

**PHY 151
COLLEGE PHYSICS I**

COURSE DESCRIPTION:

Prerequisites:

Corequisites:

II. Kinematics

- A. Types of motion
- B. Velocity
- C. Acceleration
- D. Vectors
- E. Projectiles

III. Dynamics

- A. Force
- B. Newton's laws of motion
- C. Weight and mass
- D. Application of Newton's second law of motion

IV. Statics

- A. Equilibrium
- B. Center of gravity
- C. Concurrent force problems
- D. Friction
- E. Torque
- F. Non-concurrent force problems

V. Momentum

- A. Definition of linear momentum
- B. Newton's second law-impulse
- C. Conservation of linear momentum
- D. Collisions
- E. Weightlessness and artificial gravity
- F. Inertial forces

VI. Energy

- A. Work
- B. Mechanical energy
- C. Conservation of energy
- D. Power, efficiency
- E. Energy changes in collisions

VII. Rotation

- A. Angular quantities
- B. Centripetal and centrifugal force

- VIII. Gravity
 - A. Newton's law of gravitation
 - B. Gravitational field
 - C. Dynamics of planetary motions

- IX. Elasticity and vibration
 - A. Hooke's law
 - B. Simple harmonic motion
 - C. Pendulums
 - D. Non-simple harmonic motion

- X. Wave motion
 - A. Types of wave motion
 - B. Graphical representation
 - C. Periodic waves
 - D. Superposition principle
 - E. The Doppler effect
 - F. Interference
 - G. Resonance
 - H. Musical sounds and instruments

- XI. Fluids
 - A. Pressure and its measurement
 - B. Pascal's principle
 - C. Archimedes' principle
 - D. Surface tension
 - E. Bernoulli's equation

- XII. Temperature and heat
 - A. Definition of temperature
 - B. Thermal expansion
 - C. Internal energy
 - D. Specific heat
 - E. Phase change
 - F. Heat transfer

- XIII. Thermal behavior of gases
 - A. Ideal gases
 - B. The universal gas law
 - C. Avogadro's number
 - D. Vapor pressure and relative humidity
 - E. Molecular pressure
 - F. Specific heat of gases
 - G. Adiabatic gas law

XIV. Heat applications

A. The second law of thermodynamics

A