MATH 20-2, Mathematics 20-2

5 credits, 6 hours lecture

Course Description

Topics covered include right angle trigonometry**;** applications involving rates and ratios (scale relationships of 2D and 3D shapes); manipulation and application of formulas; apply the power laws on integral and rational exponents**;** evaluate absolute vales; perform all operations (addition, subtraction, multiplication, division) on radicals; solve radical equations; graph and apply quadratic functions; solve quadratic equations; spatial reasoning. Extensions to the material may include a Business Prep module involving the interpretation and analysis of statistical data and the utilization of inductive and deductive reasoning to prove conjectures and a Trades prep module for further exploration of 3D objects (model, draw, describe scale diagrams, etc.) and the creation and interpretation of circle and line graphs.

Alberta Education Course Equivalency: MATH 20-2

Pre and Co-requisites

Prerequisite: MATH 10, MATH 13, MATH 10-C, or permission from the Program Chair

Course Learning Outcomes (CLOs)

Upon successful completion of the course, the student shall be able to:

Topic: Properties of Angles and Triangles

- CLO1: Derive proofs that involve the properties of angles and triangles.
- CLO2: Solve problems that involve properties of angles and triangles.

Topic: Acute Triangle Geometry

- CLO3: Solve problems that involve the cosine law and the sine law, (excluding ambiguous case).
- CLO4: Analyze and prove conjectures.

Topic: Radicals

- CLO5: Solve problems that involve operations on radicals and radical expressions with numerical CLO6: and variable radicands (limited to square roots).
- CLO7: Solve problems that involve radical equations (limited to square roots or cube roots).

Topic: Statistical Reasoning

- CLO10: Demonstrate an understanding of measures of central tendency including:
    - CLO10A: Mean
    - CLO10B: Mode
    - CLO10C: Median

- CLO11: Demonstrate an understanding of measures of dispersion including:
  - CLO11A: Range
  - CLO11B: Standard deviation
- CLO12: Demonstrate an understanding of normal distribution curves by
  - CLO12A: Graphing data
  - CLO12B: Making reasonable estimates about data that estimates a normally distributed curve

Topic: Quadratic Functions

- CLO8: Demonstrate an understanding of the characteristics of quadratic functions, including
  - CLO8A: vertex
  - CLO8B: intercepts
  - CLO8C: domain and range
  - CLO8D: axis of symmetry
- CLO9: Solve problems that involve quadratic equations.

Topic: Proportional Reasoning

- CLO13: Solve problems that involve the application of rates.
- CLO14: Solve problems that involve scale diagrams using proportional reasoning.
- CLO15: Demonstrate an understanding of the relationships among scale factors, areas, surface areas and volumes of similar 2-D shapes and 3-D objects.

Evaluation

Assessment Type	Percentage
Daily Textbook Work (In class assignments)	5%
Assignments	20%
Quizzes	15%
Exams	30%
Final Exam	30%

Course Completion Requirements

Minimum passing mark of 50% or D is required.

Grading Scale

4.0 Grade Scale	Alpha Grade	Percentage Grade
4.0	A+	93-100
4.0	A	85-92.9
3.7	A-	80-84.9
3.3	B+	77-79.9
3.0	B	74-76.9
2.7	B-	70-73.9
2.3	C+	67-69.9
2.0	C	64-66.9
1.7	C-	60-63.9
1.3	D+	55-59.9
1.0	*D	50-54.9
0.0	F	0-49.9

Land Acknowledgement

We respectfully acknowledge that Keyano College is on Treaty No. 8 Territory, the ancestral and traditional territory of the Cree, Dene, and Métis people.

Review Date: November 26, 2024

Every effort has been made to ensure that information in this course outline is accurate at the time of publication. Keyano College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.

Keyano College reserves the right to modify the syllabus, curriculum, or schedule of any course/program, or to cancel a course/program entirely, at any time and for any reason. Such changes may be necessary due to unforeseen circumstances, regulatory requirements, or to ensure the highest quality of education.

Students will be notified of any significant changes as soon as possible. Keyano College is not responsible for any inconvenience or disruption caused by these changes. It is the responsibility of the students to stay informed about any updates or modifications to their courses.