

## Master Syllabus

### PHY 2201 - General Physics I

**Division:** Science, Mathematics and Engineering

**Department:** Physics

**Credit Hour Total:** 5.0

**Lecture Hrs:** 4.0 **Lab Hrs:** 3.0

**Prerequisite(s):** MAT 2270

**Date Revised:** July 2016

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### Course Description:

Fundamentals of mechanics including kinematics, dynamics, work and energy, momentum, oscillations, gravity, fluids, waves and sound, thermodynamics and kinetic theory, using calculus as appropriate. Four classroom, three lab hours per week.

### General Education Outcomes:

- Critical Thinking/Problem Solving Competency

### Course Outcomes:

#### Work & Energy/Linear Momentum

Apply the conservation laws associated with energy and linear momentum to analyze the interactions between real objects and to predict their motion.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:**

70% of items correct.

#### Vectors

Use vector algebra to solve problems: addition, subtraction, scalar multiplication and scalar (dot) product. Decompose two dimensional vectors into components.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:**

70% of items correct.

#### Oscillations, Waves & Sound

Describe mechanical oscillations and waves using equation based and graphical descriptions. Discuss the energy transformations that occur in oscillations and energy transport in waves.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:**

70% of items correct.

#### Newton's Laws of Motion/Statics

Predict the motions of real objects by applying Newton's Laws of Motion. Analyze static structures by applying the conditions for equilibrium.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:**

70% of items correct.

#### Torques, Rotations & Angular Momentum

Describe and analyze the rotational motion of real objects using the concept of torque and the conservation law associated with angular momentum.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% of exam items correct.

**Assessment Method:** Performance appraisals  
**Performance Criteria:**

70% of items correct.

### **Kinematics**

Predict the one and two dimensional motions of objects using equation based and graphical descriptions.

**Assessment Method:** Locally developed exams  
**Performance Criteria:**

70% of exam items correct.

**Assessment Method:** Performance appraisals  
**Performance Criteria:**

70% of items correct.

### **Outline:**

Kinematics Vectors Newton's Laws of Motion Work and Energy Linear Momentum and Collisions Torque, Rotations and Angular Momentum Statics Gravity Fluids Oscillations, Waves and Sound Thermodynamics and Kinetic Theory