PHY116 GLENDALE COMMUNITY COLLEGE Spring 2011

PHY 116 University Physics II
A general physics course using calculus to develop the principles of electromagnetism and optics.
Recommended for majors in the sciences and mathematics. Required for engineering and physics majors.
Prerequisites/co requisites: **PHY 115, MAT 230/1, (Calculus II) Co requisite MAT241**

Course content may vary from this outline to meet the needs of this particular group.
Instructor: Cheryl Dellai Office in Room PS 109 Phone 623.845.3678
E-mail**: cheryl.dellai@gcmail.maricopa.edu**

Lectures:	MTRF	1:00 - 1:50 PM	Room PS 167	Section 19115/19285	Dellai
	TR	5:20 - 7:00 PM	Room PS 167	Section 19265	Dellai
Labs:	Thursday	2:10- 4:40 PM	Room PS 169	Section 19263	Dellai
	Wednesday	7:10 - 9:40 PM	Room PS 169	Section 19267	Dellai

The Hi-Tech center is available for student use for physics assignments. Each student using the center will log in each time and follow all rules.

Homework Session: **Monday 2:00 PM in PS 167**

Office Hours: TF 10-11, MR 11-12 and by arrangement
Math Center MR 10-11 AM

Text: **Fundamentals of Physics 9th Ed Extended** by Halliday & Resnick, 201
or **Fundamentals of Physics 8th Ed** by Halliday & Resnick, 2007
Physics & Spreadsheets by Cheryl K Dellai
Physics Handouts by Cheryl K Dellai

Recommended and Optional Materials

Preparing for General Physics by Pickar, 1993

Equipment: **Calculator** ⇒⇒With scientific notation, log functions, trig functions.
(BRING Calculator to first lab!)
3 ring notebook⇒⇒- For storing lab manual, problem solutions etc.
Storage Device

HONORS ADDITION:
Work on the Science Olympiad Labs for 2010
(Wind, and Optics). They will set up, judge, and grade the Hs participates.

This will be addition to the assigned project, and will be judged on the same basis.

ATTENDANCE POLICY: Attendance will be taken daily. When a student has accumulated unexcused absences in excess of four class periods, the instructor MAY file a withdrawal form for that student.

WITHDRAWAL POLICY: According to college policy, a student may withdraw from the course during the 1st 7 weeks by submitting a withdrawal form to the Admissions Office. If a student wishes to have the instructor withdraw him or her from the course AFTER the 7th week, it is the responsibility of the STUDENT to contact the instructor about the possibility of a withdrawal.

SAFETY REGULATIONS
Arizona State ARS15-151 specifies that every student, teacher, and visitor in community colleges must wear appropriate protective eyewear while participating in or when observing vocational, technical, industrial arts activities involving exposure to: molten metals; molten metals, cutting shaping, and grinding of materials; heat treatment; tempering or kiln firing of any metals or other materials; welding fabrication processes; explosive materials, caustic solutions and radioactive materials.

Cheating or plagiarism will result in a zero grade for the item.
Audio taping of classes is allowed.
Smoking, eating, & drinking in class is not allowed. Turn cell phones off or on vibrate.
Special needs students need to contact me and/or Disability Services 623.845.3080.
Misbehavior or failure to follow instructions is cause for instructor withdrawal.

PERSONS NOT ENROLLED IN CLASS ATTENDING CLASS
No one not enrolled in class is allowed in class. For emergency childcare during class time call **Child Referral Phone Number 623.845.2678**.

Grading: 1000 pts total

50 pts Assigned project
40 pts Student Tests (8 pts/test)
50 pts Viewing Mechanical Universe tapes (3 pts/tape ½ page 50 pt maximum)
100 pts Weekly quiz (last 10 min of class) (5 - 10 pts)
200 pts Tests no makeups unless arranged in advance.
300 pts Final- comprehensive (2 PARTS)
100 PTS TAKE HOME 200 PTS IN CLASS NO NOTES

Common Final Exam: A common comprehensive final exam consisting of 20 multiple-choice questions from the official textbook test bank will be given to all classes. The composition of the common final will be determined by a consensus of the instructors of the course.

