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Each Complete Course Includes:

- an instructor’s guide; DVD(s), one student workbook, one technical guide, tests & answer keys.

**Instructor’s Guide**

With comprehensive instructions for implementing each topic.

### Topic/Objective | Training Time | Materials/Settings | Testing Method | Suggestions/Notes/Cautions for the Instructor
--- | --- | --- | --- | ---
3. Arc Welding Safety | 1 Hr. | DVD 1, Topic 3 (11 min. 13 sec.) | Written test based on ANSI Z49.1 (for AWS EG2.0 and QC10 compliance); AND/OR Oral Quiz | Introduce this topic by paraphrasing the following: Every year, hundreds of peoples’ lives are changed forever because they, or someone they work with fails to follow proper safety procedures. Think about it. One day the pressure is on to get a job done. You’ve done the job so many times before, and it seems so routine that you decide to take a few short cuts. The next thing you know you’re lying in a hospital bed with third degree burns, or perhaps you’ve lost the use of your legs and will never walk again. So protect yourself and those around you by following safe work procedures. (This next topic deals with the things you need to do to pro-

### DVDs

- Answer Keys for Written Test

Answer keys for each written test make it easy for instructors to measure student mastery of key concepts. (50 copies of each written test are shipped with each complete course.)

- One Student Workbook

Featuring easy to follow practice sessions based on video demonstrations and summaries of essential theory.

- One Technical Guide

An individual resource for instructors and students, each technical guide contains process specific information on equipment, process variables, weldability, pre- and post-weld procedures, shielding gases, electrodes, safety and more.

---

To order, use form on page 19, Call 800.332.9448 Ext. 9509 or visit www.welding.org
**Shielded Metal Arc Welding**

The Shielded Metal Arc Welding program is a complete training program. The fundamentals of shielded metal arc welding are covered in the basic program. It provides training in all positions, on mild steel with single and multipass welds. SMAW-1 (Structural) teaches welding on single V-groove welds on carbon steel with multipass welds in all positions with backing strips. SMAW-2 (Pre-pipe) teaches welding on single V-groove welds with open root on carbon steel with multipass welds in all positions. SMAW-2 is in preparation for the transition to pipe welding. There are three pipe welding courses; 2" Pipe Uphill, 6" Pipe Uplift and 6" Pipe Downhill.

**Shielded Metal Arc Welding Basic**

Complete Course: 4 DVDs (3 hrs. 47 min); 1 Instructor Guide; 5 written tests, 50 copies each

**ITEM NO.** DV01

**Topics**

1. Shielded Metal Arc Welding Basic, Course Overview
2. Introduction to Shielded Metal Arc Welding
3. Arc Welding Safety
4. The Five Essentials
5. Striking & Controlling the Arc
6. Pad of Beads, Flat Position, E6013
7. Pads of Beads, Flat Position, E6010
8. Pads of Beads, Horizontal Position, E6010
9. The Welders Role In Quality Control
10. Fillet Weld, Lap Joint, Horizontal Position, E6013
11. Fillet Weld, Lap Joint, Horizontal Position, Uphill, E6010
12. Fillet Weld, Lap Joint, Overhead Position, E6010
13. Electrode Selection
14. Three-Bead Fillet Weld, T-Joint, Horizontal Position, E6010
15. Fillet Weld, T-Joint, Horizontal Position, Break Test, E6010
16. Fillet Weld, T-Joint, Vertical Position, Uphill, with Z-weave Cover, E6010
17. Three-Bead Fillet Weld (Root & 2 Weaves), T-Joint Vertical Position, Uphill, E6010
18. Three-Bead Fillet Weld, T-Joint, Overhead Position, E6010
19. Fillet Weld, T-Joint, Overhead Position, Break Test, E6010
20. The Low Hydrogen Electrodes and Their Uses
21. Three-Bead Fillet Weld, T-Joint, Vertical Position, Uphill, with Z-weave Cover, E7018
22. Three-Bead Fillet Weld, T-Joint, Overhead Position, E7018
23. Power Source Technology
24. Square-Groove Weld, Butt Joint, Horizontal Position
25. Square-Groove Weld, Butt Joint, Horizontal Position, Guided Bend Test
26. Square-Groove Weld, Butt Joint, Vertical Position, Uphill

**Product** Item No. List Price

Complete SMAWB course ................. DV01 $1,125.00
Site License .................................... V01.50 $500.00

