Syllabus for PHY 102—General Physics II Lecture 3 credit hours Summer 2008

I. COURSE DESCRIPTION

A continuation of PHY 101 Lecture. Includes electricity, magnetism, light, and modern physics. Prerequisite: PHY 101 Lecture or instructor's approval. Corequisite: PHY 102 Lab.

II. COURSE GOALS

The purpose of this course is to introduce the students to the laws of mechanics and heat, to show how they can be applied to explain many physical phenomena around us, and to build or improve devices that are beneficial to people and to enable the student to do the following:

- A. Become familiar with the technical terms and names of significant individuals in physics.
- B. Comprehend the basic concepts of classical physics (such as vectors, harmonic motion).
- C. Become acquainted with the basic laws of classical physics (such as Coulomb's Law, Ohm's Law, Laws of reflection and refraction, etc.)

II. STUDENT LEARNING OUTCOMES FOR THIS COURSE

As a result of successfully completing this course, the student will be able to do the following:

- A. Define or identify a given term or name.
- B. Match a given statement with the appropriate term or name.
- C. Discuss a given concept.
- D. Select from several choices the proper description of a given concept.
- E. Describe a given physical law.
- F. Write the mathematical formulation of a given law.
- G. Apply the terms, concepts, and basic laws of classical physics
- H. Solve problems similar to those in the textbook.
- I. Solve an unfamiliar problem using familiar laws and concepts.
- J. Identify a particular law when expressed by a given mathematical formula.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Materials

Required text and materials are listed on the Laboratory syllabus for PHY 102. Scientific Calculator

B. Optional Materials Serway, and Faughn. <u>College Physics</u>. 7th edition enhanced <u>Student Solution Manual</u>.

V. POLICIES AND PROCEDURES

A. University Policies and Procedures

- 1. Attendance at each class or laboratory is mandatory at Oral Roberts University. Excessive absences can reduce a student's grade or deny credit for the course.
- 2. Students taking a late exam because of an unauthorized absence are charged a late exam fee.
- 3. Students and faculty at Oral Roberts University must adhere to all law addressing the ethical use of others' materials, whether it is in the form of print, video, multimedia, or computer software. By submitting an assignment in any form, the student gives permission for the assignment to be checked for plagiarism, either by submitting the work for electronic verification or by other means.
- 4. Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.
- 5. Students are to be in compliance with University, school, and departmental policies regarding ePortfolio requirements. Students should consult the ePortfolio handbooks for requirements regarding general education and the students' majors.
 - a. The penalty for not submitting electronically or for incorrectly submitting an ePortfolio artifact is a zero for that assignment.
 - b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.
- B. Course Policies and Procedures
 - 1. Evaluation Procedures
 - a. The final grade will be a composite result of performance in exams and homework problems. Approximately 80 percent of the final grade will be based on two exams, and a comprehensive final; 20 percent for homework problems. The grading scale will be as follows: The letter grade will be assigned in accordance with the following percentage ranges:

0-90
9-80
9-70
9-60
9-0

- b. The problem assignment is listed for each class meeting in the Course Calendar and will be due at the assigned date.
- 2. ePortfolio Requirements

Complete "Power generation by fossil fuels, nuclear fission, and nuclear fusion"essay.

3. Be able to approach the learning of a subject in a consistent and disciplined manner.

- a.
- Attend class sessions regularly and punctually. Turn in homework assignments regularly and on time. Anticipate regularly in class recitation. Participate in-group activities. b.
- c.
- d.

VI. COURSE CALENDAR

DA	Y	TOPIC	CHAPTER(S)	AS	SIGNMENTS	PTS
1	(T)	Electric Forces Electric Fields	and 15	As	signed in class	(4)
2	(W)	Electric Energy Capacitance	and 16			(4)
3	(R)	Current and res	istance 17		"	(4)
		Direct Current	Circuits 18		"	(4)
4	(F)	Magnetism	19		"	(4)
5	(M)	Exam No. 1 (80 Points) Ass Chapters 15-19	Chapters 15-18 ignments due ov (20 points)	3 ver		
6	(T)	Induced Voltag	e	20&	"	(4)
7	(W)	Alternating Cur	rrent Circuits	21		(4)
		Electromagnetic	c Waves			
8	(R)	Reflection and I	Refraction	22	"	(4)
9	(F)	Mirrors and Ler	nses	23	"	(4)
10	(M)	Exam No. 2—C (80 points) Assignments du Chapters 20-25	Chapters 19-23 le over (20 points)			
11	(T)	Wave Optics		24		(4)
		Optical Instrum	ients	25		
12	(W)	Relativity &		26		(4)
		Early Quantum	Physics	27	"	(4)
13	(R)	Atomic Physics	3	28	paper on models of atom	(6)
14	(F)	Nuclear Physics	S	29&30	paper on power generation by fossil fuels, nuclear fission, and nuclear fusion	(6)

15 (S) Final Exam-Chapters 15-30 (80 points)

Course Inventory for ORU's Student Learning Outcomes

PHY 102-General Physics II Lecture Summer 2008

This course contributes to the ORU student learning outcomes as indicated below: *Significant Contribution* – Addresses the outcome directly and includes targeted assessment. *Moderate Contribution* – Addresses the outcome directly or indirectly and includes some assessment. *Minimal Contribution* – Addresses the outcome indirectly and includes little or no assessment. *No Contribution* – Does not address the outcome.

The Student Learning Glossary at <u>http://ir.oru.edu/doc/glossary.pdf</u> defines each outcome and each of the proficiencies/capacities.

	OUTCOMES & Proficiencies/Capacities	Significant	Moderate	Minimal	No
	-	Contribution	Contribution	Contribution	Contribution
1	Outcome #1 – Spiritually Alive Proficiencies/Capacities				
1A	Biblical knowledge				
1B	Sensitivity to the Holy Spirit				
1C	Evangelistic capability				
1D	Ethical behavior				
2	Outcome #2 – Intellectually Alert				

2	Outcome #2 – Intellectually Alert				
	Proficiencies/Capacities				
2A	Critical thinking	\checkmark			
2B	Information literacy		\checkmark		
2C	Global & historical perspectives		\checkmark		
2D	Aesthetic appreciation			\checkmark	
2E	Intellectual creativity				

3	Outcome #3 – Physically Disciplined Proficiencies/Capacities			
3A	Healthy lifestyle		\checkmark	
3B	Physically disciplined lifestyle			

4	Outcome #4 – Socially Adept			
	Proficiencies/Capacities			
4A	Communication skills	\checkmark		
4B	Interpersonal skills		\checkmark	
4C	Appreciation of cultural & linguistic differences			\checkmark
4D	Responsible citizenship		\checkmark	
4E	Leadership capacity		\checkmark	