IB Physics

Electrostatics and Field Theory - Chapter 16 & 17 Syllabus

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| Block | Class  | Due on this class |
| 1**Nov 5** | -Get textbooks-Electric Charge-Coulomb’s Law -Electrostatics: Insulators, Conductors-Ideas for research projects | **Read:** 16.1-5**Bring:** calculator, paper, pencil |
| 2**Nov 9** | -Induced Charge/Stupid Van de Graaff tricks -Arrays of charges: Linear-Charge on conductors/Van de Graaff/Lightning Safety-Research ideas | **Check #1:** 16: 1,3,5,7**Read:** 16.6 |
| 3**Nov 16** | -Arrays of charges: Vectors-Teaching/Research ideas | **Video:** Vector Forces (D)**Check #2:** 16: 8(2.6E14, 2.4E-16 kg), 9, 12(75μC: 150 N left, 48μC: 560 N right, 85μC: 420 N left) Field Theory: LA 1 and 2 |
| 4**Nov 18** | -Electric Field/Gravitational Field-Electric Field addition: Vectors again | **Video:** Field Theory + Vector Field (E, F, G)**Check #3:** Field Theory: Vector Forces #1 and #2**Read:** 16.7-9 |
| 5Nov 20 | -Voltage and Electric Field/Electron Volts-Millikan prep – Numerical analysis - Video flips | **Video:** Voltage (H, I, J)**Check #4:** 16: 23, 24(2.34E5 N/C South), 25 & Field Theory A1**Read:** 17.1-4, 10 |
| 6**Nov 24** | -Voltage due to point charges: Not a vector | **Video:** Point Source Voltage (K)**Video Flip:** Millikan Prep Numerical Analysis (Part 0, 1)**Check #5:** Millikan Prep #1, 17: 1,3,5,9,11 & Field Theory B1**Read:** 17.10 |
| 7**Nov 30** | -**PreQuiz 16-17.1 – Coulomb’s law**-Millikan prep –Formula for charge - video flip reminder-Cute voltage problems | **Video:** Work to Move in a Field (L, M)**Check #6:** 17: 14(2.40E5 V), 15 & Field Theory B2, A2**Read:** 17.10 |
| 8**Dec 2** | -Millikan prep –Formula for radius - video flip reminder-CRT problems-**Skill Set 16-17.1** | **Video:** CRT Problems (N)**Video Flip:** Millikan Formula for charge/DA (Part 2)**Check#7:**Millikan Prep #2 & Field Theory B3-4, A3-4 |
| 9**Dec 8** | -**PreQuiz 16-17.2 – Vector Field**-More CRT problems | **Video Flip:** Millikan Formula for radius/DA (Part 3)**Check#8:**Millikan Prep #3 & 17: 16(2.5 J), 18(5.8E5 V, 9.2E-14 J), 20(3.49E7 m/s)**Read:** 17.5,10 |
| 10**Dec 10** | -Millikan Lab – write up/particulars/how to run-Work on Millikan prep-**Skill Set 16-17.2** | **Video:** Millikan Lab**Check #9:** Field Theory C1-4, D16-19 **Turn In: Millikan Prep** |
| 11**Dec 14** | -Equipotential lines/Field Lines and conductors-Electric Field Mapping lab -Work on labs | **Video:** Electric Field Mapping lab??**Check #10:** Field Theory C5-8, D20-23  |
| 12**Dec 16** | -**PreQuiz 16-17.3 – Point Charge Voltage**-Work on labs | **Check #11:** Field Theory C9-11, D24-26  |
| Dec 18 | Show and Tell day for projects |  |
| 13**Jan 5** | -**Skill Set 16-17.3**-Work on labs | **Check #12:** Field Theory C12-15, D27-30  |
| 14**Jan 7** | -Work on labs | **Check #13:** AP #1, 2 |
| 15**Jan 11** | -Work on Labs | **Check #14:** AP #3,4 |
| 16**Jan 13** | Test on Chapters 16 and 17 | **Turn In: Homework (14 stamps)** |
| **Jan 15** | Currents and Circuits | **Turn In: Electric Field mapping lab****Turn In: Millikan lab** |
| Assignments* 3 Labs:
	+ Electric Field Mapping – mapping with volt meters
	+ Millikan Prep – take home practical analysis
	+ Millikan Oil Drop Lab – simulation on the computer done in groups.
* 3 PreQuizzes/Skill Sets
	+ 16-17.1 – Coulomb’s law, electric field, net force
	+ 16-17.2 – Vector electric field
	+ 16-17.3 – Voltage due to point sources, work.
* Homework from 14 days
* A big test on the two chapters – check the website for review materials
 | HandoutsLab - Electric Field Mapping LabLab - Millikan Oil Drop LabLab - Millikan PrepMisc - IB Data BookletMisc - IBII Course PolicyMisc - IB Lab CriteriaResearch - DescriptionResearch - ProposalResearch - Syllabus for FallTeaching - RequirementTeaching - Topic Presentations Worksheet - AP Problems 1-4Worksheet-Field TheorySyllabus - Electrostatics |
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