**Shielded Metal Arc Welding – Structural**

Complete Course: 3 DVDs (1 hr. 58 min); 1 Instructor Guide; 4 written tests, 50 copies each

**ITEM NO.** DV02

**Topics**

1. Shielded Metal Arc Welding Structural - Course Overview
2. Introduction to Shielded Metal Arc Welding
3. Safety & Health Of Welders
4. Single V-Groove Weld, Butt Joint, Horizontal (2G) Position
5. Weld Size & Profile
6. Procedure & Welder Qualification
7. Single V-Groove Weld, Butt Joint, Horizontal (2G) Position, Destructive Test
8. Single V-Groove Weld, Butt Joint, Vertical (3G) Position
9. Destructive Testing
10. Single V-Groove Weld, Butt Joint, Overhead (4G) Position
11. Nondestructive Testing
12. Single V-Groove Weld, Butt Joint, Horizontal (2G) Position
13. Air Carbon Arc Cutting & Gouging
14. Single V-Groove Weld, Butt Joint, Horizontal (2G) Position, Destructive Test
15. Single V-Groove Weld, Butt Joint, Vertical (3G) Position
16. Metals Identification for Welding
17. Single V-Groove Weld, Butt Joint, Overhead (4G) Position
18. Welding Cast Iron & Hard Surfacing Welds
19. Single V-Groove Weld, Butt Joint, Flat (1G) Position

**Product** Item No. List Price

Complete SMAWA-1 course ............... DV02 $1,125.00
Site License .................................... V02.50 $500.00
### Shielded Metal Arc Welding – Pre-Pipe

Complete Course: 3 DVDs (1 hr. 58 min); 1 Instructor Guide; 4 written tests, 50 copies each

**Product** | **Item No.** | **List Price**  
--- | --- | ---  
Complete SMAWA-2 course | DV05 | $995.00  
Site License | V05.50 | $500.00

**Topics**
1. Shielded Metal Arc Welding Pre-Pipe - Course Overview
2. Introduction to Shielded Metal Arc Welding
3. Safety & Health of Welders
4. Single V-Groove Weld, Butt Joint, Horizontal (2G) Position
5. Weld Size & Profile
6. Procedure & Welder Qualification
7. Single V-Groove Weld, Butt Joint, Horizontal (2G) Position, Destructive Test
8. Single V-Groove Weld, Butt Joint, Vertical (3G) Position
9. Destructive Testing
10. Single V-Groove Weld, Butt Joint, Overhead (4G) Position
11. Nondestructive Testing
12. Single V-Groove Weld, Butt Joint, Vertical Down (3G) Position
13. Air Carbon Arc Cutting & Gouging
15. Single V-Groove Weld, Butt Joint, Vertical (3G) Position, Destructive Test
16. Metals Identification of Welding
17. Single V-Groove Weld, Butt Joint, Overhead (4G) Position
18. Welding Cast Iron & Hard Surfacing Welds
19. Single V-Groove, Butt Joint, Flat (1G) Position

### Shielded Metal Arc Welding 6-Inch Pipe Uphill

Complete Course: 2 DVDs (1 hr. 57 min); 1 Instructor Guide; 5 written tests, 50 copies each

**Product** | **Item No.** | **List Price**  
--- | --- | ---  
Complete SMAW 2" Pipe Uphill | DV03 | $1,125.00  
Site License | V03.50 | $500.00

**Topics**
1. Shielded Metal Arc Welding 6" Pipe Uphill - Course Overview
2. Introduction to Shielded Metal Arc Welding Pipe
3. Safety & Health of Welders
4. Weld Quality: Reading the Puddie
5. Preparation & Assembly of an Open Root Pipe Joint - Double Extra Strong (XX Strong)
7. Standard Destructive Test - Double Extra Strong Pipe (XX Strong)
8. Single V-Groove Weld, Butt Joint, (5G) Pipe - Double Extra Strong (XX Strong)
10. Preparation & Assembly of an Open Root Pipe - Schedule 80
11. Single V-Groove Weld, Butt Joint, (2G) Pipe - Schedule 80
12. Standard Destructive Test Schedule 80 Pipe
13. Single V-Groove Weld, Butt Joint, (5G) Pipe - Schedule 80

### Shielded Metal Arc Welding 2-Inch Pipe Uphill

Complete Course: 2 DVDs (1 hr. 54 min); 1 Instructor Guide; 2 written tests, 50 copies each

