South Central College

PHYS 101 Introductory Physics

Course Outcome Summary

Course Information

Description	A one semester course covering the basic principles of physics at a conceptual level and with a minimal amount of math. Topics generally included mechanics, simple machines, atomic structure, heat, light, and sound. Lecture and laboratory components (MNTC 3: Natural Sciences)
Total Credits	3
Total Hours	48

Types of Instruction

Instruction Type	Credits/Hours
Lecture	

Pre/Corequisites

MATH 0075 with a C or higher, or a score of 56 or higher on the Arithmetic portion of the Accuplacer test.

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building y ical and Creative Thinking - Students will

Diagram basic vector operations

3. Define force and mass

Learning Objectives

Determine the acting forces in various cases
Draw free-body diagram and decompose forces
Explain the concept of inertia
Define mass as the measure of inertia

4. Describe Newton's laws of motion

Learning Objectives

Compare Newton's first law and Aristotle's view
Explain relations between force, mass and acceleration
Demonstrate the co-existence of action and reaction forces

5. Describe universal gravity

Learning Objectives

Express the relation between gravitational force and masses of objects
Describe the dependence of gravitational force on distance
Define weight
Explain the different weights of one object on different planets

6. Determine work and energy

Learning Objectives

Define work
Define kinetic energy
Explain work-energy theorem
Define potential energy
Describe the principle of conservation of energy
Define power

7. Identify simple machines

Learning Objectives

Explore the advantages of simple machines
Describe an inclined plane
Describe pulley system
Describe a lever

8. Review impulse and momentum

Learning Objectives

Define impulse and momentum
Explain the principle of conservation of momentum
Apply the conservation of momentum to rockets and airplanes

9. Discuss fluid dynamics

Learning Objectives

Define pressure
Review Pascal's principle
Define density
Explain Archimedes' principle
Explain Bernoulli's law and apply it to airplanes

10. Illustrate behaviors of waves

Learning Objectives

Describe transverse and longitudinal waves
Define period, frequency and speed of periodic waves
Illustrate the principle of linear superposition
Depict the interference and diffraction of waves

11. Describe sound phenomenon

Learning Objectives

Estimate distances by the use of the spMOTrMw of