SINCLAIR COMMUNITY COLLEGE
DAYTON, OHIO

DEPARTMENT SYLLABUS FOR COURSE IN
MAT 1110 – MATH FOR TECHNOLOGISTS
(3 SEMESTER HOURS)

1. COURSE DESCRIPTION: Compute with fractions, decimals, percentages and proportions to solve applications in technology, geometry; convert within and between metric and English systems of measurement; read and interpret measurement tools and gauges; simplify algebraic expressions, solve linear equations and graph linear equations.

2. COURSE OBJECTIVES: To increase the student's mathematical skills and to develop an understanding essential for the student who is planning to study automotive technology.

3. PREREQUISITE: Grade of "C" or better in DEV 0024 or sufficient score on Sinclair Community College Mathematics Placement Test.

4. ASSESSMENT: In addition to required exams as specified in the syllabus, instructors are encouraged to include other components in computing final course grades such as homework, quizzes and/or special projects. However, 80% of the student's course grade must be based on in-class proctored exams.

5. TEXT: **Mathematics for the Trades**, Tenth Edition
Robert A. Carmen and Hal M. Saunders
Pearson/Prentice Hall; 2015

MyMathLab is a required component of this course.

6. CALCULATOR: A four function calculator is required.

7. PREPARED BY: David Ericson
Effective: Fall Semester 2014

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CLASS SCHEDULE FOR COURSE IN
MAT 1110 – MATH FOR TECHNOLOGIST
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CLASSES MEETING TWO TIMES A WEEK – 16 WEEKS

Lecture	Sections	Topics
1	2.1, 2.2, 2.3, 2.4	Working with Fractions; Multiplication of Fractions; Division of Fractions; Addition and Subtraction of Fractions
2	3.1, 3.2, 3.3	Addition and Subtractions of Decimal Numbers; Multiplication and Division of Decimal Numbers; Decimal Fractions
3	4.1	Ratio and Proportions
4	4.2	Special Applications of Ratio and Proportions
5	4.3, 4.4	Introduction to Percent; Percent Problems
6	4.5	Special Applications of Percent Calculations
7	5.1, 5.2	Working with Measurement Numbers; U.S. Customary Units and Unit Conversion
8	5.3, 5.4	Metric Units; Direct Measurements
9		Holiday/Catch up
10		REVIEW; **TEST #1 (CH. 2, 3, 4, 5)**
11	6.1, 6.2, 6.3, 6.4	Addition of Signed Numbers; Subtraction of Signed Numbers; Multiplication and Division of Signed Numbers; Exponents and Square Roots
12	7.1, 7.2	Algebraic Language and Formulas; Adding and Subtracting Algebraic Expressions
13	7.3, 7.4	Solving Simple Equations; Solving Two-Step Equations
14	7.5	Solving More Equations and Solving Formulas
15	7.6	Solving Word Problems
16	Supp.	Rectangular Coordinate System; Graphing Lines and Functions
17	Supp.	Rectangular Coordinate System; Graphing Lines and Functions
18	12.1, 12.2	Reading and Constructing Graphs; Measures of Central Tendency
19		Holiday/Catch up
20		REVIEW **TEST #2 (CH. 6, 7, Supplement, 12)**
21	8.1, 8.2	Angle Measurement; Perimeter of Polygons and Area of Quadrilaterals
22	8.3, 8.4	Triangles, Regular Hexagons, and Irregular Polygons; Circles
23	9.1, 9.2	Prisms; Pyramids and Frustums of Pyramids

MAT 1110- MATH FOR TECHNOLOGIST
TWO TIMES A WEEK – 16 WEEKS SECTIONS CLASS SCHEDULE (*continued)*

Lecture	Sections	Topics
24	9.3, 9.4	Cylinders and Spheres; Cones and Frustums of Cones
25	10.1	Angles and Triangles
26	10.2	Trigonometric Ratios
27	10.3	Solving Right Triangles
28	10.4	Oblique Triangles
29		Holiday/Catch up
30		REVIEW **TEST # 3 (CH. 8, 9, 10)**
31		Review for Final
32		**FINAL**

TO THE INSTRUCTOR

To ensure consistency, at some minimum level, regarding which formulas students are required to learn in each of its courses, the Mathematics Department has developed the attached list for this course.

COURSE FORMULAS are those that students are required to learn (and required to demonstrate that they have learned) as the formulas are presented in the course. Requiring students to learn more than those listed is the instructor's option.

Please note that only formulas are listed. Students are also expected to learn definitions, theorems and procedures that will allow them to meet course objectives. If you have questions regarding this matter, please contact your course coordinator.

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CLASSES MEETING TWO TIMES A WEEK – 12 WEEKS

