PHYSICS 321 - ELECTRICITY & MAGNETISM II - FS08

Instructor: Jerry Peacher
109 Physics
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Office Hours: MTWTh 3:00 - 4:00 P.M.
Generally available at other times by appointment

Class meets at 10:00 a.m., MWF, in room 127 of Physics.

Text: INTRODUCTION TO ELECTRODYNAMICS, THIRD EDITION,
by David J. Griffiths, published by Prentice Hall

Course outline:

Ch 7	Electrodynamics
Ch 8	Conservation Laws
Ch 9	Electromagnetic Waves
Ch 10	Potentials and Fields
Ch 11	Radiation
Ch 12	Electrodynamics and Relativity

Course points:

Test 1	100 points	Friday, Sept. 26, 2008
Test 2	100 points	Friday, Oct. 24, 2008
Test 3	100 points	Friday, Nov. 14, 2008
Final	100 points	Tuesday, Dec. 16, 2007 (4:00 -6:00 p.m.)
Homework	200 points	
Total	600 points	

Grades: A(540 - 600), B(480 - 540), C(420 - 480), D(360 - 420), F(<360)

Homework is an important part of this course. It will allow you to test yourself to see how well you have absorbed the material. Keeping up with the homework should help you to keep up with the course and do better on the exams. Homework is due by noon the next day after the date indicated in the syllabus. Late homework will be penalized at the rate of 10% per day. No homework will be accepted after it is returned to the class.

This course is offered by the MS&T Physics Department,
Chaired by Dr. Dan Waddill (waddill@mst.edu), 102 Physics, Phone: 341 - 4781
under the auspices of the College of Arts and Sciences,

This material is on the web at Department listing, Academic departments, Physics, Class information, Undergraduate, Physics 321, Syllabus.

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DATE	Ch	TOPICS COVERED	PROBLEM ASSIGNMENTS	
M - Aug 25	7	Magnetic fields in Matter		
W - Aug 27	7	Motional emf		
F - Aug 29	7	Faraday's Law	Ch 7 - 1,2,3,4	H01
M – Sept01	7	*Labor Day*	*class break*	
W - Sept 03	7	Inductance		
F – Sept 05	7	Magnetic field energy	Ch 7 - 5,7,8, 10,11	H02
M - Sept 08	7	Ampere's Law (Displacement current)		
W - Sept 10	7	Maxwell's eqns. in matter		
F - Sept 12	7	Boundary conditions	Ch 7 -12,13,15,17,18,19,20,22	H03
M - Sept 15	8	Charge and energy		
W - Sept 17	8	Poynting's theorem		
F - Sept 19	8	Maxwell stress tensor	Ch 7-24,26a,c,27,29,31,37,58	H04
M - Sept 22	8	Maxwell stress tensor		
W - Sept 24				
F - Sept 26		**Test 1**		
M - Sept 29	9	Wave eqn. and plane waves		
W - Oct 01	9	Reflection and Transmission coefs.		
F - Oct 03	9	Fresnel's eqns.	Ch 8 - 1,2,4,5,6,9	H05
M - Oct 06	9	Fresnel's eqns.		
W - Oct 08	9	Electromagnetic waves in a conductor		
F - Oct 10	9	Reflection, Transmission for a conductor	Ch 9 - 2,3,8,9,10,11,12	H06
M - Oct 13	9	Potential formulation		
W - Oct 15	10	Retarded Potentials		
F - Oct 17	10	Liénard-Wiechert potentials	Ch 9 - 13,17,18,19,20,21	H07

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DATE	Ch	TOPICS COVERED	PROBLEM ASSIGNMENTS	
M - Oct 20	11	Radiation from an arbitrary distribution		
W - Oct 22	11	Electric dipole radiation	Ch 10 - 1,2,3,4,5,6	H08
F - Oct 24		**Test 2**		
M - Oct 27	11	Magnetic dipole radiation		
W - Oct 29	11	Radiation from a moving charge		
F - Oct 31			Ch 10 - 10,13,14,18,19,20,25	H09
M - Nov 03				
W – Nov 05	12	Einstein's postulates		
F - Nov 07	12	Geometry of Relativity	Ch 11- 3,6,9,13,14,21,25	H10
M - Nov 10	12	Lorentz transformation		
W - Nov 12				
F - Nov 14		**Test 3**		
M - Nov 17	12	Structure of Spacetime		
W - Nov 19	12	Energy and Momentum		
F - Nov 21	12	Proper time and velocity	Ch 12 - 3,4,5,7,8,9,10	H11
M - Nov 24		*Thanksgiving*	*class break*	
W - Nov 26		*Thanksgiving*	*class break*	
F - Nov 28		*Thanksgiving*	*class break*	
M - Dec 01	12	Relativistic Energy and momentum		
W - Dec 03	12	Relativistic Kinematics		
F - Dec 05	12	Relativistic Dynamics	Ch 12 - 13,15,18,20,25	H12
M - Dec 08	12	Relativistic Electrodynamics		
W - Dec 10			Ch 12 - 29,31,32,33,35,36	H13
F - Dec 12				

Final exam: Tuesday, Dec. 16, 2008 from 4:00 to6:00 p.m.