CLASSICAL ELECTRODYNAMICS II

Physics 65204

FALL 2013

INSTRUCTOR:

Dr. Mark Manley
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CLASS HOURS: 11:00 - 11:50 M W F, 202 Smith Hall

OFFICE HOURS: 2:00 - 2:50 M T W
11:10 - 12:00 R
(or by appointment)

TEXT: *Classical Electrodynamics*, third edition, by John David Jackson (Wiley).

PREREQUISITE: Classical Electrodynamics I (PHY 65203). Students who do have the proper prerequisites risk being deregistered from the class.

STUDENT LEARNING OUTCOMES: Upon successful completion of this course, students will be able to:

- Apply Maxwell's equations to a variety of problems involving time-dependent phenomena.
- Solve problems involving the propagation and scattering of electromagnetic waves in a variety of media.
- Demonstrate an understanding of the characteristics of electromagnetic radiation.
- Have a good understanding of Special Relativity, especially as applied to electrodynamics.

GRADE DETERMINATION:

Homework	20%
Exam 1	25%
Exam 2	25%
Final Exam	30%

HOMEWORK: Problems will be assigned in class. Homework assignments *must* be handed in on time.

EXAMS: Each of the two midterm exams will cover only those chapters of the text that were covered in class since the previous exam. The final exam will be comprehensive.

COVERAGE: As indicated on the tentative course outline.

MAKEUP CLASSES: I anticipate being away occasionally because of research commitments. Make-up classes will be scheduled as needed.

CHEATING AND PLAGIARISM:

University policy 3342-3-01.8 deals with the problem of academic dishonesty, cheating, and plagiarism. None of these will be tolerated in this class. The sanctions provided in this policy will be used to deal with any violations. If you have any questions, please read the policy at http://www.kent.edu/policyreg/-policydetails.cfm?customel_datapageid_1976529=2037779 and/or ask.

STUDENTS WITH DISABILITIES:

University policy 3342-3-01.3 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Student Accessibility Services (contact 330-672-3391 or visit www.kent.edu/sas for more information on registration procedures).

REGISTRATION REQUIREMENT:

The official registration deadline for this course is September 8, 2013. The course withdrawal deadline is November 3, 2013. University policy requires all students to be officially registered in each class they are attending. Students who are not officially registered for a course by published deadlines should not be attending classes and will not receive credit or a grade for the course. Each student must confirm enrollment by checking his/her class schedule (using Student Tools in FlashFast) prior to the deadline indicated. Registration errors must be corrected prior to the deadline.

TENTATIVE COURSE OUTLINE:

Week	Date	Day	Tentative Schedule
1	Aug 26	M	Ch. 6—Maxwell Equations
	Aug 28	W	Ch. 6—Gauge Invariance of Electromagnetism
	Aug 30	F	Ch. 6—Green Functions for the Wave Equation
2	Sep 2	M	Labor Day—No Classes
	Sep 4	W	Ch. 6—Poynting's Theorem
	Sep 6	F	Ch. 6—Continued
3	Sep 9	M	Ch. 7—Plane Waves in a Nonconducting Medium
	Sep 11	W	Ch. 7—Continued
	Sep 13	F	Ch. 7—Linear and Circular Polarization
4	Sep 16	M	Ch. 7—Reflection and Refraction of Waves
	Sep 18	W	Ch. 7—Dispersive Effects
	Sep 20	F	Ch. 7—Kramers-Kronig Relations
5	Sep 23	M	Exam 1
	Sep 25	W	Ch. 7—Continued
	Sep 27	F	Ch. 9—Fields and Radiation
6	Sep 30	M	Ch. 9—Continued
	Oct 2	W	Ch. 9—Continued
	Oct 4	F	Ch. 9—Continued
7	Oct 7	M	Ch. 10–Scattering of Electromagnetic Waves
	Oct 9	W	Ch. 10–Continued
	Oct 11	F	Ch. 10–Continued
8	Oct 14	M	Ch. 10–Continued
	Oct 16	W	Ch. 11–Special Theory of Relativity
	Oct 18	F	Ch. 11–Lorentz Transformations

TENTATIVE COURSE OUTLINE (Continued):

Week	Date	Day	Tentative Schedule
9	Oct 21	M	Ch. 11–Continued
	Oct 23	W	Ch. 11–Covariance of Electrodynamics
	Oct 25	F	Ch. 11–Continued
10	Oct 28	M	Ch. 11–Continued
	Oct 30	W	Ch. 11–Continued
	Nov 1	F	Exam 2
11	Nov 4	M	Ch. 14–Liénard-Wiechert Potentials for a Point Charge
	Nov 6	W	Ch. 14–Power Radiated by an Accelerated Charge
	Nov 8	F	Ch. 14–Continued
12	Nov 11	M	Veterans Day—No Classes
	Nov 13	W	Ch. 14–Continued
	Nov 15	F	Ch. 15–Bremsstrahlung
13	Nov 18	M	Ch. 15–Continued
	Nov 20	W	Ch. 15–Continued
	Nov 22	F	Ch. 15–Continued
14	Nov 25	M	Ch. 15–Continued
	Nov 27	W	Ch. 15–Continued
	Nov 29	F	Thanksgiving Recess–No Classes
15	Dec 2	M	Catch-up Day
	Dec 4	W	Catch-up Day
	Dec 6	F	Catch-up Day
	Dec 11	W	Final Exam (10:15 a.m. –12:30 p.m.)