**Product** | **Item No.** | **List Price**  
--- | --- | ---  
Complete SMAW 2" Pipe Uphill | DV03 | $1,125.00  
Site License | V03.50 | $500.00

**Topics**
1. Shielded Metal Arc Welding 2" Pipe Uphill - Course Overview
2. Introduction to Shielded Metal Arc Welding Pipe
3. Safety & Health of Welders
4. Weld Quality: Reading the Puddie
5. Preparation & Assembly of an Open Root Pipe Joint - Double Extra Strong (XX Strong)
7. Standard Destructive Test - Double Extra Strong Pipe (XX Strong)
8. Single V-Groove Weld, Butt Joint, (5G) Pipe - Double Extra Strong (XX Strong)
10. Preparation & Assembly of an Open Root Pipe - Schedule 80
11. Single V-Groove Weld, Butt Joint, (2G) Pipe - Schedule 80
12. Standard Destructive Test Schedule 80 Pipe
13. Single V-Groove Weld, Butt Joint, (5G) Pipe - Schedule 80

### Shielded Metal Arc Welding Pipe - Downhill

Complete Course: 2 DVDs (1 hr. 49 min); 1 Instructor Guide; 2 written tests, 50 copies each

**Product** | **Item No.** | **List Price**  
--- | --- | ---  
Complete SMAWPD | DV04 | $1,125.00  
Site License | V04.50 | $500.00

**Topics**
1. Shielded Metal Arc Welding Pipe Downhill - Course Overview
2. Introduction to Shielded Metal Arc Welding Pipe - Downhill
3. Safety & Health of Welders
4. Weld Quality: Reading the Puddie - Downhill Travel
5. Preparation & Assembly of a 6" Open Root Pipe Joint - Downhill
6. Single V-Groove Weld, Butt Joint, (5G) Position, 6" Pipe- Downhill
7. Standard Visual Inspection - Schedule 80 Pipe - Downhill
8. Pipeline Construction & Welding - Downhill
9. How to Read & Apply Welding Procedures - Downhill
10. Single V-Groove Weld, Butt Joint, (6G) Position, 6" Pipe- Downhill
11. Standard Destructive Test, Guided Bend & Nick Break Test
12. Preparation & Assembly of a 2" Open Root Pipe Joint - Downhill
13. Single V-Groove Weld, Butt Joint, (5G) Position, 2" Pipe - Downhill

**Recommended as an advanced curriculum to prepare students for SMAW – open root – pipe welding.**
**Gas Metal Arc Welding Basic**

Complete Course: 3 DVDs (2 hrs. 10 min); 1 Instructor Guide; 2 written tests, 50 copies each

**Gas Metal Arc Welding**

There are three courses in the Gas Metal Arc series — Basic, Advanced and Pipe. The programs feature male and female narration, animated graphics and shots of the arc so clear you can see the silicon island in the welding puddle.

---

**Gas Metal Arc Welding Advanced**

Complete Course: 2 DVDs (1 hr. 52 min); 1 Instructor Guide; 2 written tests, 50 copies each

**Product** | **Item No.** | **List Price**
--- | --- | ---
Complete GMAWB course | DV10 | $1,125.00
Site License | V10.50 | $500.00

**Topics**
1. Gas Metal Arc Welding Advanced - Course Overview
2. Introduction to Gas Metal Arc Welding - Spray & Pulse Spray Transfer
3. Safety & Health of Welders
4. Equipment Set-Up, Operation & Shut-Down
5. Single V-Groove Weld, Butt Joint, (1G) Position - Spray
6. Introduction to Pulse Spray Transfer
7. Single V-Groove Weld, Butt Joint, (2G) Position - Pulse
8. Standard Destructive Test
9. Weldability of Aluminum Alloys
10. Fillet Weld, Lap & T-joint (2F) Position
11. Fillet Weld, Lap & T-joint (3F) Position
12. Single V-Groove Weld, Butt Joint, (3G) Position
15. Fillet Weld, Lap & T-joint (2F) Position

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**Gas Metal Arc Welding Pipe**

Complete Course: 2 DVDs (1 hr. 10 min); 1 Instructor Guide; 2 written tests, 50 copies each

**Product** | **Item No.** | **List Price**
--- | --- | ---
Complete GMAWP course | DV15 | $1,125.00
Site License | V015.50 | $500.00

