

FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT



AP Physics C: Electricity and Magnetism

CAC Approval Date: October 22, 2025 Board Approval Date: December 11, 2025	Course Length: 1 Semester
Grading: A-F	Credits: 5 Credits per Semester
Proposed Grade Level(s): 10, 11, 12	Subject Area: Physics Elective Area (if applicable):
Prerequisite(s): AP Calculus completion or concurrent enrollment	Corequisite(s):
CTE Sector/Pathway:	
Intent to Pursue 'A-G' College Prep Status: Yes	
A-G Course Identifier: (d) Laboratory Science	
Graduation Requirement: No	
Course Intent: District Course Program (if applicable): AP	
Folsom Cordova Unified School District 2024-2025 Nondiscrimination Statement The Folsom Cordova Unified School District prohibits discrimination, intimidation, harassment (including sexual harassment) or bullying based on a person's actual or perceived ancestry, color, disability, gender, gender identity, gender expression, immigration status, nationality, race or ethnicity, religion, sex, sexual orientation, or association with a person or a group with one or more of these actual or perceived characteristics. For questions or complaints, contact: Jim Huber, Ed.D., Assistant Superintendent, Educational Services Compliance Officer, Section 504 Coordinator, ADA Coordinator (students) jhuber@fcusd.org 916-294-9000 x 104580 Shannon Diaz, Director of Compliance Compliance Officer and Title IX Coordinator sdiaz@fcusd.org 916-294-9000 x 104415	

**1965 Birkmont Drive
Rancho Cordova, CA 95742**

The Folsom Cordova Unified School District does not discriminate on the basis of sex and prohibits sex discrimination in any education program or activity that it operates, as required by Title IX and its regulations, including in admission and employment.

Inquiries about Title IX may be referred to the Folsom Cordova Unified School District's Title IX Coordinator, the U.S. Department of Education's Office for Civil Rights, or both. The District Title IX Coordinator is:

**Shannon Diaz, Director of Compliance
Compliance Officer and Title IX Coordinator
sdiaz@fcusd.org
916-294-9000 x 104415
1965 Birkmont Drive
Rancho Cordova, CA 95742**

The District nondiscrimination policy can be located at:

<https://www.fcusd.org/district/about-us/nondiscrimination-statementpolicy>

The District's nondiscrimination complaint procedures can be located at:

Students: <https://www.fcusd.org/departments/compliance/complaints/uniform-complaints>

Staff: <https://www.fcusd.org/departments/compliance/complaints/nondiscrimination-in-employment>

To report information about conduct that may constitute sex discrimination or sex-based harassment, or make a complaint of sex discrimination or sex-based harassment under Title IX, please refer to:

Students: <https://www.fcusd.org/district/about-us/title-ix-notificationsexual-harassment>

Staff: <https://www.fcusd.org/departments/compliance/complaints/sexual-harrassment-title-ix>

COURSE DESCRIPTION:

AP Physics C: Electricity and Magnetism is a calculus-based introductory college-level physics course. Students cultivate their understanding of physics by developing models of physical phenomena through inquiry-based investigations. Students build their understanding of physical models as they explore and solve problems in these topics:

Electric Charges, Fields, and Gauss's Law

Electric Potential

Conductors and Capacitors

Electric Circuits

Magnetic Fields and Electromagnetism

DETAILED UNITS OF INSTRUCTION:

Unit Number/Title	Unit Essential Questions	Examples of Formative Assessments	Examples of Summative Assessment
8. Electric Charges, Fields, and Gauss's Law	Why does hair stand up after brushing it with a plastic comb? How does a charged rubber rod bend a stream of water? How might it be possible to get a balloon to stick to the wall? Why don't cell phones work in concrete buildings? Why can a bird land safely on a high voltage wire?	*Labs *AP Classroom Progress *Checks *Quizzes *Problem Sets *Worksheets *Lab questions	*Quizzes *Labs *Exams
Unit 8 Essential Standards: 8.2.A Describe the behavior of a system using conservation of charge. 8.4.A Describe the electric field resulting from a given charge distribution. 8.5.A Describe the electric flux through an arbitrary area or geometric shape.			
9. Electric Potential	What is the difference between electric potential and electric potential energy? Why do different voltage batteries exist? What is the difference between a 1.5 V battery and a 9 V battery? Why is a car battery more dangerous than a 9 V battery? Why are high voltage power lines dangerous?	*Labs *AP Classroom Progress *Checks *Quizzes *Problem Sets *Worksheets *Lab questions	*Quizzes *Labs *Exams
Unit 9 Essential Standards: 9.2.A Describe the electric potential due to a configuration of charged objects. 9.2.B Describe the relationship between electric potential and electric field. 9.3.A Describe changes in a system due to a difference in electric potential between two locations.			
10. Conductors and Capacitors	Why does the little red light on the TV stay on for a second after the TV is turned off? How does a camera flash used for photography	*Labs *AP Classroom Progress *Checks *Quizzes *Problem Sets *Worksheets	*Quizzes *Labs *Exams