Lecture	Sections	Topics
1	2.1, 2.2, 2.3, 2.4, 3.1	Working with Fractions; Multiplication of Fractions; Division of Fractions; Addition and Subtraction of Fractions; Addition and Subtractions of Decimal Numbers
2	3.2, 3.3, 4.1	Multiplication and Division of Decimal Numbers; Decimal Fractions; Ratio and Proportions
3	4.2, 4.3	Special Applications of Ratio and Proportions; Introduction to Percent
4	4.4, 4.5	Percent Problems; Special Applications of Percent Calculations
5	5.1, 5.2	Working with Measurement Numbers; U.S. Customary Units and Unit Conversion
6	5.3, 5.4	Metric Units; Direct Measurements
7		REVIEW; **TEST #1 (CH. 2, 3, 4, 5)**
8	6.1, 6.2, 6.3, 6.4	Addition of Signed Numbers; Subtraction of Signed Numbers; Multiplication and Division of Signed Numbers; Exponents and Square Roots
9	7.1, 7.2	Algebraic Language and Formulas; Adding and Subtracting Algebraic Expressions
10	7.3, 7.4	Solving Simple Equations; Solving Two-Step Equations
11	7.5	Solving More Equations and Solving Formulas
12	7.6	Solving Word Problems;
13	Supp.	Rectangular Coordinate System; Graphing Lines and Functions
14	12.1, 12.2	Reading and Constructing Graphs; Measures of Central Tendency
15		REVIEW; **TEST #2 (CH. 6, 7, Supplement, 12)**
16	8.1, 8.2, 8.3	Angle Measurement; Perimeter of Polygons and Area of Quadrilaterals; Triangles, Regular Hexagons, and Irregular Polygons
17	8.4, 9.1, 9.2	Circles; Prisms; Pyramids and Frustums of Pyramids
18	9.3, 9.4	Cylinders and Spheres; Cones and Frustums of Cones
19	10.1, 10.2	Angles and Triangles; Trigonometric Ratios
20	10.3	Solving Right Triangles
21	10.4	Oblique Triangles
22		REVIEW; **TEST # 3 (CH. 8, 9, 10)**
23		REVIEW
24		**FINAL**

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CLASSES MEETING TWO TIMES A WEEK – 8 WEEKS

Lecture	Sections	Topics
1	2.1, 2.2, 2.3, 2.4, 3.1, 3.2	Working with Fractions; Multiplication of Fractions; Division of Fractions; Addition and Subtraction of Fractions; Addition and Subtractions of Decimal Numbers; Multiplication and Division of Decimal Numbers
2	3.3, 4.1, 4.2	Decimal Fractions; Ratio and Proportions; Special Applications of Ratio and Proportions
3	4.3, 4.4, 4.5	Introduction to Percent; Percent Problems; Special Applications of Percent Calculations
4	5.1, 5.2, 5.3, 5.4	Working with Measurement Numbers; U.S. Customary Units and Unit Conversion; Metric Units; Direct Measurements
5		REVIEW; **TEST #1 (CH. 2, 3, 4, 5)**
6	6.1, 6.2, 6.3, 6.4, 7.1, 7.2	Addition of Signed Numbers; Subtraction of Signed Numbers; Multiplication and Division of Signed Numbers; Exponents and Square Roots; Algebraic Language and Formulas; Adding and Subtracting Algebraic Expressions
7	7.3, 7.4, 7.5	Solving Simple Equations; Solving Two-Step Equations; Solving More Equations and Solving Formulas
8	7.6, Supp.	Solving Word Problems; Rectangular Coordinate System; Graphing Lines and Functions
9	Supp., 12.1, 12.2	Rectangular Coordinate System; Graphing Lines and Functions; Reading and Constructing Graphs; Measures of Central Tendency
10		REVIEW; **TEST #2 (CH. 6, 7, Supplement, 12)**
11	8.1, 8.2, 8.3, 8.4	Angle Measurement; Perimeter of Polygons and Area of Quadrilaterals; Triangles, Regular Hexagons, and Irregular Polygons; Circles
12	9.1, 9.2, 9.3, 9.4	Prisms; Pyramids and Frustums of Pyramids; Cylinders and Spheres; Cones and Frustums of Cones
13	10.1, 10.2	Angles and Triangles; Trigonometric Ratios
14	10.3, 10.4	Solving Right Triangles; Oblique Triangles
15		REVIEW; **TEST # 3 (CH. 8, 9, 10)**
16		REVIEW; **FINAL**

MATH 1110 COURSE FORMULAS

CHAPTER 4

Compression Ratio

$$Compression\ ratio = \frac{\text{expanded volume}}{\text{compressed volume}}$$

The Cross-Product Rule

If $\frac{a}{b} = \frac{c}{d}$ then $a \cdot d = b \cdot c$

Direct Proportion

Increase $\rightarrow$ increase
or decrease $\rightarrow$ decrease

Inverse Proportion

increase $\rightarrow$ decrease
or decrease $\rightarrow$ increase

Percent Proportion

$$\frac{\text{Part}}{\text{Base}} = \frac{\text{Rate}}{100}$$

RECTANGULAR COORDINATE SYSTEM

Slope of a Line

$$m = \frac{y_1 - y_2}{x_1 - x_2}$$

Slope-Intercept Form

$y = mx + b$

CHAPTER 8

Sum of the Interior Angles of a Triangle

$$\angle A + \angle B + \angle C = 180^0$$

Perimeter and Area of a Rectangle

$P = 2l + 2w$ $A = lw$

Perimeter, Area, and Side of a Square

$P = 4s$ $A = s^2$ $s = \sqrt{A}$

Perimeter and Area of a Triangle

$P = a + b + c$ $A = \frac{1}{2}bh$

Circumference and Area of a Circle

$C = 2\pi r$ or $C = \pi d$ $A = \pi r^2$

Pythagorean Theorem

$c = \sqrt{a^2 + b^2}$

CHAPTER 9

Volume of Rectangular Prism and Cylinder

$V = lwh$ $V = \pi r^2 h$

CHAPTER 10

Trigonometric Ratios

$\sin A = \frac{opposite\ side}{hypotenuse}$ $\cos A = \frac{adjacent\ side}{hypotenuse}$ $\tan A = \frac{opposite\ side}{adjacent\ side}$

CHAPTER 12

$$\text{Mean} = \frac{\text{sum of the data values}}{\text{the number of data values}}$$