**Topics**
1. Gas Metal Arc Welding Pipe - Course Overview
2. Introduction to Gas Metal Arc Welding
3. Safety & Health of Welders
4. Equipment Setup, Operation & Shutdown
5. Preparation & Assembly of an Open Root Pipe Joint
6. Single V-Groove Weld, Butt Joint, (2G) Position
7. Weld Quality: Visual Inspection
8. Standard Destructive Test - Schedule 80 Pipe
10. Single V-Groove Weld, Butt Joint, (5G) Position Downhill Root, Uplift Fill & Cover
Flux-Cored Arc Welding

The Flux Cored Arc Welding training program provides the student with a thorough understanding of the Flux Cored Arc Welding process. It provides training in all positions, on carbon steels, with and without shielding gas, using small and large diameter flux cored electrodes.

To order, use form on page 19, Call 800.332.9448 Ext. 9509 or visit www.welding.org

Gas Tungsten Arc Welding

The Gas Tungsten Arc Welding program is a complete training program. The fundamentals of Gas Tungsten Arc Welding are covered in the basic program. It provides training on mild steel, stainless steel and aluminum, using both direct and alternating current. Gas Tungsten Arc Welding Pipe is divided into two programs. Gas Tungsten Arc Welding 2-inch Pipe prepares the student for pipe welding, and teaches the student to weld on 2-inch Sch. 80 pipe, in all positions. Gas Tungsten Arc Welding 6-inch Pipe provides training on 6-inch pipe using GTAW to deposit the root and second pass, and SMAW to complete the weld. Students also weld on stainless steel pipe and with a consumable insert.

Product Item No. List Price
Complete FCAW course (DVD) .............. DV12 $1,125.00
Site License ........................................... V12.50 $500.00
### Complete Training Courses

**29. Fillet Weld, Lap Joint, Horizontal & Flat Positions (Aluminum)**
**30. Square-Groove Weld, Butt Joint, Flat Position (Aluminum)**
**31. Fillet Weld, T-Joint, Horizontal & Flat Positions (Aluminum)**
**32. Fillet Weld, T-Joint, Vertical Position, Up (Aluminum)**
**33. Visual Inspection Test, Aluminum**

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**Gas Tungsten Arc Welding 2-Inch Pipe**

Complete Course: 2 DVDs (1 hr. 30 min); 1 Instructor Guide; 1 written test, 50 copies each

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Topics
1. Gas Tungsten Arc Welding 2" Pipe - Course Overview
2. Introduction to Gas Tungsten Arc Welding
3. Safety & Health of Welders
4. Equipment Setup, Adjustment & Shutdown
5. Preparation & Assembly of an Open Root Pipe Joint
6. Single V-Groove Weld, Butt Joint, (2G) Pipe
7. Pipe Weld Quality
8. Single V-Groove Weld, Butt Joint, (2G) Pipe Destructive Test
10. Single V-Groove Weld, Butt Joint, (6G) Pipe

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**Gas Tungsten Arc Welding - Shielded Metal Arc Welding 6-Inch Pipe**

Complete Course: 2 DVDs (1 hr. 57 min); 1 Instructor Guide; 2 written tests, 50 copies each

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Topics
1. Gas Tungsten Arc Welding - Shielded Metal Arc Welding 6" Pipe - Course Overview
2. Introduction to Gas Tungsten Arc Welding
3. Safety & Health of Welders
4. Preparation & Assembly of an Open Root Pipe Joint
5. Single V-Groove Weld, Butt Joint, (SG) Pipe
7. Single V-Groove Weld, Butt Joint, (2G) Pipe
9. Stainless Steel Pipe Welding
10. Preparation & Assembly of a Stainless Steel Pipe Joint
12. Joint Design for Gas Tungsten Arc Welding Pipe & Tubing
13. Preparation & Assembly of a Pipe Joint with Consumable Insert
15. Pipe Weld Quality

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**Oxyacetylene Welding, Cutting & Brazing**

Complete Course: 4 DVDs (3 hrs. 6 min); 1 Instructor Guide; 4 written tests, 50 copies each

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Recommended as an entry-level curriculum to teach cutting techniques & hand-eye coordination associated with good puddle control & filler addition.

