

2010-2011

IRONWORKING AND INDUSTRIAL WELDING

THE HIGH SCHOOL PROGRAMS AT FRONT RANGE COMMUNITY COLLEGE

Welcome to Ironworking! This program offers an introduction to the field of ironworking, provides experience in low and high elevation steel structural welding, and prepares students to enter the workforce or enroll in further ironworking training.



Instructor:

- Jason Walsh, 970-204-8621, jason.walsh@frontrange.edu

Web Page: <http://www.frontrange.edu>

(click on Academics, click on Larimer HS Programs)

Lecture-to-Lab Ratio: 10/90

Poudre School District Credit: 27 electives

Thompson School District Credit: 2.7 electives

FRCC College Credits: 12 (optional)

Time Offered: Monday-Friday; 8:00-10:00 a.m.

Eligible Grades: Juniors and Seniors (Seniors strongly recommended)

Mid-year entry: Yes, if space is available

Program Description

This program is designed as an introduction to the field of ironworking and low and high-elevation steel structural welding. The primary curriculum used in the training was developed in partnership with the Steel Erectors Association of America. This is supplemented by the Hobart Curriculum, which is a premier, internationally-known welding curriculum. Student safety is a major part of this course - a "safety-first" philosophy is instilled in every aspect of the curriculum. This program provides the student with a complete understanding of fall-protection set-up and inspection of fall-protection devices/systems; i.e., harness, belts, shock-absorbing lanyards, tie-off adapters, hooks/carabiners, anchoring points, etc. Students will first develop their coordination and physical stamina by participating in the CSU Challenge Course and transition to a "small-scale" steel structure on campus. Strong emphasis is placed on body harnesses and lifeline protection systems. ALL students must pass a variety of safety tests using a low-elevation (2 foot and 6-foot), on-campus structure before moving to any higher-elevation, off-campus structure. Professional workplace and employment skills are taught throughout the year.

Students will gain an understanding for building steel structures; e.g., blueprint symbols and reading, basic applied math used in building construction, plumbing, aligning, bolting up and fastening steel structures, proper slinging of steel beams, proper crane positioning, lifting and slinging techniques and the actual erecting of a steel structure.

IRONWORKING AND INDUSTRIAL WELDING (continued)

Program Description (continued)

Students will practice the latest welding and cutting processes as they apply to building steel structures. They will learn the following welding techniques: 1) Gas Metal Arc Welding (Mig), 2) Oxyacetylene cutting of mild steel with a hand-held torch, and 3) Mild steel cutting with a Lincoln ProCut 80 machine, which will cut up to a 1" plate, and will become proficient in horizontal, vertical, and overhead joint welds. Students will have the opportunity to receive AWS (American Welding Society) certification in structural welding. Emphasis will be placed on the welding of open-web, steel joists and different types of metal decks used in the building of steel structures. This program also teaches resume-writing skills.

Upon successful completion of this program, students may choose to directly enter the ironworking industry or choose from several career-path degree programs at FRCC, leading to an Associate of Applied Science degree in Architectural Technology, Engineering Graphics Technology, Manufacturing Technology, Welding Technology or Drafting and CAD Technology. Other career options may include working in industrial maintenance, metal fabrication, metal building assembly, mobile crane operations, scaffolding and industrial welding.

Professional welding certificates: Students have the opportunity to certify in different welding techniques. The test process currently costs \$250 *per technique* for non-students. However, students in this program are able to take these certification tests free of charge. Students may also retest if they do not pass prior to the end of the school year. Certifications enhance the student's ability to get a job in the welding industry. Each certification typically earns an employee a higher wage as well.

Recommended Academic Prerequisites

Principles of Technology or Applied Physics and Technology, Drafting, Manufacturing I and II, Applied Math. Proficiency in reading, writing and speaking the English language is expected.

Dual Credit (optional)

Students have the opportunity to earn FRCC college credit for WEL 125 (4 credits), WEL 103 (4 credits), WEL 110 (4 credits), and WEL 104 (4 credits) in this program. Students must submit an application packet and meet FRCC assessment requirements prior to the first day of class.



Additional Costs/Commitments

- Students must provide their own transportation to field trips and off-campus activities. Students may have to purchase cold-weather clothing, tool belts/bags, and some personal hand tools.
- Good physical shape is important - standing, climbing, lifting, bending and kneeling are necessary parts of the program.
- *Students must provide proof of health insurance.*