The weight of the common final in the determination of the course grades is left to the discretion of the instructor.
However, The following guidelines apply to all students in the course:

No student scoring below 70% on the common final may receive a grade higher than a B.

No student scoring below 50% on the common final may receive a grade higher than a C.

No student scoring below 30% on the common final may receive a grade higher than a D.

60 pts Homework (3 pts/chapter) - due on Thursdays one week after the chapter.
Late homework will receive 1 pt.

50 pts Lab Test

150 pts 10 labs (15 pts) (Lab grades will be scaled)

(50% loss of points for labs more than 1 week late) To receive a course grade of "C" or higher, a student must submit passing lab reports for at least 7 of the scheduled labs. Grades will be reduced on late lab reports (2 weeks late maximum) proportionally down to 60%.

Any student failing the laboratory portion of the course cannot receive a grade higher than a D for the course.

A 90% B 80-89% C 70-79% D 60-69% F < 60%

COURSE COMPETENCIES:

1. Use fundamental physical laws and principles to solve problems encountered in academic and non-academic environments.
2. Develop and use appropriate models that closely represent actual physical situations.
3. Apply problem-solving techniques in terms of logic, efficiency, and effectiveness.
4. Solve problems beyond the level of plug-in type problems.
5. Solve practical engineering and science problems.
6. Use computer systems and techniques in solving a variety of problems.

COMPUTER PROGRAMS

All students have access to the palette which includes Office 2003, Office 2007, Netscape, and Maple. A shareware spreadsheet Aseasyas 4.0Q is available. Instruction in your course folder. **https://files.gccaz.edu/shared/courses/phy116/cdellai**

Library at http://www.gccaz.edu/Library

CLASS SCHEDULE: **SCHEDULE IS SUBJECT TO CHANGE WITHOUT NOTICE.**

Week	Chapter	Lab	**Test given In labs**
1. Jan 18	21,21	(1) Wave Motion & Superposition **MONDAY MLK**	Test 1 Chapter 21-25
2. Jan 24	22,23	Added Lectures Chapter 22.	Test 2 Chapter 26-29
3. Jan 31	23,24	(2) Electric Field Mapping	Test 3 Chapter 30-33
4. Feb 7	24,25	(3) Capacitance	Test 4 Chapter 34-37
5. Feb 14	25,26	**Exam #1**	
6. Feb 21	27,27	(4) Wheatstone Bridge **MONDAY PRESIDENT'S DAY**	
7. Feb 28	28,28	(5) Slide Rule Potentiometer	
8 Mar 7	29,29	**Exam #2**	
Mar 14		**Spring Break**	**3x5 notecard allowed on chapter tests**
9 Mar 21	30,30	(6) E/M for Electrons	
10 Mar 28	31,31	(7) Earth Inductor	
11 Apr 4	32,32	**Exam #3**	
12 Apr 11	33,33	(8) Reflection/Refraction	
13 Apr 18	34,34	(9) Lens	
14 Apr 25	35,35	(10) Interference(3 labs)	
15 May 2	36,37	**Exam #4**	
May 9	**FINALS**	**Monday 1 PM**	

COPY OF SYLLABUS ACKNOWLEDGEMENT

Course: **Physics 116** Semester: **Spring 2011** E-mail: _____

Instructor: **Cheryl K Dellai** Section: _____ Phone : _____

I acknowledge that I have received a course syllabus for the course described above. I have read it and understand the attendance, withdraw, grading and other policies. I recognize that to successfully complete this course it may require 2 to 3 hours out of class for each hour spent in class.

Signature: _____

Printed Name: _____ **Date:** _____

Email Address: _____

HOMEWORK SCHEDULE
Clearly identify each problem number.
Show all details for solving the problem.
Clearly identify the answer to the problem.

