

## WTCS Repository

# 10-806-144 College Physics 2

## Course Outcome Summary

### Course Information

**Description** Presents the applications and theory of basic physics principles. This course emphasizes problem solving, laboratory investigation and applications. Topic include periodic motion, wave motion, optics, magnetism, static electricity, DC electricity, AC electricity and electromagnetism.

**Total Credits** 3.00

### Pre/Corequisites

**Prerequisite** Each Wisconsin Technical College determines the General Education course prerequisites used by their academic institution. If prerequisites for a course are determined to be appropriate, the final Course Outcome Summary must identify the prerequisites approved for use by the individual Technical College.

### Course Competencies

#### 1. Demonstrate safety procedures and protocols in the laboratory

##### Assessment Strategies

1.1. through completion of lab activities

##### Criteria

*Your performance will be successful when:*

- 1.1. you can explain the use of safety equipment in the laboratory
- 1.2. you can locate the safety equipment in the laboratory
- 1.3. you can locate the emergency exit route from the the laboratory and the classroom
- 1.4. you can explain the importance of safety in the laboratory

#### 2. Apply concepts of simple harmonic motion

##### Assessment Strategies

- 2.1. with the use of a scientific calculator
- 2.2. through completion of homework
- 2.3. through completion of quizzes/exams
- 2.4. through completion of lab activities

##### Criteria

*Your performance will be successful when:*

- 2.1. you solve problems involving simple pendulums
- 2.2. you solve problems involving spring mass systems
- 2.3. you show the steps to solve the problem
- 2.4. you include the correct units of measure in your answer

### **3. Evaluate wave properties**

#### **Assessment Strategies**

- 3.1. with the use of a scientific calculator
- 3.2. through completion of homework
- 3.3. through completion of quizzes/exams
- 3.4. through completion of lab activities

#### **Criteria**

*Your performance will be successful when:*

- 3.1. you solve problems involving frequency, wavelength, wave speed and amplitude
- 3.2. you differentiate between longitudinal and transverse waves
- 3.3. you determine characteristics of an electromagnetic wave
- 3.4. you determine characteristics of a mechanical wave
- 3.5. you show the steps to solve the problem
- 3.6. you include the correct units of measure in your answer

### **4. Analyze geometric optics**

#### **Assessment Strategies**

- 4.1. with the use of a scientific calculator
- 4.2. through completion of homework
- 4.3. through completion of quizzes/exams
- 4.4. through completion of lab activities

#### **Criteria**

*Your performance will be successful when:*

- 4.1. you solve snell's law and refraction problems
- 4.2. you generate ray diagrams for mirrors and/or lenses
- 4.3. you solve image formation problems
- 4.4. you show the steps used to solve the problem
- 4.5. you include correct units of measure in your answer

### **5. Analyze wave optics**

#### **Assessment Strategies**

- 5.1. with the use of a scientific calculator
- 5.2. through completion of homework
- 5.3. through completion of quizzes/exams
- 5.4. through completion of lab activities

#### **Criteria**

*Your performance will be successful when:*

- 5.1. you analyze diffraction gratings
- 5.2. you analyze interference patterns
- 5.3. you show the steps used to solve the problem
- 5.4. you include correct units of measure in your answer

### **6. Apply principles of electrostatics**

#### **Assessment Strategies**

- 6.1. with the use of a scientific calculator
- 6.2. through completion of homework
- 6.3. through completion of quizzes/exams
- 6.4. through completion of lab activities

#### **Criteria**

*Your performance will be successful when:*

- 6.1. you solve Coulomb's law problems
- 6.2. you analyze electric fields
- 6.3. you differentiate between conductors, insulators and semi-conductors

- 6.4. you apply concepts of electric potential
- 6.5. you show the steps used to solve the problem
- 6.6. you include the correct units of measure in your answer

## **7. Apply principles of electric current**

### **Assessment Strategies**

- 7.1. with the use of a scientific calculator
- 7.2. through completion of homework
- 7.3. through completion of quizzes/exams
- 7.4. through completion of lab activities

### **Criteria**

*Your performance will be successful when:*

- 7.1. you describe the flow of charge
- 7.2. you apply Ohm's law
- 7.3. you apply Kirchoff's law
- 7.4. you analyze circuits
- 7.5. you show the steps used to solve the problem
- 7.6. you include the correct units of measure in your answer

## **8. Analyze the magnetic field**

### **Assessment Strategies**

- 8.1. with the use of a scientific calculator
- 8.2. through completion of homework
- 8.3. through completion of quizzes/exams
- 8.4. through completion of lab activities

### **Criteria**

*Your performance will be successful when:*

- 8.1. you define magnetic fields
- 8.2. you apply magnetic force laws
- 8.3. you discuss magnetic force law applications
- 8.4. you apply principles of induction
- 8.5. you show the steps used to solve the problem
- 8.6. you include the correct units of measure in your answer