

## Master Syllabus

### PHY 1104 - Sound, Light & Modern Physics

**Division:** Science, Mathematics and Engineering

**Department:** Physics

**Credit Hour Total:** 4.0

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

**Prerequisite(s):** PHY 1100 OR PHY 1141

**Date Revised:** July 2014

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### Course Description:

A survey of sound, light, color, atomic and nuclear physics and special relativity for nonscience majors. Three classroom, three lab hours per week.

### General Education Outcomes:

- Critical Thinking/Problem Solving Competency

### Course Outcomes:

#### Special Relativity

Discuss the experimental basis of special relativity. Apply special relativity to the motion of objects.

**Assessment Method:** Locally developed exams

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

**Assessment Method:** Performance appraisals

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

#### Sound

Predict and explain acoustic behavior using a model of sound as a longitudinal wave.

**Assessment Method:** Locally developed exams

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

**Assessment Method:** Performance appraisals

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

#### Optics

Apply the laws of reflection and refraction and the wave model of light in order to explain the behavior of optical devices such as lenses and other observable optical phenomena.

**Assessment Method:** Locally developed exams

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

**Assessment Method:** Performance appraisals

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

#### Atomic & Nuclear Physics

Apply the principles of the quantum theory so as to explain the behavior of electrons, protons, and neutrons and to describe the interactions of matter and electromagnetic radiation.

**Assessment Method:** Locally developed exams

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

**Assessment Method:** Performance appraisals

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

#### Vibrations & Waves

Describe and predict the behavior of vibrating systems including the transport of energy via wave motion.

**Assessment Method:** Locally developed exams

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

**Assessment Method:** Performance appraisals

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

### Outline:

Vibrations & Waves Sound Optics Atomic & Nuclear Physics Special Relativity