**Welding Curriculum**

**Online Courses :
Welding Safety- (9 classes)**

* Welding Safety and Workplace Roles
* Radiation Safety
* Electric Shock Safety
* Fire and Burns
* Fumes and Gases
* Noise
* Managing Welding Hazards
* Managing Welding Hazards 2
* Process Specific Safety – Welding & Cutting

**Welding Symbols and Drawing- (8 classes)**

* Fundamentals of Object Representation
* Introduction to Lines and Weld Joints
* The Basics of Weld Types and Weld Symbols
* Weld Symbols: Spot, Projection, Stud, Seam
* Reading Welding Symbols: Basic Parts, Weld Location, Orientation
* Reading Welding Symbols: Arrows, Reference Lines, Supplementary Data
* Reading Welding Symbols: Extent of Welding
* Reading Welding Symbols: Tail, Contour Symbol, Melt-Thru Symbol

**Weld Joints – (24 classes)**

* Groove Welds: Grooves, Groove Weld, and Arrows
* Groove Welds: Depth of Groove and Size
* Groove Welds: Special Case Dimensions and Root Opening
* Groove Welds: Groove Angle, Groove Radius and Weld length
* Groove Welds: Intermittent Welds and Weld Contours
* Groove Welds: Back and Back Welds
* Groove Welds: Backing, Spacers and Consumable Inserts
* Groove Welds: Backgouging, Seal Welds and Skewed Joints
* Fillet Welds: Anatomy of a Fillet Weld, Size, Dimension Lines and Notes in the Tail
* Fillet Welds: Double Fillet Welds, Notes on a Print, Length, Hatching Lines and Changes in Direction of Welding
* Fillet Welds: Length and Intermittent Fillet Welds
* Fillet Welds: Contours, Combined Weld Symbols, and Skewed Joints
* Plug and Slot Welds: Plug Weld Size, Slot Weld Width and Length
* Plug and Slot Welds: Angle of Countersink, Depth of Filling and Number of Welds
* Plug and Slot Welds: Pitch, Centerlines and Joints with Three or More members
* Spot and Projection Welds: Size and strength, Number of Welds and Pitch
* Spot and Projection Welds: Weld Process Reference, Group Spot Welds and Multiple Member Spot Welds
* Stud Welds
* Seam Welds: Size, Strength, Welding Process Reference and Length
* Seam Welds: Intermittent Seam welds, Number of Welds, Contours and Multiple Member Seam Welds
* Surfacing Welds
* Edge Welds: Size, Length, Double Edge Welds, and Changes in Direction of Welding
* Edge Welds: Chain Intermittent Edge Welds and Staggered Intermittent Edge Welds
* Edge Welds: Extent, Location, Joints with Three or More Members and Combined Weld Symbols

**Oxyfuel Gas Cutting (OFC) – (4 classes)**

* Fundamentals
* Equipment
* Materials
* Variables

**Plasma Arc Cutting (PAC) – (4 classes)**

* Fundamentals
* Equipment
* Materials
* Variables

**Visual Inspection- (1 class)**

* Visual Inspection

**Discontinuities – (2 classes)**

* Intro to NDT
* Discontinuities

**Pick at least 1 Welding Process:**

* **Shielded Metal Arc Welding (SMAW)\*\*** - this is the process which will be utilized in the hands-on training
* **Gas Metal Arc Welding (GMAW)**
* **Flux Cored Arc Welding (FCAW)**
* **Gas Tungsten Arc Welding (GTAW)**

**Pick at least 1 Thermal Cutting Process:**

* **Mechanized Oxyfuel Gas Cutting (OFC)**
* **Air Carbon Arc Cutting (CAC-A)**

**Hands-on Training:**

140 hours of training,

 AWS D 1.1 welding test/certification and have the welded coupons (3/8” plate steel) x-rayed to validate. Includes OSHA 10