The M.O.S.T.® two-week welding program covers stick (SMAW) and MIG (GMAW) welding skills which are introduced during the second week of training. During the first week of the welding program, students complete modules on Lean to Green, Shop Math, Blueprint Reading, Measurement and Quality. Week Two begins with Introduction to Arc Welding Fundamentals and Welding Safety and Equipment, followed by welding simulation training.

**Virtual Reality Simulators**

Two virtual reality arc welding trainers have been added to the M.O.S.T.® Mobile Training Units as educational tools designed to accelerate welding training through the utilization of virtual reality. These VR trainers allow students to practice their welding technique in a simulated environment and promote the efficient and effective transfer of skills from the virtual training environment to the weld booth.

Lincoln Electric’s computer-based VRTEX® 360 virtual reality arc welding training system is a VRAW™ (Virtual Reality Arc Welding) training solution that provides a “virtual” hands-on training experience that allows students to complete more passes than traditional training.

The VR welding system will simulate:

- SMAW (stick), GMAW (MIG) and FCAW welding processes
- Multiple weld joint configurations and welding positions
- A variety of welding environments

The unit feeds computer-generated data to a VR Welding Helmet equipped with internal monitors. The VR Helmet immerses the student in a virtual reality welding world through 3D stereo eye pieces and sound. Welding technique variables data are provided by sensors in the VR Welding Gun or VR Stinger. Students can practice in a variety of virtual reality welding environments, including simulated welding booth training or field welding applications such as a construction site.

**Trains Skilled Welders Faster**

Instructors station two students on the system at a time with one in a coaching role and the other practicing their welding technique. Instructors connect the system to a large projection screen on the wall of the mobile unit, which allows each student the opportunity to demonstrate their skills on-screen; it offers an excellent opportunity to teach and critique work. Instructors can point out welding deficiencies to everyone watching, and the class can critique each other's work as a group.

The fact that the virtual reality training system provides real-time welding technique feedback similar to a video game is a plus in the classroom, and serves to build a sense of friendly competition.

Incorporating Virtual Reality Welding training into traditional welding training programs results in students learning more quickly. Skilled welders cannot be trained solely on a welding simulator and require real arc time to hone their welding skills; however, VR Welding Training can provide a fun and beneficial educational experience.
M.O.S.T.® welding students learn proper:
- Body position
- Gun angles
- Travel speeds
- Gun positions
- Welding techniques

**Benefits**
- Assessment of the student’s performance is based on a numerical weld score, based on AWS guidelines. This helps the student understand and learn industry recognized skills.
- Hands on learning of a skill based on the look and feel of a welding machine, but packaged in a game design. The user interface is intuitive and operates with graphical elements and sounds that engage the student.
- Simulators provide real-time continuous feedback to the student, instructor and fellow classmates. This enables the class to benefit from continuous improvement at the student level, but also through coaching and viewing how to adjust and correct improper techniques to achieve a good score.
- Live action LASER screen summarizes the student’s welding performance with detailed information about welding technique for each pass. Weld reports can be saved as a pdf file.
- The simulator allows the instructor the opportunity to adjust and change tolerances to match local industry needs and manufacturer specifications and enables customization of the training software to match their objectives. Welding standards can be modified to fit the company’s needs; for example, if a manufacturer requires a tighter weld tolerance, it can be tightened on the VR simulator.

**Program Requirements**
Students in the M.O.S.T.® Welding Program are required to pass the following: Exams in Math, Blueprint, Quality and Measurement, Intro to Welding, and Welding Safety; Quizzes on 3 welding videos; Practical’s on the following: Measurement, Good vs. Bad Welds, 3 videos on welding, 2F and 3G welds (Student must complete five in a row of passing quality of each weld on the simulator.)

**Arc Welding Processes Simulated by the VRTEX®**
SMAW (E6010, E6013, and E7018), GMAW (short arc, spray, pulse and STT® metal transfers) and FCAW (Self-shielded and Gas-shielded processes).

**SMAW**
- E6010 (Fleetweld® 5P+)
- E7018 (Excalibur® 7018)
- E6013 (Fleetweld 37)

**GMAW**
- Short Arc (.035” SuperArc® L-56)
- Axial Spray (.045” SuperArc® L-56)
- Pulse (.045” SuperArc® L-56)
- STT® Surface Tension Transfer® (.045” SuperArc® L-56)

**Types of Weld Joint Configurations**
The simulator comes with 5 welding coupons (Flat Plate, Tee Joint, Groove Joint, 2” XXS Pipe and 6” Sch 40 pipe) that can be used in multiple positions

**Positions for VR Coupons**
- Plate: Flat, Horizontal, Vertical and Overhead
- Pipe: 2G, 5G and 6G

**Accommodates Many Types of Welding Techniques**
- Push and drag GMAW techniques
- Stringer beads
- Weave techniques - straight, triangle and box weave

Customization of the VR training simulator welding standards is available to all manufacturers participating in the M.O.S.T.® program.

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