

**Physics Department**  
**PHYS 141**  
**ELEMENTS OF PHYSICS**

**2002-2004 Course Description:** Physics 141 - ( 4 Credit Hours) , (Lec., 2 hours; Lab and Rec., 4 hours). An introduction to the basic concepts, principles, and models in physics. **Prerequisite:** MATH 130 or equivalent. No previous course in physics is necessary.

**Textbook:** PHYSICS: PRINCIPLES WITH APPLICATIONS by Douglas C. Giancoli, 5<sup>th</sup> Edition, 1998, Prentice Hall.

**Laboratory:** Laboratory Manual: Physics -141 Experiments by Ineatha W. Ruffin and Chia N. Yang, 1997.

**Course Instructor:**

Dr. Yuriy M. Malozovsky

Office Location: 146A Williams James Hall

Office Phone: 225-771-4130

Office Hours: MW: 9:00- 9:50, 11:00-12:50, 2:00-3:00

TR: 1:00- 4:50 PM

E-mail: [yuriy@grant.phys.subr.edu](mailto:yuriy@grant.phys.subr.edu)

**References:**

1. Study Guide Physics: Principles with Applications by Joseph Boyle, 5<sup>th</sup> Edition, Prentice Hall, 1999.
2. CD Interactive Journey through Physics by Cindy Schwarz and Bob Beichner, Prentice Hall, 1997.
3. Test Item File for Physics: Principles with Applications by Douglas C. Giancoli, 5<sup>th</sup> Edition, 1998, Prentice Hall.

**Prerequisite:**

1. Math 130, College Algebra or Equivalent

**Course Objectives:**

1. To provide a thorough overview and exposure to algebra-based, basic concepts and principles of physics.
2. To provide a conceptual framework for further study in the discipline
3. To prepare students to be problem solvers and life-long learners.

**Course Topics:**

1. Kinetics in One Dimension.
2. Kinetics in Two Dimensions; Vectors
3. Motion and Force: Dynamics
4. Circular Motion; Gravitation
5. Work and Energy
6. Linear Momentum
7. Rotational Motion
8. Bodies in Equilibrium; Elasticity and Fracture
9. Fluids
10. Vibrations and Waves
11. Sound
12. Temperature and Kinetic Theory
13. Laboratory experiments and recitation sessions related to topics 1-12

**Class Schedule:**

Two 50-minute lecture sessions each week-MW—One two-hour lab session and One two-hour recitation session per week- TR.

**Course Assessment Process:**

Three Unit Examinations = 30 %  
 Recitation Quizzes (the best 8 of 10) = 25 %  
 Lab Experiments (the best 8 of 10) = 15 %

Final Examination = 20 %  
 Homework = 5 %  
 Laboratory Final Exam. = 5 %

**Grading Scale:**

90- 100 = A    78- 89 = B    66-77 = C    55- 65 = D    00-54 = F

**Course Outcomes:**

Course Outcome-related learning objectives Students will be able to:	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7
1. Define Kinetics in one and two dimensions and solve problems		3				1	
2. Define relationship between motion and force and solve problems		3				1	
3. Solve problems related to circular motion and work and energy		3				1	
4. Describe Linear momentum and rotational motion		3				1	
5. Solve problems related to bodies in equilibrium		3				1	
6. Describe the concepts of fluid motion		3				1	
7. Describe vibrations and waves and solve problems		3				1	
8. Describe sound and its propagation		3				1	
9. Define concepts and solve problems in Temperature and kinetic theory							
10. Perform, analyze and interpret experiments in the Lab			3		3	1	

**Objective addresses outcome 1 = slightly    2 = moderately    3 = substantively**

**Prepared by:** Dr. Yuriy M. Malozvosky

**Date:** 5-7-2003