Topics
1. Oxyacetylene Welding, Brazing & Cutting - Course Overview
2. Introduction to Oxyacetylene Welding, Brazing & Cutting
3. Oxyacetylene Welding Safety
4. Safety & Health of Welders
5. Equipment Setup, Operation & Shutdown
6. Weld Quality: Controlling the Welding Variables
7. Stringer Bead, Bead on Plate - With & Without Filler Metal, Flat Position
8. Fillet Weld, Lap Joint, Horizontal (2F) Position
9. Fillet Weld, Inside Corner Joint, Horizontal (2F) Position
10. Fillet Weld, Lap Joint, Vertical (3F) Position
11. Fillet Weld, Inside Corner Joint, Vertical (3F) Position
12. Square Groove Weld, Butt Joint, Vertical (3G) Position
13. Introduction to Oxyacetylene Flame Cutting
14. Standard Destructive Test, Visual Inspection & Guided Bend Test
15. Square Groove Weld, Butt Joint, Flat (1G) Position
16. Square Groove Weld, Butt Joint, Overhead (4G) Position
17. Square Groove Weld, Butt Joint, Horizontal (2G) Position
18. Application of Fuel Gases
20. Square-Groove, Bevel & Hole Cuts - Visual Inspection
21. Single V-Groove Weld, Butt Joint, Vertical (3G) Position
22. Single V-Groove Weld, Butt Joint, Flat (1G) Position
23. Single V-Groove Weld, Butt Joint, Overhead (4G) Position
24. Single V-Groove Weld, Butt Joint, Horizontal (2G) Position
25. Single V-Groove Weld, Butt Joint, (5G) Position, 2" Pipe
27. Introduction to Soldering, Brazing & Braze Welding
28. Fillet Weld, Lap Joint, Square-Groove, Butt Joint, Braze Weld, Horizontal (2F) & Flat (1G) Position
29. Socket Joint, Brazed Copper (2F) Position
30. Socket Joint, Brazed Copper (5F) Position

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**To order, use form on page 19, Call 800.332.9448 Ext. 9509 or visit www.welding.org**
## COMPLETE TRAINING COURSES

### Destructive Testing Methods

**ITEM NO. DV86.5**

**Complete Course:** 1 DVD (43 min);
1 Instructor Guide; 1 written test, 50 copies

**Topics**
1. Introduction to Destructive Testing
2. Tensile Tests
3. Impact Tests
4. Guided Bend Tests
5. Nick Break Tests
6. Fillet Weld Break Tests
7. Etch Tests

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### Nondestructive Testing Methods

**ITEM NO. DV86.6**

**Complete Course:** 1 DVD (45 min);
1 Instructor Guide; 1 written test, 50 copies

**Topics**
1. Introduction to Nondestructive Testing
2. Principles of Visual Inspection
3. Principles of Liquid Penetrant Testing
4. Principles of Magnetic Particle Testing
5. Principles of Ultrasonic Testing
6. Principles of Radiographic Testing

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### Welding Procedures & Qualification

**ITEM NO. DV86.3**

**Complete Course:** 1 DVD (26 min);
1 Instructor Guide; 1 written test, 50 copies

**Topics**
1. Purpose of Welding Procedures & Qualification
2. Welding Procedure Specifications
3. Procedure Qualification Records
4. Performance Qualification
5. Maintaining Qualification Records

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### Welding Discontinuities & Defects

**ITEM NO. DV86.4**

**Complete Course:** 1 DVD (1 hr, 12 min);
1 Instructor Guide; 1 written test, 50 copies

**Topics**
1. Weld Inspector Responsibilities Related to Discontinuities & Defects
2. Identification & Definition of Weld Discontinuities & Defects
3. Common Causes of Discontinuities related to Shape, Size & Contour
4. Common Causes of Discontinuities related to Internal Inconsistencies & Weld Metal Irregularities
5. Common Causes of Discontinuities related to Weld & Base Metal Properties

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**Visit our website at www.welding.org for additional Instructor Guides and Tests**

To order, use form on page 19, Call **800.332.9448 Ext. 9509** or visit www.welding.org
**Complete Training Courses**

### Common Arc Welding Processes

**Complete Course:** 2 DVDs (2 hrs. 10 min); 1 Instructor Guide; 2 written tests, 50 copies each

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**Topics**

1. Introduction to Common Arc Welding Processes
2. Safety and Health of Welders
3. Introduction to Shielded Metal Arc Welding
4. SMAW Electrode Selection
5. Introduction to Gas Metal Arc Welding
6. GMAW Metal Transfer and Shielding Gases
7. Introduction to Flux Cored Arc Welding
8. FCAW Electrode Classification and Selection
9. Introduction to Gas Tungsten Arc Welding
10. The Essentials of GTAW

