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Course Outline for MATH 52B

TECHNICAL INTERMEDIATE ALGEBRA FOR AUTOMOTIVE TECHNOLOGY B

Effective: Fall 2018

I. CATALOG DESCRIPTION:
MATH 52B — TECHNICAL INTERMEDIATE ALGEBRA FOR AUTOMOTIVE TECHNOLOGY B — 1.50 units

This course provides a survey of algebraic and geometric processes with an emphasis on applications in the automotive trades. Topics covered include, but are not limited to: plane geometry; linear regression, financial mathematics, and measures of central tendency. This course is not intended as a prerequisite for any transfer level course.

1.50 Units Lecture

Prerequisite
MATH 52A - Technical Intermediate Algebra for Automotive Technology A

Grading Methods:
Letter or P/NP

Discipline:
- Mathematics

	MIN
Lecture Hours:	27.00
Expected Outside of Class Hours:	54.00
Total Hours:	81.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering the course a student should be able to:

A. MATH52A
1. Evaluate and simplify formulas and algebraic expressions;
2. Perform operations with algebraic expressions;
3. Simplify expressions with exponents;
4. Solve literal equations;
5. Apply principles of scientific notation;
6. Solve quadratic equations;
7. Use function notation appropriately;
8. Solve applied problems utilizing linear, quadratic or exponential functions.

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. Apply principles of plane geometry to solve problems involving angles, areas, and perimeter;
B. Apply principles of solid geometry to solve problems involving volume and surface area;
C. Use technology to construct a linear regression model;
D. Use a linear regression model to predict and interpret in context the results of applying linear regression;
E. Solve financial math problems by applying appropriate formulas and interpret the results;
F. Construct and interpret data graphs;
G. Calculate and interpret measures of central tendency.

V. CONTENT:
A. Plane Geometry
1. Angles
a. Classification
b. Measurement
c. Angle relationships related to intersecting or parallel lines
d. Angles in a triangle
2. Regular and irregular polygons
a. Area
b. Perimeter

3. Circles
    a. Area
    b. Circumference
4. Technical applications

B. Solid Geometry
1. Prisms
    a. Surface Area
    b. Volume
2. Cylinders
    a. Surface Area
    b. Volume
3. Technical Applications

C. Quantitative Reasoning
1. Linear Regression
    a. Exact and Approximate linear models
    b. Using technology to find a linear regression model
    c. Predicting and interpreting with linear regression models
    d. Percent of change
    e. Technical applications
2. Financial Math
    a. Simple and compound interest
    b. Continuous compound interest
    c. Amortization
3. Introduction to Statistical concepts
    a. Reading and constructing data graphs
    b. Measures of central tendency
    c. technical applications

VI. METHODS OF INSTRUCTION:

A. **Classroom Activity** - Collaborative learning activities
B. **Audio-visual Activity** - web-based and/or videos embedded in an e-text
C. Homework
D. Assigned reading with questions to be answered in writing.
E. **Lecture** -

VII. TYPICAL ASSIGNMENTS:

A. Homework
1. Problems from the text should be assigned for each section covered. The number of problems assigned may vary from section to section and from instructor to instructor, but the homework assignments should include a sufficient number and variety of problems to develop both skill and conceptual understanding. A typical assignment should take an average student 1 to 2 hours for each hour in class.
2. The majority of the problems assigned should be those for which answers are readily available so that students may obtain immediate feedback on their work.
3. Homework assignments may include reading the text or viewing tutorial videos. An instructor may require written work in conjunction with such assignments (e.g., have students complete a Q & A sheet related to the assigned reading or tutorial).

B. In-Class Activity
1. Collaborative learning, done in small groups of 2-4 students, can be used to introduce new concepts, build skills, or teach problem solving.
2. Sample collaborative learning assignment: Stopping distance data is examined and a linear regression model developed based on the data. The model is used to predict stopping distances and the results are compared to the actual data by calculating the percent of change.

VIII. EVALUATION:

A. **Methods**

1. Exams/Tests
2. Quizzes
3. Home Work

B. **Frequency**

1. Recommend a minimum of two exams plus the final exam
2. Homework should be assigned for each section covered
3. The number of quizzes and collaborative activities are at the discretion of the instructor

IX. TYPICAL TEXTS:

1. Carman, Robert, and Hal Saunders. *Mathematics for the Trades.* 10th ed., Pearson Higher Education, Inc., 2015.
2. Ewan, Dale. *Elementary Technical Mathematics.* 12th ed., Cengage, 2019.
3. Peterson, John, and Robert Smith. *Introductory Technical Mathematics.* 7th ed., Cengage, 2019.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. Scientific Calculator