Wisconsin Indianhead Technical College

31806352 Applied Physical Science

Course Outcome Summary

Course Information

Description	Course contains a variety of applied physical science principles including light, color, chemistry, material properties, and direct current electricity. These principles will be applied to applications within the trades.
Instructional Level	One-Year Technical Diploma
Total Credits	2.00
Total Hours	48.00

Types of Instruction

Instruction Type	Credits/Hours
Classroom Presentation (Lecture/Demonstration/Discussion)	1/32
On Campus Lab and/or Shop Experience	1/16

Course Competencies

1 Apply the principles of light and color to solution of color matching problems

Assessment Strategies

in the classroom
in a laboratory setting
upon completion of written exercises

Criteria

Criteria - Performance will be satisfactory when:

learner names the spectral colors
learner describes additive color theory
learner describes subtractive color theory
learner describes the relationship between additive and subtractive color theory
learner describes three-dimensional color theory
learner utilizes color theory and industry vocabulary to describe color differences

Learning Objectives

Name the colors of the visible spectrum
Observe the spectra of white light sources and describe the effects of these spectra on colors
Observe a demonstration on additive colors
Name the additive primary colors and their complements
Describe the additive color mixing theory
Observe a demonstration on subtractive colors
Name the subtractive primary colors and their complements

Describe the subtractive color mixing process
Describe the relationship between the additive and subtractive colors
Develop a simplified one-dimensional model of color mixing
Describe the three dimensions of color
Analyze color differences on the basis of three dimensions

2 Apply principles of chemistry to products and techniques encountered in the auto collision trade

Assessment Strategies

in the classroom
in a laboratory setting
upon completion of written exercises

Criteria

Criteria - Performance will be satisfactory when:

learner identifies common elements and atomic symbols
learner describes atomic structure
learner identifies and describes paint ingredients
learner differentiates between thermoplastic and thermoset plastics
learner identifies plastics and their applications
learner describes repair techniques used for plastics

Learning Objectives

Identify common chemical elements and symbols
Describe the general structure of the atom
Discover physical differences between paint pigments
Describe the distinguishing characteristics of thermosets and thermoplastics
Identify plastics used in a variety of applications
Use a sanding test to distinguish between the two types of adhesive repairs

3 Apply principles of electricity to solution of auto body electrical problems

Assessment Strategies

in the classroom
in a laboratory setting
upon completion of written exercises

Criteria

Criteria - Performance will be satisfactory when:

learner accurately uses vocabulary
learner applies principles of electricity

Learning Objectives

Define the four basic electrical terms
Use the four basic electrical terms in context
Measure resistance using a multimeter
Perform continuity tests using a multimeter
Measure voltage and current using a multimeter
Predict circuit voltages using proper formulas
Apply the concepts of series and parallel electrical circuits
Use circuit symbols to represent functions of circuit components
Construct circuits using circuit principles and symbols
Trace an automotive electrical wiring diagram