### Arc Welding Safety

**1 DVD (11 min)**

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Covers the following areas of arc welding safety:

- Arc Radiation
- Air Contamination
- Compressed Gases
- Cleaning
- Electric Shock
- Fire and Explosion
- Other Welding Hazards
- Safety Data Sheets
- Safety Standards

### Symbols for Welding

**Complete Course:** 1 DVD (58 min) 1 Instructor Guide

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**Topics**

1. Communicating Welding Information
2. Fillet Welds
3. Weld Symbols For Length and Arrangement
4. Supplementary Symbols and Reference
5. Plug and Slot Welds
6. Spot, Stud and Seam Welds
7. Groove Weld Symbols
8. Backing, Back, Melt-Through and Surfacing Welds
9. Edge Welds and Combination Welds

### Basic Metallurgy

**1 DVD (40 min)**

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Included in complete GTAW course (DV20.0)

**Topics**

- The metallurgy & weldability of carbon steel
- The welding characteristics of stainless steel
- The welding characteristics of aluminum
**COMPLETE TRAINING COURSES**

### Blueprint Reading for Welders & Fitters

**Complete Course:** 2 DVDs (1 hr. 22 min)
1 Instructor Guide

**Product Item No. List Price**

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**Topics**

1. Introduction to Blueprint Reading for Welders and Fitters
2. Review of Mathematics
3. Metrics and Metric Conversions
4. Review of Welding Symbols
5. Orthographic Views
6. Standard Drawing Lines and Symbols
7. Interpreting Blueprint Information
8. Surface and Centerline Relationships
9. Auxiliary Views
10. Scale Drawings
11. Dimensional Tolerance and Stock Allowance
12. Set-up Tools
13. Set-up Applications

**Advanced Blueprint Reading**

**Complete Course:** 1 DVD (46 min)
1 Instructor Guide

**Product Item No. List Price**

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**Topics**

1. Development of Blueprints and Drawings
2. Standards, Codes and Specifications
3. Standard Plates and Shapes
4. Blueprint Reading
5. Calculating Measurements and Common Layout Tools
6. Pipe Essentials
7. Role of the Welder in Quality and Safety
8. Fabrication Tools

**Pipe Layout for Pipefitters & Welders**

**Complete Course:** 2 DVDs (1 hr. 50 min)
1 Instructor Guide

**Product Item No. List Price**

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**Topics**

1. Introduction to Pipe Layout for Pipefitters and Welders
2. Review of Basic Shapes & Pipefitter Terminology
3. Review of Basic Mathematic Calculations
4. Review of Decimals
5. Review of Geometric Calculations
6. Angles & Angular Layout
7. Calculated Welded Offsets
8. Offsets Other than 45° & 90°
9. Welded Offsets
10. Multiple Turn Layouts
11. Two Piece Parallel Offsets
12. Offsets Around Obstructions
13. Rolling Offsets
14. Fabricated Tees
15. Lateral Tees
16. Circumferential Sleeves
17. Pipe Blanking
18. Elliptical Holes & Blind Flanges
19. Fabricating Brackets

**SITE LICENSE (SL)**

In response to requests to place DVD's on company and school intranets (private networks) a site license (SL) at an additional cost of $500.00 per program is now available for each complete training course purchased from Hobart Institute of Welding Technology (HIWT). Complete training courses may contain multiple DVD’s. A separate site license is required for each program you intend to distribute.

The site license, granted for a three year period, includes a signed document authorizing the electronic distribution of HIWT training materials to others within your organization’s secure network. The intranet distribution of HIWT DVD’s without a site license is prohibited.

Test are included with each student packet on page 14, not complete training courses.
Student Workbooks

Workbooks follow the DVDs topic-by-topic and take a step-by-step approach to practice sessions, featuring objectives; set-up instructions; materials and machine settings; and summaries of essential theory with many illustrations. All destructive tests are based on AWS®, ASME or API codes.

