

# Millwrights Course Descriptions

Orientation / Safety & Health Certifications

Welding Fabrication

Printreading

Optics & Optical Tooling

Structural Welding AWS

Turbine Familiarization

Pumps

Conveyor Systems

Pneumatic Systems & Compressors

Machinery Installation & Erection

## **ORIENTATION / SAFETY & HEALTH CERTIFICATIONS** (80 Hours)

Students will identify and learn how to safely use the hand, power and precision tools of the Millwright trade. The value of the OSHA safety standards in regard to work in the shop and the field environments will be incorporated in this training. In addition to these important basics, the fundamental Millwright math and blueprint skills will also be covered in this class.

## **WELDING FABRICATION** (80 Hours)

This course is designed as an introduction to layout and fabrication. The students will be introduced to the basic skills of measuring, torch set-up and cutting, shaping, grinding, welding, filing, heating and bending of metal parts. As well as the safe and proper use of all necessary hand and power tools.

## **PRINTREADING** (80 Hours)

This course introduces the basic principles and conventions associated with mechanical print interpretation. Print characteristics, drawing methods, and standard graphic representations are explained and thoroughly discussed. Students will review plans and apply the visualization techniques presented in the training.

## **OPTICS & OPTICAL TOOLING** (80 Hours)

This course is designed to instruct the students in the identification, selection and basic use of optical instruments. The students' ability to read and interpret blueprints is developed and incorporated into the setting of equipment with optical instruments. An emphasis is placed on rigging equipment, safety and skills used in installation techniques, as the students will participate in the UBC Rigging Qualification course.

## **STRUCTURAL WELDING AWS** (80 Hours)

This course is designed to prepare the student to obtain an AWS structural welding certificate per AWS D1.1 Structural Welding Code, the welding of plates that are 1/8" to unlimited thickness. Students must obtain AWS certification to receive credit for class.

## **TURBINE FAMILIARIZATION** (80 Hours)

Students will learn the installation skills and techniques used in power production industry for various turbines and generators. This course will incorporate blueprint reading skills, rigging tasks and machinery installation and alignment with optical instruments to complete hands on disassembly-assembly of a Frame 5 G.E. Gas Turbine.

**PUMPS** **(80 Hours)**

This class will cover various machinery components found in the Petrol-Chemical Industry. Included will be pumps, valves, gaskets, seals and fans. Metal fabrication and welding techniques will be introduced in this class as a supplemental skill to installation of pumps and other components.

**CONVEYOR SYSTEMS** **(80 Hours)**

This class will cover the proper layout and component alignment of machinery, equipment and conveyor systems. The students will identify proper alignment procedures, perform belt splicing and analyze how improper installation affects the maintenance and lifespan of equipment and conveyor systems.

**PNEUMATIC SYSTEMS & COMPRESSORS** **(80 Hours)**

This course will cover pneumatic systems, air compressors and installation practices. Incorporated into the class will be vibration detection and analysis. Machine shop practices will provide supplemental skills needed in the maintenance of machinery and equipment.

**MACHINERY INSTALLATION & ERECTION** **(80 Hours)**

Machinery installation techniques will include math, tools and procedures needed to perform shop and field layout tasks. The acetylene torch as a cutting tool used in machinery installation will be introduced. This course is designed to challenge the students to use their knowledge of machine technology, math, blueprint, layout, tool knowledge and problem solving skills. Each student will develop a project concept designed to solve a given hypothetical set of criteria. They will have to design, calculate, fabricate, install and demonstrate the project. To be successful, the obstacles must be eliminated and a working proto-type must be presented.