WELD A120: MATHEMATICS & FABRICATION LAYOUT FOR WELDERS

Item	Value
Curriculum Committee Approval Date	04/12/2023
Top Code	095650 - Welding Technology
Units	4 Total Units
Hours	108 Total Hours (Lecture Hours 54; Lab Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

The study of mathematics to prepare welders for job skills requiring fabrication layout. ADVISORY: TECH A040. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Complete calculations using mathematics.
2. Correctly use measuring tools.
3. Physically lay out a structure utilizing prints or diagrams.

Course Objectives

- 1. Use elementary mathematics to add, subtract, divide and multiply numbers.
- 2. Utilize fractions, decimals.
- 3. Convert fractions to decimals and decimals to fractions.
- 4. Use measuring tools to determine linear measurements.
- 5. Use mathematical equations to determine area.
- 6. Analyze structural prints to evaluate weights and dimensions.
- 7. Physically lay out structures utilizing prints and diagrams.

Lecture Content

Mathematics Elementary number theory Fractions and decimal fractions Algebra operation of algebraic expressions, multiplication and division solving equations. Ration B proportion and variation. Geometry plane figures and measurement, the right angle, circle, geometric solid, prisms, cylinders, pyramids and cones. Log introduction to logarithms. Trigonometry computation by logarithms, trig ratios and tables, the right triangle. Fabrication Tools Measuring Tools Tape measures Micrometer Calipers Squares Levels/Calipers Fixtures/Gigs Specialty Tools Angle Finders Wrap around Contour marker Structural layout Angles I Beams Copes Access holes Splice Joints Pipe Layout Procedures to divide pipe sections 45. - 60.- 90. - Tees – Blank ends Laterals Tube Bending Angles, degrees Set backs

Lab Content

See Course Content.

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Lecture and demonstrations

Reading Assignments

Written examinations.

Writing Assignments

Written examinations.

Out-of-class Assignments

Written examinations.

Demonstration of Critical Thinking

Written and physical tests and exams

Required Writing, Problem Solving, Skills Demonstration

Written examinations.

Textbooks Resources

1. Required Frankland, Thomas W. . The Pipe Fitters and Pipe Welder Handbook, ed. Mission Hills: Glencoe-MacMillan/McGraw-Hill, 2007
2. Required Galvery, William and Frank Marlow. Welding Essentials: Questions and Answers, 2nd ed. New York: Industrial Press, 2007

Other Resources

1. Selected handout materials to be provided and distributed by instructor
2. Orange Coast College welding safety test