9TH EDITION

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th
2	7	1	5	3	5	2	4	4	7	1	3	5	1	7	3	2
5	8	4	6	5	14	13	7	7	21	3	25	6	2	14	13	9
9	19	9	11	10	16	16	17	8	23	11	29	9	92	19	15	12
10	32	18	13	11	27	23	21	10	26	13	42	10	103	31	19	15
14	40	21	14	17	31	37	23	17	27	17	53	12	112	54	23	23
15	45	33	17	27	41	39	41	20	28	23	55	22	17-29	80	37	72
17	51	39	40	28	44	40	46	29	29	25	59	24	34-40	81	43	
19	53	42	43	33	45	48	51	31	35	27	61	32	58-67	82	80	
35	63	49	50	34	46	50	55	41	47	34	63	34	69-79	91	97	
42	72	52	52	38	53	51	60	51	48	45		55		94		
43	75	53	57	47	67	56	78	58	53	47		58		100		
50	77	70	71	48	74	64	79	76	62	62		59				
64	79	75	92	49		65	80	78	71	65		69				
	84	76	94	63		71	82	79	72	72		81				
		81	96	70		78		83	76	75						
			100			84		87	95	90						
			105			99				91						

To access the Mechanical Universe Series you need to go to this address: http://www.learner.org/index.html. Click on View Programs at the top, and then look down the list till you find Mechanical Universe. The list of all the episodes is on the page that comes up, and you click on VoD to start viewing an episode.

The Mechanical Universe" (1–52) Rating Good 3.69 30 min.

	Learner #	Rating
1. Introduction to the Mechanical Universe	1	3.50
2. Beyond the Mechanical Universe	27	3.38
3. Static Electricity	28	4.57
4. Electric Field	29	4.43
5. Capacitance and Potential	30	4.31
6. Voltage Energy	31	4.40
7. Electric Battery	32	3.51
8. Electric Circuits	33	4.11
9. Magnetism	34	4.06
10. Magnetic Fields	35	3.11
11. Vector Fields and Hydrodynamics	36	4.36
12. Electromagnetic Inductions	37	3.11
13. Alternating Current	38	4.05
14. Maxwell's Equations	39	3.43
15. Optics	40	3.00
16 Michelson–Morley Experiment	41	3.36
17. The Lorenz Transformation	42	3.43
18. Velocity of Time	43	3.90
19. Energy, Momentum, and Mass	44	3.76

9 to 8

21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30
8th	9th	8th	9th	8th	9th	8th	9th	8th	9th	8th	9th	8th	9th	8th	9th	8th	9th	8th	9th
4	**2**	**9**	**7**	1	1	5	5	**5**	**3**	**7**	**5**	6	2	2	4	**2**	**4**	1	7
3	**5**	**10**	**8**	6	4	4	6	7	5	**20**	**14**	15	13	**9**	**7**	**5**	**7**	15	21
7	**9**	**19**	**19**	**11**	**9**	11	11	8	10	**14**	**16**	22	16	25	17	6	8	**21**	**23**
8	**10**	**32**	**32**	20	18	13	13	**9**	**11**	23	27	27	23	17	21	**8**	**10**	**24**	**26**
10	**14**	**46**	**40**	21	21	12	14	**13**	**17**	**33**	**31**	35	37	19	23	21	17	25	27
17	**15**	**41**	**45**	37	33	15	17	**27**	**27**	39	41	41	39	39	41	28	20	26	28
13	**17**	**55**	**51**	41	39	40	40	**26**	**28**	38	44	42	40	44	46	19	29	**31**	**29**
19	**19**	**51**	**53**	38	42	41	43	39	33	43	45	48	48	**53**	**51**	**33**	**31**	**33**	**35**
35	**35**	**71**	**63**	**51**	**49**	**46**	**50**	36	34	52	46	**54**	**50**	59	55	41	41	**47**	**47**
53	**42**	**76**	**72**	50	52	56	52	**34**	**38**	47	53	53	51	**62**	**60**	49	51	**48**	**48**
54	**43**	**69**	**75**	**55**	**53**	59	57	45	47	57	67	56	56	80	78	56	58	55	53
44	**50**	**67**	**77**	58	70	95	71	48	48	66	74	62	64	83	79	68	76	**64**	**62**
66	**64**	**75**	**79**	73	75	90	92	49	49			67	65	68	80	76	78	71	71
		86	**84**	74	76	98	94	59	63			79	71	**70**	**82**	81	79	**74**	**72**
				81	81	92	96	74	70			92	78			77	83	76	76
						94	100					72	84			**93**	**87**	93	95
						103	105					97	99						

