IB Physics - cut 1 day

Magnetism and Induction

Chapter 20, 21 Syllabus

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| Block | | Class | | Due on this class |
| 1 Dec 16 | | -Intro to Magnetism  -Magnetic Field lines/Domains/Currents  -Force on current-carrying wires: Magnitude and direction | | **Read:** 20.1-3, 5 |
| 2 Dec 18 | | **-PreQuiz 20.1 – Vector Cross Products**  -Force on charged particles – motion in B fields  -The Hall Effect | | **Read:** 20.4  **Check #1:** 20: 1, 2(1.1 N), 3, 5 |
| 3 Jan 5 | | -Crossed field problems: Eq = qvB  -Hysteresis - a demo I probably shouldn't do...  -Galvanometers and Speakers  -DC Motors  **-Skill Set 20.1** | | **Read:** 20.7, 8, 10, 11, 12  **Check #2:** 20:9, 10(1.05E-13 N North), 11, 12(v, x, >) |
| 4  **Jan 7** | | -Lenz's discovery and magnetic flux  -Electromagnetic induction  -Lenz's law | | **Read:** 21.1-2  **Check #3:** 20: 13, 14(1.6 m), 15, 16(2.5E6 m/s, 4.1 mm) E.C.#19 (hint: T = 2πr/v) |
| 5  **Jan 9** | | **-PreQuiz 20.2 – Calculating force, trajectory, magnetic field.**  -Tests Back!!  -More induction – review direction  -Induced EMF in moving conductors  -My friend eddy | | **Read:** 21.3, 4, 6  **Check #4:** 21:1, 2(acw), 3, 5, 6(.048 V), 8(acw, cw), 9 |
| 6  **Jan 13** | | -Alternators  -Solving voltages, currents and power in transformers (S: 21.7)  -Transmission of electrical power  **-Skill Set 20.2** | | **Read:** 21.5, 7  **Check #5:**21: 10(acw), 11, 12(.0144 V, .120 V/m down ), 13 |
| 7  **Jan 15** | | **-PreQuiz 21.1 –Direction of induced current**  -Magnet lab Intro/Brainstorm/Design criteria recap  -Magnetic field patterns for Solenoids, Wires, and Flat circular coils  -MagnaProbe Lab **(directions at station)**  -Choose variables for Magnet lab, review Des for IA | | **Read:** 21.8  **Check #6:** 21: 15,30(13,700 turns) 31, 32(.21) |
| **Jan 15** | | **Research Symposium 6-9 Lecture Hall** | |  |
| 8  **Jan 20** | | **-Skill Set 21.1**  -Work on Magnet lab | | **Check #7:** 21: 33, 34(5.6 V step down), 35, 36(487 V, 60.9 A) |
| **Finals** | | **SkillSet Final!!!!** | |  |
| 9  **Jan 28** | | **-PreQuiz 21.2 – Calculating emf, current, transformers (handout)**  -Work on Magnet lab | | **Check #8:** 21: 37 |
| 10  **Jan 30** | | **-Skill Set 21.2**  -Work on Magnet lab | |  |
| 11  **Feb 3** | | -Work on Magnet lab | |  |
| 12  **Feb 5** | | -**Test on Ch 20-21 (normal test)** | | **Turn In:** **Homework:** 8 stamps  **Turn In:** Magaprobe Lab  **Turn In:** Magnet Design Lab |
| Assignments   * 2 Labs:   + MagnaProbe Lab – Station exploration of magnetic fields   + Magnet Lab – student designed lab – no handout * 4 PreQuizzes/Skillsets   + 20.1 – Vector cross product   + 20.2 – Force trajectory and magnetic field   + 21.1 – Direction of induced current   + 21.2 – Calculating emf, current, transformers * Homework from 8 days * A big test on the two chapters – You will need to study for this so look at the review site – there are some word answers | | Handouts   * PreQuiz20.1 * PreQuiz20.2 * PreQuiz21.1 * PreQuiz21.2 * This Syllabus | |