CLASSICAL ELECTRODYNAMICS II
Physics 6/75204
SPRING 2018

INSTRUCTOR:

Dr. Mark Manley	manley@kent.edu
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330-672-2407	

CLASS HOURS: 1:10 - 2:00 M W F, 111 Henderson Hall

OFFICE HOURS: 3:30 - 4:30 M
3:00 - 4:00 T
2:30 - 3:30 W
11:00 - 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.

	Homework	20%
GRADE DETERMINATION:	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 January 21, 2018.

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.

The course withdrawal deadline is March 25, 2018.

TENTATIVE COURSE OUTLINE:

Week	Date	Day	Tentative Schedule
1	Jan 15	M	Martin Luther King Day—No Classes
	Jan 17	W	Ch. 6—Maxwell Equations
	Jan 19	F	Ch. 6—Gauge Invariance of Electromagnetism
2	Jan 22	M	Ch. 6—Green Functions for the Wave Equation
	Jan 24	W	Ch. 6—Poynting's Theorem
	Jan 26	F	Ch. 6—Continued
3	Jan 29	M	Ch. 7—Plane Waves in a Nonconducting Medium
	Jan 31	W	Ch. 7—Continued
	Feb 2	F	Ch. 7—Linear and Circular Polarization
4	Feb 5	M	Ch. 7—Reflection and Refraction of Waves
	Feb 7	W	Ch. 7—Dispersive Effects
	Feb 9	F	Ch. 7—Kramers-Kronig Relations

TENTATIVE COURSE OUTLINE:

Week	Date	Day	Tentative Schedule
5	Feb 12	M	Exam 1
	Feb 14	W	Ch. 7—Continued
	Feb 16	F	Ch. 9—Fields and Radiation
6	Feb 19	M	Ch. 9—Continued
	Feb 21	W	Ch. 9—Continued
	Feb 23	F	Ch. 9—Continued
7	Feb 26	M	Ch. 10–Scattering of Electromagnetic Waves
	Feb 28	W	Ch. 10–Continued
	Mar 2	F	Ch. 10–Continued
8	Mar 5	M	Ch. 10–Continued
	Mar 7	W	Ch. 11–Special Theory of Relativity
	Mar 9	F	Ch. 11–Lorentz Transformations
9	Mar 12	M	Ch. 11–Continued
	Mar 14	W	Ch. 11–Covariance of Electrodynamics
	Mar 16	F	Ch. 11–Continued
10	Mar 19	M	Ch. 11–Continued
	Mar 21	W	Ch. 11–Continued
	Mar 23	F	Exam 2
11	Mar 26	M	Spring Recess–No Classes
	Mar 28	W	Spring Recess–No Classes
	Mar 30	F	Spring Recess–No Classes

TENTATIVE COURSE OUTLINE (Continued):

Week	Date	Day	Tentative Schedule
12	Apr 2	M	Ch. 14–Liénard-Wiechert Potentials for a Point Charge
	Apr 4	W	Ch. 14–Power Radiated by an Accelerated Charge
	Apr 6	F	Ch. 14–Continued
13	Apr 9	M	Ch. 14–Continued
	Apr 11	W	Ch. 15–Bremsstrahlung
	Apr 13	F	Ch. 15–Continued
14	Apr 16	M	Ch. 15–Continued
	Apr 18	W	Ch. 15–Continued
	Apr 20	F	Ch. 15–Continued
15	Apr 23	M	Catch-up Day
	Apr 25	W	Catch-up Day
	Apr 27	F	Catch-up Day
16	Apr 30	M	Catch-up Day
	May 2	W	Catch-up Day
	May 4	F	Remembrance Day–No Class
	May 7	M	Final Exam (10:15 a.m. – 12:30 p.m.)