31	31	32	32	33	33	34	34	35	35	36	36	37	37
8th	9th	8th	9th	8th	9th	8th	9th	8th	9th	8th	9th	8th	9th
5	**1**	**3**	**3**	5	5	2	1	1	7	**5**	**3**	**2**	**2**
1	3	**17**	**25**	6	6	1	2	**16**	**14**	11	13	**11**	**9**
15	11	**29**	**29**	7	9	90	92	19	19	**17**	**15**	**14**	**12**
21	13	40	42	8	10	105	103	**33**	**31**	**27**	**19**	**13**	**15**
11	**17**	**51**	**53**	12	12	**122**	**112**	**118**	**54**	21	23	**21**	**23**
19	**23**	**57**	**55**	20	22	**19-31**	**17-29**	**80**	**80**	**35**	**37**	**74**	**72**
25	25	69	59	26	24	**34-40**	**34-40**	81	81	40	43		
27	**27**	**55**	**61**	34	32	59-68	58-67	82	82	**90**	**80**		
34	34	59	63	32	34	**69-79**	**69-79**	83	91	89	97		
47	45			51	55			109	94				
59	47			58	58			96	100				
64	**62**			65	59								
65	65			69	69								
76	72			99	81								
69	**75**												
72	90												
89	91												

PROBLEM COMPARISON 7th to 8th EDITION

21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29
7th	8th	7th	8th	7th	8th	7th	8th	7th	8th	7th	8th	7th	8th	7th	8th	7th	8th
2	3	10	10	1	1	3	5	3	5	5	7	6	6	2	2	2	2
4	4	11	9	4	6	4	4	5	7	14	14	14	22	8	9	4	5
6	8	19	19	13	11	9	11	8	8	17	20	19	27	15	19	5	8
8	10	29	32	16	20	11	13	9	9	23	23	25	35	17	17	6	6
9	7	37	41	19	21	12	12	11	13	31	33	31	41	18	25	15	19
11	13	40	46	35	37	15	15	21	26	35	39	32	42	35	39	19	21
15	17	45	51	38	38	36	40	23	27	36	38	36	48	45	53	21	28
17	19	55	55	39	41	37	41	28	34	39	43	41	53	51	59	25	33
29	35	65	67	49	51	40	46	30	36	40	47	42	56	52	62	33	41
48	44	73	69	50	50	49	59	32	39	45	52	49	62	68	70	41	49
53	66	75	71	51	55	50	56	39	45	52	66	58	15	71	44	48	56
65	53	82	75	60	81	98	90	42	48	58	57	63	72	76	68	70	68
66	54	84	76	62	58	100	92	43	49	82	XX	74	79	81	80	85	77
		86	86	84	73	103	114	56	59			75	80	84	83	87	76
		91	XX	85	74	107	95	82	74			83	86	88	XX	91	81
						109	94	84	XX			88	54	89	XX	92	93
						112	98					99	107				
						117	103					100	92				

30	30	31	31	32	32	33	33	34	34	35	35	36	36	37	37
7th	8th	7th	8th	7th	8th	7th	8th	7th	8th	7th	8th	7th	8th	7th	8th
2	1	1	5	3	3	5	5	1	1	3	1	5	5	2	2
15	15	4	1	17	17	6	6	7	2	14	16	11	11	9	11
19	21	13	11	36	40	7	7	19-31	19-31	19	19	13	17	12	14
22	24	15	15	47	51	9	9	34-40	34-40	31	33	17	21	15	13
23	25	17	19	53	69	10	10	66,67	67,68	80	80	23	27	21	21
24	26	19	21	61	29	20	20	74-79	74-79	81	81	30	35	88	74
29	31	25	25	67	57	28	28	92	90	82	82	31	40		
31	33	27	27	71	55	32	32	104	104	85	83	101	89		
45	47	32	34	74	59	34	34	112	122	110	96	102	90		
46	48	43	47			49	49	124	110	112	118				
53	55	57	59			54	54	137	119	117	102				
60	64	60	64			58	58	139	129						
67	71	63	65			61	61								
70	74	73	69			65	65								
72	76	76	72			73	73								
83	101	80	89			110	110								
		82	76												