

## Master Syllabus

### PHY 1142 - College Physics II

**Division:** Science, Mathematics and Engineering

**Department:** Physics

**Credit Hour Total:** 4.0

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

**Prerequisite(s):** PHY 1141

**Date Revised:** July 2014

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### Course Description:

Algebra-based university-parallel course in oscillations, waves, sound, optics, electricity, magnetism and electromagnetism. Three classroom, three lab hours per week.

### General Education Outcomes:

- Critical Thinking/Problem Solving Competency

### Course Outcomes:

#### Optics

Explain optical phenomena associated with reflection and refraction using the principle of geometric optics. Explain simple interference and diffraction effects using wave model of light.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:** 70% of items correct.

#### Electrostatics

Discuss the microscopic process through which an object becomes electrically charged. Calculate the forces between charged objects and the fields surrounding them. Apply the conservation laws associated with energy and electrical charge to situations involving charged matter.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:** 70% of items correct.

#### Electromagnetism

Apply the laws of Faraday and Lenz to describe the generation of induced currents and electrical fields.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:** 70% of items correct.

#### Waves

Describe and predict the behavior of mechanical oscillators and waves.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:** 70% of items correct.

#### Simple Harmonic Motion

Describe the conditions for simple harmonic motion. Determine the period of simple harmonic motion.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:** 70% of items correct.

#### Magnetism

Describe the sources of magnetic fields. Predict the motion of charged particles moving through magnetic fields.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of exam items correct.

**Assessment Method:** Performance appraisals

**Performance Criteria:** 70% of items correct.

#### Electric Circuits

Apply basic principles of circuit theory and electromagnetic theory in DC and AC circuits including elements such as resistors, capacitors, and inductors.

**Assessment Method:** Locally developed exams

**Performance Criteria:** 70% of exam items correct.

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

### **Sound**

Determine the speed, pitch, and intensity of sound. Apply property of sound to musical instruments.

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

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

### **Outline:**

Simple Harmonic MotionWavesSoundOpticsElectrostaticsElectric CircuitsMagnetismElectromagnetism