MEASUREMENTS, DRAWINGS & SPECIFICATIONS
Course Syllabus

Course Number: ARCO-0659  
OHLAP Credit: No
OCAS Code: None  
Course Length: 30 Hours
Career Cluster: Architecture & Construction  
Career Pathway: Construction  
Career Major(s): Masonry

Pre-requisite(s):  
Course Description: This course is an introduction to related math skills used to calculate distances, areas, and volumes that are common to the masonry trade. It also addresses basic blueprint reading as it pertains to masonry work.

Textbooks:  
Brick and Block Masonry by Curriculum and Instructional Materials Center, Oklahoma Department of Career Tech (1999)

Fundamentals of Bricklaying by Curriculum and Instructional Materials Center, Oklahoma Department of Career Tech (1999)


Course Objectives:  
A. Demonstrate Construction Math.
   1. Add, subtract, multiply, and divide whole numbers, with and without a calculator.2
   2. Use a standard ruler and a metric ruler to measure.2
   3. Add, subtract, multiply, and divide fractions.2
   4. Add, subtract, multiply, and divide decimals, with and without a calculator.2
   5. Convert decimals to percentages and percentages to decimals.2
   6. Convert fractions to decimals and decimals to fractions.2
   7. Explain what the metric system is and how it is important in the construction trade.2
   8. Recognize and use metric units of length, weight, volume, and temperature.2
   9. Recognize some of the basic shapes used in the construction industry, and apply basic geometry to measure them.2

B. Work with Numbers Involved in the Masonry Trade.1
   1. Work with denominate numbers.2
   2. Read a mason's measure.1 2
   3. Convert measurements in the U.S. Customary (English) system into their metric equivalents.2
   4. Recognize, identify, and calculate areas, circumferences, and volumes of basic geometric shapes.1 2
MEASUREMENTS, DRAWINGS & SPECIFICATIONS

C. Make Accurate Measurements. 1
1. Identify measuring instruments. 1
   a. Tape measure
   b. Folding rule
   c. Framing square
   d. Plumb bob and level
   e. Speed square
2. Read measuring instruments. 1
   a. Tape measure
   b. Folding rule
   c. Framing square
   d. Plumb bob and level
   e. Speed square
3. Identify the appropriate units for a measurement task. 1
4. Identify the appropriate formula for a measurement task. 1
5. Communicate measurements using proper symbols or words. 1
6. Use formulas to determine perimeter, circumference, area, volume, and surface area. 1
7. Use appropriate measuring instruments to measure distances.
8. Use distances (length, width, height, diameter, etc.) to solve problems. 1
9. Use appropriate measuring instruments to determine angles and slopes. 1
10. Draw and construct angles and radius. 1
11. Identify and construct 30-60-90 and 45-45-90 triangles. 1
12. Use methods to determine right angles and squareness. 1
    a. 6-8-10
    b. Diagonal method
13. Use a plumb bob or level to determine if an object or structure is plumb and level. 1

D. Read and Interpret Blueprints. 1
1. Recognize and identify basic blueprint terms, components, and symbols. 1
2. Relate information on blueprints to actual locations on the print. 1
3. Recognize different classifications of drawings. 1
4. Interpret and use drawing dimensions. 1
5. Identify the basic parts of a set of drawings. 1 2
6. Discuss the different types of specifications used in the building industry and the sections that pertain to masonry. 2

1 ODCTE objective
2 NCCER objective

Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.

Grading Procedures: 1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.
Description of Classroom, Laboratories, and Equipment:

Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit

The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility:

The student must maintain a grade point average of 2.0 or better.