Phy.204-201,206 2012 Spring (4752,4757) Syllabus (Gen.Physics II Lab)

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office hours: MWF 9:30-11:30+3-4:30pm , TR 11:30-12:00+3-4:30pm , and by appointment.

Class meets T or R 8:00 – 9:50, from Jan.10 – Apr.27 in Science 277
You are expected to enroll in Phy.204 Laboratory during the same term as Phy.203/213 .

Absences: contact me ASAP and we'll try to slip you into another section.

Phy.204 is : a 1-credit Lab course intended for Natural (not Physical) Science majors, so it mostly tries to show the lecture concepts, and uses mostly basic tools (digital multimeter)

Prerequisites: Phy.201 or Phy.211, and Phy.202 or Phy.212
I will presume that you learned the basic facts and ideas from Physics 1 – if you did not, it is your responsibility to recognize what's being presumed, and learn it now. Read the Lab Manual with this in mind – it tries to make explicit what you should already know.

Required: Physics 204 Lab Manual, 2012 ed. by *Curt Foltz*, from Marshall Printers (2012)
calculator : non-programmable, with buttons (not menu) for EE or EXP , x^2 , $\sqrt{x}$, cos , $\sin^{-1}$
pen and/or pencil : multiple colors might help ; erasing of blunders WILL be allowed
attendance : at each class, ready to learn (with pen, pencil, calculator, manual, textbook)
MU email access … I'll use your marshall address as an official communication channel.
time & effort: in class and out, ≈ 4 effective hours/week to analyze, contemplate, & write

Recommended: web browser … for any Phy.204 web site content, and to links beyond it
a physics textbook … with index … so you can look up stuff that you don't know (yet)
a positive attitude … we're trying to provide learning experiences (not waste your time).
preparation … some labs might be on topics that your Lectures have not yet treated.
cooperation with lab partners … best way to learn is to teach, best instruction is by peers.
balance … between struggling to understand by yourselves, and asking when you don't.

Grade Components : 12 lab reports × 6% each = 70 %
2 lab exams × 15% each = 30 % (⅓ practical, ⅔ paper)

Letter Grade Plan : 100% > A > 90% > B > 80% > C > 70% > D > 60% > F …
with the extra condition that you must pass (>60%) at least 1 exam to pass the course.

Overview: Phy.204 is a set of experiments & measurements to show classic phenomena in electricity, magnetism, optics, and radiation. The 204 labs are a lot "harder" than 202 labs! You'll need to read the lab instructions thoroughly – isolate what you don't understand – early enough that you have time to look it up before lab begins. Partners need a good idea of what *should* happen, before-hand, to distinguish useful data from "garbage" … (instrument mis-read? assembled wrong? loose connection? fried device? Low battery?). This extra responsibility is UN-avoidable : the subject of our inquiries is invisible, and now its source is also invisible! The lab is designed for pairs (not trios), so there's only one other to ensure that your team's consensus is right. Students will assemble their own lab setups, and use instruments to measure quantities in their setups. Neighboring teams should find similar relationships, even if their values are 100× yours.

Physics 204 Lab reports consist of:

(1) diagrams drawn which show what setups were used and what was measured
(2) data, often in table format, of those measurements … with Units !
(3) results computed from that data (with Units!) which are relevant to theory
(4) computations of percentage difference between two (or more) experimental results, and a paragraph discussing those differences (or similarities)
(5) a paragraph of generalized conclusions regarding what was learned during the lab.

=> Your lab reports ought to be your study material as you prepare for each Lab Exam.

Schedule Plan :

Jan.10	Jan.17	Jan.24	Jan.31	Feb.7	Feb.14	Feb.21	Feb.28
Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8
(Electricity and	DC circuits)			(magnetism & AC circuits)			(light)

Mar.06	Mar.13	Mar.20	Mar.27	Apr.03	Apr.10	Apr.17	Apr.24
Exam 1	Lab 9	~~break~~	Lab 10	~~assessment~~	Lab11	Lab12	**Exam 2**
	(lenses)		(wave optics)		(atoms & nuclei)		

If MU is closed during Tue, Wed, or Thr , we will need to modify the schedule above.

Statements that are valid for ALL Classes at Marshall:

Academic Dishonesty Policy : honesty is the foundation of science. see pp.66-70 in the catalog : www.marshall.edu/catalog/undergraduate/ug_10-11_published.pdf

Affirmative Action Policy : equal opportunity at Marshall is on pp.63-64 of the catalog

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Incomplete Grade Policy: to receive a grade "I", you must have done ¾ of the course work, at an acceptable (passing) proficiency (percentage) ; see pp.86-87 in the catalog.

Students with Disability Policy : the student must initiate procedures … first, see info at www.marshall.edu/disabled/ … then, contact the Office of Disabled Student Services (in Prichard Hall 117 , phone 696-2271) , which will communicate with me.

Inclement Weather Policy: don't overly-risk your safety trying to get to or from class in a blizzard, flood, or tornado. See pg.64 in the catalog.