Wisconsin Indianhead Technical College

32804364 Math 364

Course Outcome Summary

Course Information

Description	This technical diploma course is a continuation of Math 355. Topics covered include the basic geometry of plane and solid figures, right-triangle trigonometry, oblique-triangle trigonometry, and applications of these topics to trade and industry programs.
Instructional Level	Two-Year Technical Diploma
Total Credits	2.00
Total Hours	64.00

Types of Instruction

Instruction Type	Credits/Hours
Classroom Presentation (Lecture/Demonstration/Discussion)	2/64

Pre/Corequisites

Prerequisite   32804355 Math 355

Course Competencies

1   Solve problems involving ratios and proportions

Assessment Strategies
in the classroom
individually and in group work
in daily written assignments and recitation sessions
in periodic written quizzes and a comprehensive written test
using appropriate tools for learning such as the calculator, computer, manuals, texts, and other library and community resources

Criteria

Criteria - Performance will be satisfactory when:

learner completes problem assignments in agreement with solution key
learner solves and presents solutions to problems within standards developed by peers
learner completes quizzes and comprehensive test within course standards

Learning Objectives
Write comparisons as ratios
Express ratios in lowest terms
Solve for the unknown term of a proportion
Substitute given numerical values for symbols in a proportion and solve for the unknown term

Apply skills to related technical problems

2 Measure angles and perform calculations with angular measurements

Assessment Strategies
in the classroom
individually and in group work
in daily written assignments and recitation sessions
in periodic written quizzes and a comprehensive written test
using appropriate tools for learning such as the calculator, computer, manuals, texts, and other library and community resources

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Learning Objectives
Perform arithmetic operations on angles using degrees, minutes, and seconds
Convert between decimal degrees and degrees, minutes, and seconds
Measure and lay out angles with a simple protractor
Read settings on a vernier-bevel protractor
Compute complements and supplements of angles
Apply skills to related technical problems

3 Identify relationships between lines and angles

Assessment Strategies
in the classroom
individually and in group work
in daily written assignments and recitation sessions
in periodic written quizzes and a comprehensive written test
using appropriate tools for learning such as the calculator, computer, manuals, texts, and other library and community resources

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Learning Objectives
Identify different classifications of angles
Apply principles of vertical, alternate interior, corresponding, parallel, and perpendicular angles to determine unknown angles
Apply skills to related technical problems

4 Determine missing elements of triangles using definitions and geometric principles

Assessment Strategies
in the classroom
individually and in group work
in daily written assignments and recitation sessions
in periodic written quizzes and a comprehensive written test
using appropriate tools for learning such as the calculator, computer, manuals, texts, and other library and community resources

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learner completes quizzes and comprehensive test within course standards

Learning Objectives
Identify different types of triangles
Apply the sum of the three angles of a triangle to determine unknown angles of triangles
Identify corresponding parts of triangles
Apply skills to related technical problems

5   Determine missing elements of polygons using geometric principles

Assessment Strategies
in the classroom
individually and in group work
in daily written assignments and recitation sessions
in periodic written quizzes and a comprehensive written test
using appropriate tools for learning such as the calculator, computer, manuals, texts, and other library and community resources

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Learning Objectives
Identify similar triangles and compute unknown sides and angles
Compute angles and sides of isosceles, equilateral, and right triangles
Determine interior angles of any polygon
Apply skills to related technical problems

6   Calculate missing dimensions as related to the geometry of the circle

Assessment Strategies
in the classroom
individually and in group work
in daily written assignments and recitation sessions
in periodic written quizzes and a comprehensive written test
using appropriate tools for learning such as the calculator, computer, manuals, texts, and other library and community resources

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Learning Objectives
Identify parts of a circle
Solve problems by using geometric principles involving chords, arcs, central angles, perpendiculars, and tangents
Solve problems using geometric principles involving angles inside, on, and outside a circle
Solve problems which involve internally and externally tangent circles
Apply mathematics skills to related technical problems

7   Develop basic principles of trigonometry

Assessment Strategies
in the classroom
individually and in group work
in daily written assignments and recitation sessions
in periodic written quizzes and a comprehensive written test
using appropriate tools for learning such as the calculator, computer, manuals, texts, and other library and community resources

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Learning Objectives
Identify the sides of a right triangle referenced to any angle
State the six trigonometric ratios referenced to either acute angle of a right triangle
Determine the functions of angles in decimal degrees or degrees, minutes, and seconds
Find angles in decimal degrees or degrees, minutes, and seconds using the inverse trigonometric functions
Apply mathematics skills to related technical problems

8   Calculate sides and angles of right triangles

Assessment Strategies
in the classroom
individually and in group work
in daily written assignments and recitation sessions
in periodic written quizzes and a comprehensive written test
using appropriate tools for learning such as the calculator, computer, manuals, texts, and other library and community resources

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Learning Objectives
Compute an unknown angle of a right triangle given two sides
Compute an unknown side of a right triangle given an acute angle and a side
Solve right-triangle trigonometry problems requiring the projections of auxiliary lines and geometric principles
Solve complex right-triangle trigonometry problems requiring two or more right triangles and the projection of auxiliary lines
Apply mathematics skills to related technical problems

9   Calculate sides and angles of oblique triangles

Assessment Strategies
in the classroom
individually and in group work
in daily written assignments and recitation sessions
in periodic written quizzes and a comprehensive written test
using appropriate tools for learning such as the calculator, computer, manuals, texts, and other library and community resources

Criteria

Criteria - Performance will be satisfactory when:

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learner completes quizzes and comprehensive test within course standards

Learning Objectives
Solve oblique-triangle problems using the law of sines and law of cosines
Apply mathematics skills to related technical problems