



MASTER COURSE OUTLINE

Prepared By: Dick Wynder

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COURSE TITLE

Applied Mathematics (AUT/WLD)

GENERAL COURSE INFORMATION

Dept.: MAP

Course Num: 101

(Formerly:)

CIP Code: 27.9998

Intent Code: 21

Program Code: 892

Credits: 5

Total Contact Hrs Per Qtr.: 55

Lecture Hrs: 55

Lab Hrs:

Other Hrs:

Distribution Designation: General Elective (GE)

COURSE DESCRIPTION (as it will appear in the catalog)

This class provides review and instruction in whole numbers, decimals, fractions, measurement, ratio, proportion, percent, introduction to algebra, and introduction to geometry. This basic instruction and review is followed by vocational program specific mathematics instruction. Students will study mathematics for welding or automotive repair. The emphasis is on providing practice in related job specific skills.

PREREQUISITES

MATH 080 or placement into MATH 094 or above

TEXTBOOK GUIDELINES

Math for Welders, Nino Marion, The Goodheart-Williams Company, Inc. 5th Edition, 2013.

Math for the Automotive Trade, Peterson/deKryger, Delmar Publishing, 5th Edition, 2012.

Teacher generated handouts and worksheets will be used extensively

COURSE LEARNING OUTCOMES

Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills.

1. Perform normal arithmetic functions – add, subtract, multiply and divide
2. Find perimeters, surfaces and volumes
3. Work successfully with decimals
4. Perform mathematical operations with fractions
5. Convert fractions to decimals and decimals to fractions
6. Use formulas to solve percentage problems
7. Use formulas to solve ratio and proportion problems
8. Solve basic algebraic equations
9. Solve standard word problems
10. Use triangular formulas to solve basic triangular problems
11. Solve simple mathematical problems using formulas
12. Use conversion formulas to convert to and from the metric system
13. Use formulas to solve problems related to specific automotive or welding tasks.

INSTITUTIONAL OUTCOMES

- IO2 **Quantitative Reasoning:** Students will be able to reason mathematically using methods appropriate to the profession
- IO3 **Human Relations/Workplace Skills:** Students will be able to demonstrate teamwork, ethics, appropriate safety awareness and/or workplace specific skills

COURSE CONTENT OUTLINE

Whole Numbers

- Determining place value
- Comparing and ordering numbers using equality symbols
- Adding, subtracting, multiplying and dividing
- Rounding numbers
- Finding patterns in number series
- Estimating answers
- Problem solving

Decimals

- Determining place value
- Adding, subtracting, multiplying and dividing
- Comparing and ordering
- Rounding
- Exponents
- Prime factorization
- Scientific notation

Fractions

- Comparing and ordering
- Adding, subtracting, multiplying and dividing
- Finding equivalent fractions
- Using cancellation
- Greatest common factor (GCF)
- Least common multiple (LCM)

Measurement

- Customary units
- Metric units
- Converting from customary into metric and metric into customary
- Converting from one unit of measure into another

Ratio and Proportion and Percentage

- Probability, range, median and mode
- Way to show ratio and proportion
- Proportion formula
- Using the proportion formula to solve a variety of problems
- Using formulas to convert to and from percentages
- Using Percentages to solve problems

Algebra

- Order of operations
- Solving equations
- Formulas

Geometry

- Lines and angles
- Geometric figures
- Formulas
- Pythagorean theorem
- Perimeter, area, volume and weight

Welding

- Linear Measure
- Angular Measure
- Four-Sided Figure Measure
- Triangular Measure
- Circular Measure
- Volume Measure
- Weight Measure
- Bending Metal Processing and Calculations
- Metric System and Measurements

Automotive

- Automotive Engine Calculations and Formulas
- Automotive Engine Control Systems Calculations and Formulas
- Automotive Electrical System Calculations and Formulas
- Automotive Drive Train Calculations and Formulas
- Automotive Heating and Air Conditioning Calculations and Formulas
- Geometry, Angle Measurements
- Metric System and Measurements
- Measuring Tool Reading
- Repair Orders calculations

DEPARTMENTAL GUIDELINES *(optional)*

DIVISION CHAIR APPROVAL

DATE