

Physics 2135 Syllabus

Spring 2017

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Course Web Site: http://web.mst.edu/~vojtat/class_2135/

Textbook: *University Physics with Modern Physics Vol. 2*, 14th Edition, Young and Freedman

Lecture	Recitation/Exam	Lab
Monday, January 16 Martin Luther King Day	1. Tuesday, January 17 Vector Review (to be handed out in class)	No Labs
1. Wednesday, January 18 read 21: 1-4 Electric Charge, Coulomb's Law, Electric Field, Motion of a Charge in Electric Field	2. Thursday, January 19 21: 14, 25, 36, 74, Special Homework #1 (special homework assignments are posted on the course website)	
2. Monday, January 23 read 21: 5 Electric Field of a Charge Distribution	3. Tuesday, January 24 21: 51, 79ab, 82ab, 86, 90 (reminder: all solutions must begin with starting equations)	Odd O1: Coulomb's Law
3. Wednesday, January 25 read 21: 6-7; 22: 1-3 Electric Field Lines, Dipoles, Electric Flux, Gauss' Law	4. Thursday, January 26 21: 53, 55; 22: 10, 45, Special Homework #2 (reminder: all solutions must begin with starting equations)	
4. Monday, January 30 read 22: 4-5 Gauss' Law Calculations, Conductors and Electric Fields	5. Tuesday, January 31 22: 18 (you need to derive E for line of charge) 39, 53, 54, Special Homework #3 (reminder: all solutions must begin with starting equations)	Even E1: Electrical Instruments
5. Wednesday, February 1 read 23: 1-2 Electric Potential, Electric Potential Energy	6. Thursday, February 2 23: 8, 10, 20, 21, 48	
6. Monday, February 6 read 23: 3-5 Electric Potentials of Charge Distributions, Equipotentials, Potential Gradient	7. Tuesday, February 7 23: 27 (you must derive an equation for the potential of a ring of charge), 28, 32 (you may begin with $E_{\text{cylinder}} = \lambda / 2\pi\epsilon_0 r$), 43, Special Homework #4 (reminder: unless otherwise specified, all solutions must begin with starting equations)	Odd O2: Fields and Potentials
7. Wednesday, February 8 read 24: 1-2 Capacitance, Capacitors in Series and Parallel	8. Thursday, February 9 24: 7, 12, 20, 46 (do not do the energy calculations), 59 (reminder: all solutions must begin with starting equations)	
8. Monday, February 13 Exam 1 Review	9. Tuesday, February 14 Test Preparation Homework #1 <i>Exam 1: 5:00 pm, chapters 21.1-24.2</i>	Even E2: Capacitors
9. Wednesday, February 15 read 24: 3-4 Energy Stored in Capacitors and Electric Fields, Dielectrics	10. Thursday, February 16 24: 26, 33, 61, 63, Special Homework #5	

Lecture	Recitation/Exam	Lab
10. Monday, February 20 read 25: 1-3 Electric Current, Current Density, Resistance	11. Tuesday, February 21 25: 4, 15, 21, 54, 77	Odd O3: Resistance-Materials, Geometry
11. Wednesday, February 22 read 25: 4-5 EMF, Electric Power	12. Thursday, February 23 25: 31, 32, 35, 47, 61	
12. Monday, February 27 read 26: 1-2 Resistors in Series and Parallel, Kirchoff's Rules Last drop day.	13. Tuesday, February 28 26: 11, 13, 15, 20, 60	Even E3: Ohm's Law, Internal Resistance
13. Wednesday, March 1 read 26: 3-4 Electrical Instruments, RC Circuits	14. Thursday, March 2 26: 36, 37, 39, 44, Special Homework #6 (reminder: all solutions must begin with starting equations)	
14. Monday, March 6 read 27: 1-5 Magnetic Fields and Flux, Motion of Charged Particle in Magnetic Field, Gauss' Law for Magnetism	15. Tuesday, March 7 27: 2, 7, 14, 31, 56	Odd O4: Series RC Circuits
15. Wednesday, March 8 read 27: 5-7 Magnetic Forces on Currents, Magnetic Torque	16. Thursday, March 9 27: 37, 38, 42, 46, 61	
16. Monday, March 13 read 28: 1-4 Magnetic Field of a Current, Biot-Savart Law, Magnetic Field of Wires, Magnetic Force between Conductors	17. Tuesday, March 14 28: 4, 12, 27, 29, 66 (reminder: all solutions must start with starting equations)	No Labs
17. Wednesday, March 15 read 28: 5-7 Magnetic Field of Current Loop, Ampere's Law, Solenoids, Toroids	Thursday, March 16 Spring Recess: no recitation; no homework	
18. Monday, March 20 Exam 2 Review	18. Tuesday, March 21 Test Preparation Homework #2 <i>Exam 2: 5:00 pm, chapters 24.3-27.7</i>	Even E4: Current Balance
19. Wednesday, March 22 read 29: 1-4 Faraday's Law, Induction, Lenz's Law, Generators, Motional emf	19. Thursday, March 23 29: 13, 28, 35, 51 (why does the case $a \rightarrow 0$ differ from the result for a conducting bar?), Special Homework #7 (reminder: all solutions must begin with starting equations)	

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Lecture	Recitation/Exam	Lab
Monday, March 27 Spring Break Wednesday, March 29 Spring Break	Tuesday, March 28 Spring Break Thursday, March 30 Spring Break	No Labs
20. Monday, April 3 read 29: 5-7 Induced Electric Field, Eddy Currents, Displacement Current 21. Wednesday, April 5 read 32: 1-4 Electromagnetic Waves	20. Tuesday, April 4 29: 39, 42, 49, 53, Special Homework #8 (the last three problems are a review of material from the previous lecture) 21. Thursday, April 6 32: 13, 24, 25, 35, 46	Odd O5: Generator
22. Monday, April 10 read 33: 1-4 Light: Reflection, Refraction, and Dispersion 23. Wednesday, April 12 read 34: 1-2 Concave and Convex Mirrors	22. Tuesday, April 11 33: 8, 44, 48, 52, Special Homework #9 23. Thursday, April 13 34: 10 (draw a ray diagram;), 65, 66 (draw a ray diagram), 67, 71 Last withdraw day is Friday, April 15.	Even E5: Snell's Law
24. Monday, April 17 Exam 3 Review 25. Wednesday, April 19 read 34: 3-8 Lenses, Optical Instruments	24. Tuesday, April 18 Test Preparation Homework #3 <i>Exam 3: 5:00 pm, chapters 28, 29, 32</i> 25. Thursday, April 20 34: 30 (draw a ray diagram), 39 (draw a ray diagram), 80, Special Homework #10, Special Homework #11	Odd O6: Lenses
26. Monday, April 24 read 35: 1-3 Double Slit Interference 27. Wednesday, April 26 read 35: 4 Thin Film Interference	26. Tuesday, April 25 35: 3, 8, 11, 15, 20 27. Thursday, April 27 35: 23, 25, 28, 47, 50	Even E6: Dispersion
28. Monday, May 1 read 36: 1-5 Diffraction 29. Wednesday, May 3 Final Exam Review	28. Tuesday, May 2 36: 11, 15, 25, 28, 32 29. Thursday, May 4 Final Exam Preparation Homework	No Labs No makeup labs will be given!
	Friday, May 12, 2017, 10:00am – 12:00pm End-Material Test and Comprehensive Final Exam	No Labs