

Master Syllabus

PHY 1141 - College Physics I

Division: Science, Mathematics and Engineering

Department: Physics

Credit Hour Total: 4.0

Lecture Hrs: 3.0 **Lab Hrs:** 3.0

Prerequisite(s): MAT 1290OR MAT 1470OR MAT 1570OR MAT 1580

Date Revised: January 2015

Course Description:

Algebra-based university-parallel sequence in mechanics, including vectors, statics, work and energy, momentum, rotational motion, elasticity, fluids and thermodynamics. Three classroom, three lab hours per week.

General Education Outcomes:

- Critical Thinking/Problem Solving Competency

Course Outcomes:

Dynamics

Apply Newton's Laws of Motion to the motion of real objects.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam items correct.

Assessment Method: Performance appraisals
Performance Criteria: 70% of items correct.

Elasticity

Apply stress and strain relationships so as to describe the elastic properties of solids. Predict the behavior of solids under stress.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam items correct.

Assessment Method: Performance appraisals
Performance Criteria: 70% of items correct.

Kinematics

Use graphical and equation based representations of one and two dimensional motions to predict the motion of real objects.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam items correct.

Assessment Method: Performance appraisals
Performance Criteria: 70% of items correct.

Thermodynamics

Apply microscopic models of matter and the laws of thermodynamics so as to describe and predict the thermal properties and behavior of matter in gaseous, liquid and solid states.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam items correct.

Assessment Method: Performance appraisals
Performance Criteria: 70% of items correct.

Statics

Apply the conditions for static equilibrium to real structures.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam items correct.

Assessment Method: Performance appraisals
Performance Criteria: 70% of items correct.

Energy & Momentum

Apply the conservation laws associated with energy, linear and angular momentum to the motion of real objects.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam items correct.

Assessment Method: Performance appraisals
Performance Criteria: 70% of items correct.

Vectors

Apply basic principles of vector algebra: addition, subtraction and scalar multiplication. Decompose two dimensional vectors into component form.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam items correct.

Assessment Method: Performance appraisals

Performance Criteria: 70% of items correct.

Fluids

Use the principles of hydrostatics and hydrodynamics to describe and predict the behavior of gases and liquids.

Assessment Method: Locally developed exams

Performance Criteria: 70% of exam items correct.

Assessment Method: Performance appraisals

Performance Criteria: 70% of items correct.

Outline:

Kinematics
Dynamics
Vectors and Static Equilibrium
Work, Energy, Momentum, and Rotational Motion
Elasticity and Fluids
Thermodynamics