

WTCS Repository

10-806-139 Survey of Physics

Course Outcome Summary

Course Information

Description This course emphasizes understanding basic physics concepts through laboratory investigation and applications. Topics include kinematics, dynamics, work, energy, power, temperature, heat, waves, electricity, magnetism, electromagnetic waves, optics, and atomic and nuclear physics.

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. Solve problems involving the concepts of mechanics.

Assessment Strategies

- 1.1. through completion of homework.
- 1.2. through completion of quizzes/exams.
- 1.3. through completion of lab activities.

Criteria

Your performance will be successful when:

- 1.1. you describe the concepts of mechanics.
- 1.2. you include correct units of measure in your answer.
- 1.3. you can manipulate the equation(s) to solve for the unknown.
- 1.4. you can substitute values and complete the calculation.

2. Solve problems involving materials.

Assessment Strategies

- 2.1. through completion of homework.
- 2.2. through completion of quizzes/exams.
- 2.3. through completion of lab activities.

Criteria

Your performance will be successful when:

- 2.1. you describe the concepts of phase, atomic structure, pressure, and density.
- 2.2. you include correct units of measure in your answer.
- 2.3. you can manipulate the equation(s) to solve for the unknown.
- 2.4. you can substitute values and complete the calculation.

3. Solve problems involving thermodynamics.

Assessment Strategies

- 3.1. through completion of homework.
- 3.2. through completion of quizzes/exams.
- 3.3. through completion of lab activities.

Criteria

Your performance will be successful when:

- 3.1. you describe the concept of heat and its interaction and affect on objects.
- 3.2. you describe the laws of thermodynamics.
- 3.3. you include correct units of measure in your answer.
- 3.4. you can manipulate the equation(s) to solve for the unknown.
- 3.5. you can substitute values and complete the calculation.

4. Solve problems involving waves.

Assessment Strategies

- 4.1. through completion of homework.
- 4.2. through completion of quizzes/exams.
- 4.3. through completion of lab activities.

Criteria

Your performance will be successful when:

- 4.1. you describe the properties of waves.
- 4.2. you include correct units of measure in your answer.
- 4.3. you can manipulate the equation(s) to solve for the unknown.
- 4.4. you can substitute values and complete the calculation.

5. Solve problems involving the production, propagation, and perception of sound waves.

Assessment Strategies

- 5.1. through completion of homework.
- 5.2. through completion of quizzes/exams.
- 5.3. through completion of lab activities.

Criteria

Your performance will be successful when:

- 5.1. you describe the production, propagation, and perception of sound waves.
- 5.2. you include correct units of measure in your answer.
- 5.3. you can manipulate the equation(s) to solve for the unknown.
- 5.4. you can substitute values and complete the calculation.

6. Solve problems involving electricity and magnetism.

Assessment Strategies

- 6.1. through completion of homework.
- 6.2. through completion of quizzes/exams.
- 6.3. through completion of lab activities.

Criteria

Your performance will be successful when:

- 6.1. you describe the concepts of the electric field and electric force.
- 6.2. you describe the concepts of simple electric circuits.
- 6.3. you describe the concepts of the magnetic field and magnetic force.
- 6.4. you describe the concepts of electromagnetism and electromagnetic waves.
- 6.5. you include correct units of measure in your answer.
- 6.6. you can manipulate the equation(s) to solve for the unknown.
- 6.7. you can substitute values and complete the calculation.

7. Solve problems involving reflection and refraction.

Assessment Strategies

- 7.1. through completion of homework.
- 7.2. through completion of quizzes/exams.
- 7.3. through completion of lab activities.

Criteria

Your performance will be successful when:

- 7.1. you describe the properties of visible light.
- 7.2. you describe the concepts of image formation with lenses and mirrors.
- 7.3. you describe the operation of the human eye.
- 7.4. you include correct units of measure in your answer.
- 7.5. you can manipulate the equation(s) to solve for the unknown.
- 7.6. you can substitute values and complete the calculation.

8. Solve problems involving mirrors and lenses.

Assessment Strategies

- 8.1. through completion of homework.
- 8.2. through completion of quizzes/exams.
- 8.3. through completion of lab activities.

Criteria

Your performance will be successful when:

- 8.1. you describe the properties of visible light.
- 8.2. you describe the concepts of image formation with lenses and mirrors.
- 8.3. you describe the operation of the human eye.
- 8.4. you include correct units of measure in your answer.
- 8.5. you can manipulate the equation(s) to solve for the unknown.
- 8.6. you can substitute values and complete the calculation.