

Introduction to Arc Welding Syllabus

Time: 24 hours

Maximum Class Size: 8

Prerequisites: None

Course Description: Welding is a skill needed by many contractors for fence and guardrail erection, maintenance and repair of construction equipment, and for fabrication of construction materials. This introductory course is the prerequisite for the path to certified welder.

Goals/Objectives/Student Learning Outcomes:

- Identify the correct PPE for welding practices.
- Describe the health hazards synonymous with welding procedures.
- Inspect and operate a Lincoln arc welding machine.
- Strike an electrode and run a welding bead
- Describe the cause of and correct good, bad, and ugly beads.
- Explain welding processes.
- Explain and demonstrate correct electrode angles.
- Describe the electrode numbering system.
- Interconnect and overlap welding beads.
- Discuss electric current and the requirements for welding.
- Weld flat metal with a sound bead.

Standards

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| • 29 CFR 1926.21 | Safety Training and Education |
| • 29 CFR 1926.28 | Personal Protective Equipment |
| • 29 CFR 1926.52 | Occupational Noise Exposure |
| • 29 CFR 1926.150 | Fire Protection |
| • 29 CFR 1926.151 | Fire Prevention |
| • 29 CFR 1926.152 | Flammable and Combustible Liquids |
| • 29 CFR 1926.350 | Gas Welding and Cutting |
| • 29 CFR 126.353 | Ventilation and protection in welding cutting & heating |

Classroom Rules and Procedures

- All classes begin at 6:30 am and end at 3:00 pm

Introduction to Arc Welding Syllabus

- Upon entering classroom, all participants must sign in and be seated by 6:30 am
- Class will consist of a combination of lecture, video, demonstration, coached group exercises, individual exercises and assessment.
- Students are required to report to class ready to work and maintain the provided PPE

Textbooks/Readings/Materials:

- *Arcs to Sparks*- Ohio State University extension
- "Arc Welding I" DVD- Wall Mountain Co. Inc.
- "What is Your Knowledge of Welding?"- 9 question exercise
- *Subpart J-Welding and Cutting*-LIUNA Training
- "Learn to Weld the Lincoln Way" video- Lincoln Electric Co.
- "Basic Electricity for Arc Welding" video-Lincoln Electric Co.
- "Accident Summary No. 53-OSHA Fatal Facts

Tools/Equipment/Other Materials:

- Lincoln Arc Welding machine
- Assorted flat metal

Personal Protective Equipment

- 10 pairs of leather cutting gloves
- 10 pairs of safety glasses
- 20 pairs of earplugs
- 10 hard hats
- 10 leather chaps
- 10 leather jackets
- 10 number 8 face shields

Course Requirements

To receive credit for the course, participants must:

- Be present for full 24 hours
- Participate in all classroom exercises
- Pass a written exam
- Pass a hands-on exam

Introduction to Arc Welding Syllabus

Course Policies

- Participants must be on-time and ready to work.
- Participants must return from breaks on-time.
- Participants must participate in each exercise and assignment
- Participants who are on “light duty” are not allowed to take this course due to the physically demanding requirements.

Assessment and Grading

Participants will be assessed on the following:

- All written exams must be passed with a score of 80% or above.
- All hands-on exercises for each power tool are graded on performance and participation. They are pass/fail and must be passed with a score of 80% or above.

Safety

Failure to maintain and use PPE may result in dismissal from the course.