



MATH FOR WELDERS — MATS 1000

A. Course Description

- **Credits:** 3.00
- **Lecture Hours/Week:** 3.00
- **Lab Hours/Week:** 0.00
- **OJT Hours/Week:** 0
- **Prerequisites:** None
- **Corequisites:** None
- **MnTC Goals:** None

A course for students enrolling in the Welding program. Topics include operations with whole numbers, fractions, decimals and percents; metric system and unit conversions; perimeter, area and volume of regular and composite shapes; angular measurements; bends, stretchouts, economical layout and takeoffs. Prerequisites: None. This course DOES NOT meet any requirements of the Transfer Curriculum: it does not meet the general education requirements for A.A.S. degree students and is not a substitute for general electives.

B. Course Effective Dates: 8/27/12 – Present

C. Outline of Major Content Areas

1. Applications for Geometric Calculations
2. Applications of Percents, Proportions and Ratios
3. Applied arithmetic with Whole Numbers, Fractions and Decimals
4. Math Applications in Metal Working
5. Measurement of Systems and Tools

D. Learning Outcomes

1. Apply dimensional tolerances
2. Calculate bends and stretchouts of circular and semicircular shapes
3. Calculate economical layouts of odd-shaped pieces
4. Calculate economical layouts of rectangular plates
5. Calculate inside and outside bends
6. Calculate take-offs in pipe fitting problems
7. Calculate weights of solids
8. Compute volume of cylindrical and complex containers
9. Computer averages

10. Computer perimeter and area of squares, rectangles, triangles, trapezoids
11. Convert among fractions, decimals and percents
12. Convert units within the English system and between the English and metric systems
13. Convert units within the metric system
14. Lay out a bolt circle
15. Measure angles with a protractor
16. Memorize common decimal-fraction conversion
17. Memorize metric prefixes from milli to kilo
18. Perform arithmetic with degrees, minutes, seconds of arc
19. Perform decimal arithmetic
20. Perform fraction arithmetic
21. Perform whole number arithmetic
22. Read a tape measure, caliper and micrometer

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

F. Learner Outcomes Assessment

As noted on course syllabus

G. Special Information

None noted