Oxyacetylene Welding
Consists of 30 topics which include 19 skill topics, 2 testing topics and 7 topics that cover essential theory. There is also course overview and introduction. 172 pages
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Shielded Metal Arc Welding Basic
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Item No. EW369SMAWB .................................List Price $25.00

Shielded Metal Arc Welding Structural
Consists of 19 topics which include 9 skill topics, 9 essential theory topics and course overview. 104 pages
Item No. EW369SMAWA1 .................................List Price $25.00

Shielded Metal Arc Welding Pre-Pipe
Consists of 19 topics which include 9 skill topics, 9 essential theory topics and course overview. 100 pages
Item No. EW369SMAWA2 .................................List Price $25.00

Shielded Metal Arc Welding 2 Inch Pipe Uphill
Consists of 15 topics which include 10 skill topics, 4 essential theory topics and course overview. 100 pages
Item No. EW369SMAWPU2 .................................List Price $25.00

Shielded Metal Arc Welding 6 Inch Pipe Uphill
Consists of 13 topics which include 6 skill topics, 5 essential theory topics and an introduction and course overview. 96 pages
Item No. EW369SMAWPU6 .................................List Price $25.00

Shielded Metal Arc Welding Pipe Downhill
Consists of 14 topics which include 6 skill topics, 2 testing topics, 4 essential theory topics and an introduction and course overview. 92 pages
Item No. EW369SMAWPD .................................List Price $25.00

Gas Metal Arc Welding Basic
Consists of 24 topics which include 19 skill topics and 5 essential theory topics. 96 pages
Item No. EW369GMAWB .................................List Price $25.00
Nondestructive Testing
An explanation of nondestructive testing and results obtained.  34 pages

Welding Procedures & Qualification
An explanation of the steps necessary to develop procedure and performance qualifications.  38 pages

Gas Tungsten Arc Welding Advanced
Consists of 15 topics which include 9 skill topics, 4 essential theory topics, an introduction and overview  77 pages
Item No. EW369GMAWA.........................List Price $25.00

Gas Tungsten Arc Welding 2 Inch Pipe
Consists of 10 topics which include 5 skill topics, 4 essential theory topics, and course overview.  52 pages
Item No. EW369GTAWP2 .......................List Price $25.00

Gas Tungsten Arc Welding 6 Inch Pipe
Consists of 15 topics which include 9 skill topics, 5 essential theory topics, and course overview.  96 pages
Item No. EW369GTAWP6 .......................List Price $25.00

Gas Tungsten Advanced
Consists of 17 topics which include 8 skill topics, 4 testing topics, an introduction and overview  77 pages
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Consists of 18 topics which include 13 skill topics, 4 essential theory topics, an introduction and overview.  94 pages
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An explanation of destructive testing and results obtained.  44 pages
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Gas Metal Arc Welding Advanced
Consists of 15 topics which include 9 skill topics, 4 essential theory topics, an introduction and overview  77 pages
Item No. EW369GMAWA.........................List Price $25.00

Gas Metal Arc Welding Pipe
Consists of 13 topics which include 6 skill topics, 5 essential theory topics, an introduction and overview.  76 pages
Item No. EW369GMAWP........................List Price $25.00

Flux Cored Arc Welding
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Item No. EW369FCAW............................List Price $25.00

Welding Discontinuities & Defects
An explanation of the welding discontinuities and defects in relation to welding procedure variables.  38 pages
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Destructive Testing
An explanation of destructive testing and results obtained.  44 pages
Item No. EW512-5 .................................List Price $25.00

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Welding Discontinuities & Defects
An explanation of the welding discontinuities and defects in relation to welding procedure variables.  38 pages
Item No. EW512-4 .................................List Price $25.00

Destructive Testing
An explanation of destructive testing and results obtained.  44 pages
Item No. EW512-5 .................................List Price $25.00

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Consists of 15 topics which include 9 skill topics, 5 essential theory topics, and course overview.  96 pages
Item No. EW369GTAWP6 .......................List Price $25.00

Nondestructive Testing
An explanation of nondestructive testing and results obtained.  34 pages
Item No. EW512-6 .................................List Price $25.00

Gas Tungsten Arc Welding 2 Inch Pipe
Consists of 10 topics which include 5 skill topics, 4 essential theory topics, and course overview.  52 pages
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Item No. EW369GTAWP2 .......................List Price $25.00

Nondestructive Testing
An explanation of nondestructive testing and results obtained.  34 pages
Item No. EW512-6 .................................List Price $25.00
Programmed Learning Courses

These courses provide a simple, and yet complete method, for students to learn and understand the principles of welding symbols, symbols for nondestructive examination, blueprint reading and pipe layout. Each page is designed to teach a small amount of information which is reinforced through an action/problem and self-check (see illustration at right). Each page builds for the next as the student learns in an efficient and rewarding manner.

