>
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| Thematic Topics: Coulomb’s law, Electric field, Gauss’s law, Battery, voltage | Thematic Topics: Ampere’s law, Faraday’s law of

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<th>electric force, electric field, charge</th>
<th>electric potential energy, electric potential difference, voltage, relationship between electric field and potential, work, potential field lines, capacitance, series and parallel, dielectrics</th>
<th>symmetry, Gaussian surface, flux, surface integral</th>
<th>source, resistor, resistance, Ohm’s law, power, equivalent circuits, RC time decay, current</th>
<th>loop, Biot-Savart law, Lorentz force, north and south poles</th>
<th>line integral, flux, magnetic fields</th>
<th>induction, Maxwell’s equations, inductance</th>
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**Essential Vocabulary:**
- charge, induction, conduction, polarization, charging by friction, Coulomb’s law, electric field, superposition principle
- Essential Vocabulary: Electric potential energy, electric potential difference, voltage, equipotential lines, electric field lines, electric field vectors, capacitor, capacitance, dielectric, dielectric constant, parallel plate capacitor, spherical capacitor,
- Essential Vocabulary: flux, surface integral, Gaussian surface, Gauss’s law, symmetry
- Essential Vocabulary: battery, voltage source, resistance, resistor, current, power, Ohm’s law, resistors in series, resistors in parallel, equivalent resistance, RC circuit, RC time constant
- Essential Vocabulary: magnet, current loop, domain, Lorentz force, magnetic field, magnetic poles
- Essential Vocabulary: line integral, Ampere’s law, magnetic flux
- Essential Vocabulary: induction, changing flux, Faraday’s law, Lenz’s law, emf, induced current, induced voltage, inductance, inductor, back emf, mutual inductance, LC circuit, inductor-resistance time constant
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<th>Extensions, Reading Selections:</th>
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<tr>
<td><em>Electricity and Magnetism</em> by Purcell and Morin chapter 1.1-1.6</td>
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<td><em>Electricity and Magnetism</em> by Purcell and Morin chapter 2.8-2.18</td>
<td><em>Electricity and Magnetism</em> by Purcell and Morin chapter 3.1-3.9</td>
<td><em>Electricity and Magnetism</em> by Purcell and Morin chapter 4.1-4.12</td>
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- isolated capacitor, capacitors in series, capacitors in parallel, equivalent capacitance