	work? How can energy be stored for later use?	*Lab questions	
Unit 10 Essential Standards: 10.2.A Describe the movement of charge and the resulting interactions when conductors physically contact each other. 10.3.A Describe the physical properties of a parallel-plate capacitor 10.4.A Describe how a dielectric inserted between the plates of a capacitor changes the properties of the capacitor.			
11. Electric Circuits	How does a house's wiring design account for a flipped circuit breaker to cause electricity to go off in some rooms but stay on in other rooms? Why do warming bulbs take several minutes to shine brightly? Why does the electric company charge by kilowatt-hour instead of electrons used? How does touching a conductor to a capacitor before removing it from a circuit protect you?	*Labs *AP Classroom Progress *Checks *Quizzes *Problem Sets *Worksheets *Lab questions	*Quizzes *Labs *Exams
Unit 11 Essential Standards: 11.2.A Describe the behavior of a circuit			
12. Magnetic Fields	Why are large-scale, charged-particle accelerators, such as those at CERN, in the shape of a circle? How does a guitar pickup work? Why does an electric current deflect the needle of a compass? Why does the deflection of a pair of parallel conducting wires depend on the direction of current in the wires?	*Labs *AP Classroom Progress *Checks *Quizzes *Problem Sets *Worksheets *Lab questions	*Quizzes *Labs *Exams
Unit 12 Essential Standards: 12.1.A Describe the properties of a magnetic field.			

12.3.B Describe the force exerted on current-carrying wires by a magnetic field. 12.4.A Use Ampère's law to describe the magnetic field created by a moving charge carrier			
13. Electromagnetic Induction	How does an electric motor work? How does pushing the doorbell produce a sound inside the house? How does an antenna work? How are sound waves generated by your headphones or speakers from a digital recording of a song? How does a Wi-Fi internet connection work?	*Labs *AP Classroom Progress *Checks *Quizzes *Problem Sets *Worksheets *Lab questions	*Quizzes *Labs *Exams
Unit 13 Essential Standards: 13.1.A Describe the magnetic flux through an arbitrary area or geometric shape 13.3.A Describe the force exerted on a conductor due to the interaction between an external magnetic field and an induced current within that conductor 13.4.A Describe the physical and electrical properties of an inductor.			

RELEVANT STANDARDS AND FRAMEWORKS, CONTENT/PROGRAM SPECIFIC STANDARDS:

Link to Common Core Standards (if applicable):

Educational standards describe what students should know and be able to do in each subject in each grade. In California, the State Board of Education decides on the standards for all students, from kindergarten through high school.

<https://www.cde.ca.gov/pd/ca/sc/documents/ngsshsphysicalscidci.pdf>

Link to Framework (if applicable):

Curriculum frameworks provide guidance for implementing the content standards adopted by the State Board of Education (SBE). Frameworks are developed by the Instructional Quality Commission, formerly known as the Curriculum Development and Supplemental Materials Commission, which also reviews and recommends textbooks and other instructional materials to be adopted by the SBE.

<https://www.cde.ca.gov/pd/ca/sc/documents/ngsshsphysicalscidci.pdf>

Link to Subject Area Content Standards (if applicable):

Content standards were designed to encourage the highest achievement of every student, by defining the knowledge, concepts, and skills that students should acquire at each grade level.

<https://apcentral.collegeboard.org/media/pdf/ap-physics-c-electricity-and-magnetism-course-and-exam-description.pdf>

Link to Program Content Area Standards (if applicable):

Program Content Area Standards apply to programs such as International Baccalaureate, Advanced Placement, Career and Technical Education, etc.

<https://apcentral.collegeboard.org/media/pdf/ap-physics-c-electricity-and-magnetism-course-and-exam-description.pdf>

TEXTBOOKS AND RESOURCE MATERIALS:

Textbooks

Board Approved	Textbook Title ISBN #	Author(s)	Publisher	Edition
<i>Yes</i>	<i>Fundamentals of Physics</i>	Halliday & Resnick, Jearl Walker	Wiley	12