IB Physics

Electrostatics and Field Theory - Chapter 16 & 17 Syllabus

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| Block | In Class: | Due on this class: | If you miss this class: |
| 1**Nov** **2** | -Electric Charge-Coulomb’s Law -Electrostatics: Insulators, Conductors-Induced Charge/Stupid Van de Graaff tricks  |  | **Read:** 16.1-5 |
| 2**Nov** **6** | -Arrays of charges: Linear-Charge on conductors/Van de Graaff/Lightning Safety-Arrays of charges: Vectors | **Check:** A16.1 #11-17 | **Read:** 16.6 ex. 16.3**Watch:** Videos D |
| 3**Nov** **8** | -Electric Field/Gravitational Field-The Murray Compendium of Formulas-Electric Field addition: Vectors again | **Check:** A16.1 #21a,c, 22a,b,c,d | **Read:** 16.7-8**Watch:** Videos E,F,G |
| 4**Nov** **14** | -Voltage and Electric Field/Electron Volts-Voltage due to point charges: Not a vector-Video Flip next time - Millikan prep part 1 | **Check:** A16.1 #1-8**Check:** A16.2 #21a,c, 22a,b,c (Keep separate from 16.1)**Turn In:** A16.1 #1-8, 11-17, 21a,c, 22a-d | **Read:** 17.1-5**Watch:** Videos H,I,K,L**Watch:** Millikan Prep Part 1 |
| 5Nov 16 | -Conservation of energy problems-Video Flip next time- Millikan prep part 2 | **Check:** A16.2 #1-10, 11,12,16,17,18**Check:** A17.1 #(27a,b=V only) (Keep separate from 16.2)**Turn in:** A16.2 #1-10, 11,12,16,17,18, #21a,c, 22a,b,c**Video Flip:** Millikan Prep (Part 0, 1)**Lab Check:** Millikan Prep (step size) #1 | **Watch:** Videos M,Q**Watch:** Millikan Prep Part 2 |
| 6**Nov** **20** | -More conservation of energy problems-Introduction to Capacitors - charge voltage energy-Video Flip next time- Millikan prep part 3 | **Check:** A17.1 #1,2,6,7,9,15,17,18(27a,b=W, c,d=all)**Video Flip:** Millikan Prep Part 2**Lab Check:** Millikan Prep (q formula) #2  | **Read:** 17.7-9**Watch:** Videos O,QGet notes from someone about the Millikan Lab |
| **Nov** **22** | **-Show and Tell day for projects****-Exchange IB Essay Questions** | Demo your experimental apparatus/plan**Your IB Essay tests are due on this day** | Show it to me later. |
| 7**Nov** **28** | -Capacitors - energy and discharge-Video Flip N for next time-Hand out FA16.1, 16.2, 17.1, 17.2 | **Check:** A17.1 #3,4,10,16,19,20,21**Video Flip:** Millikan Formula Part 3**Lab Check:** Millikan Prep (r formula) #3  | **Read:** 19.6 (yes, chapter 19)**Watch:** Videos P |
| 8**Nov****30** | -Millikan Lab – write up/particulars/how to run-Electric Field Mapping lab-Equipotential lines/Field Lines and conductors-CRT Demo-Heads up on the book problems (On p. 465) | **Check:** A17.1 #5,8,11,12,22,23,24,25**Video Flip:** CRT Problems (N)**Video:** Millikan Lab**Turn In:** Millikan prep**Turn in:** A17.1 #1-12, 15-25, 27a,b,c,d | **Read:** 16-9**Read:** 17.10**Watch:** Videos J,N**Watch:** Millikan Lab videos |
| 9**Dec** **4** | -Work on labs | **Check:** Ch 16 #1, 3,12(+75µC: 147.2 N left, +48µC: 563.5 N right, -85µC: 416.3 N left) (On p. 465)**Ch 17:** 65 | You might need to come in before or after school. |
| 10**Dec** **6** | -Work on labs | **Check:** Ch 16 #17(Q1 and Q2 only) (Q1: 0.30 N @ 265o, Q2: 0.26 N @139o), 28(8.4E7 N/C toward the negative charge), 36(29 cm)**Turn In:** Ch 16#1,3,12,17,28,36 | You might need to come in before or after school. |
| 11**Dec** **8** | -Work on labs**-Return Graded Essays to owners****-Go over Paper 1 questions** | **Check:** Ch 17 #1, 5, 14(2.4E5 V), 21(on p. 489)**Your IB Paper 1 questions are due on this day****You need to return the essays you graded** | You might need to come in before or after school. |
| 12**Dec** **12** | -Work on labs | **Check:** Ch 17 #35, 46(4.6E-4 J) ,65**Turn In:** Ch 17#1,5,14,21, 35,46,65 | You might need to come in before or after school. |
| 13**Dec** **14** | **Summative Assessments on:****16.1 - Coulomb's Law****16.2 - Vector Fields****17.1 - Voltage and Energy** | **Turn In: Electric Field mapping lab****Turn In: Millikan lab****Turn In: RC Circuit Lab****Turn In: FA 16.1, 16.2, 17.1, 17.2** | You will need to come in on a makeup day to take your assessments. |
| **Jan** **2** | Currents and Circuits!! |  |  |
| Assignments* 4 Labs:
	+ Electric Field Mapping – mapping with volt meters /30 pts
	+ Millikan Prep – take home practical analysis /30 pts
	+ Millikan Oil Drop Lab – simulation on the computer done in groups of 4 /40 pts
	+ RC Circuits Lab - a capacitor discharging /30 pts
* 5 homework assignments:
	+ A16.1 #1-8, 11-17, 21a,c, 22a-d (3 stamps/44 pts)
	+ A16.2 #1-10, 11,12,16,17,18, #21a,c, 22a,b,c (2 stamps/40 pts)
	+ A17.1 #1-12, 15-25, 27a,b,c,d (4 stamps/54 pts)
	+ Ch 16#1,3,12,17,28,36 (2 stamps/30 pts)
	+ Ch 17#1,5,14,21, 35,46,65 (2 stamps/35 pts)
* 4 Formative/3 Summative Assessments:
	+ 16.1 – Coulomb’s law, electric field, net force
	+ 16.2 – Vector electric field
	+ 17.1 – Voltage due to point sources, work.
	+ 17.2 – CRTs and Capacitors (no summative)
 | Handouts |