Symbols for Welding

The symbols for welding course is based on AWS® A2.4 Symbols for Welding and Nondestructive Examination Standard. This system of communication provides a vital link between the designer and the individuals responsible for producing and planning welding. 3 Tests are included with each student packet. 122 pages.

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<td>Symbols for Welding</td>
<td>EW-342</td>
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Symbols for Nondestructive Examination

This course is designed to teach students how to interpret nondestructive examination symbols based on AWS® 2.4. The first part of the course serves as an introduction, which is deemed beneficial for those not familiar with welding symbols. 1 Test is included with each student packet. 38 pages.

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Blueprint Reading for Welders & Fitters

The Blueprint Reading for Welders and Fitters course contains valuable information on mathematics and metrics, blueprint reading for the welder, blueprint reading for the fitter, setup tools, and set-up applications. 5 Tests are included with each student packet. 176 pages.

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Advanced Blueprint Reading

This two packet course covers the design procedure; an interpretation of blueprints and shop drawings as well as applying this information; the use of measuring tools in layout and assembly; the basics of codes, specifications and standards and to be aware of the responsibility of a welder in quality control. 11 tests included with the packets. 185 pages.

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<td>Advanced Blueprint Reading (2 Packets)</td>
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<td>Key to test</td>
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Pipe Layout for Pipefitters & Welders

This 10 section, self-study programmed learning course includes: pipefitter terminology, mathematics & plane figures, angles and angular layout, calculated welded offsets, tees, laterals & circumferential sleeves, pipe blanking, elliptical holes, brackets and pipe flanges. Based in part on Thomas W. Frankland’s “The Pipe Fitters and Pipe Welder’s Handbook,” and “Pipe Trades Pocket Manual.” 10 Tests are included with each student packet. 237 pages.

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Technical Guides

These guides contain extensive welding information on individual welding processes and welding subjects. They supplement the student workbooks for welding training and have an application for manufacturing engineering and quality control. Books are in full color.

**Welding Guide** — Provides general welding information including common arc welding process descriptions, weldability of metals, non-destructive testing process descriptions, welding data charts and tables, and metric conversion. 117 pages.
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Pocket Welding Guide, 32nd Edition — Known as the “Welder’s Bible”, and widely used by students, teachers, hobbyists and professionals as a handy reference, this updated edition features: overview of all welding processes, examples of good and bad weld beads, causes & cures of common welding problems, welding symbols, guidelines for the indentification of metals & calculating filler metal consumption, oven storage & reconditioning of filler metals, shielding gases & their uses, AWS® filler metal classifications & comparative indices, GMAW welding parameters, complete listing of filler metals with operating ranges, filler metals selector guide for welding ASTM steels, troubleshooting guides for semiautomatic wire & equipment, welding terms & definitions, metric conversions tables, and more. 164 pages. 4” x 7” format.

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Pipefitters Handbook — A comprehensive reference including tables for pipe bends, offsets, mitered joints and other useful information for shop and field use. Leatherette bound. 444 pages.

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Pipe Trades Pocket Manual by Frankland — Tables for bending, offsets, miter turn fittings, elbow offsets, solving angles with steel square and more. Leatherette bound. 262 pages.

Item No. EW-390 .................................................................List Price $32.00

The Pipe Fitters and Pipe Welders Handbook by Frankland — Pocket size booklet containing layout information for making all types of pipe joints. Leatherette bound. 194 pages.

Item No. EW-234 .................................................................List Price $32.00

Pipe Trades Handbook — Covers basic data on tube and pipe, national standards, fittings, valves, joints, offsets, pipe layout, mathematics and pipe welding. 534 pages.

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Pipefitters Bluebook — Contains charts, tables, drawings, instructions on pipe joints and layout. 176 pages.

Item No. EW-697 .................................................................List Price $25.00

Pipe Layout for Pipefitters and Welders — This 10 section, self-study, programmed learning course from the Hobart Institute of Welding Technology includes pipefitting terminology, mathematics & plane figures, angles and angular layout, calculated welded offsets, tees, laterals & circumferential sleeves, pipe blanking, elliptical holes, brackets and pipe flanges. 10 tests are included with each copy. 237 pages.

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**Prices:** All prices are in U.S. dollars. Prices subject to change without notice.
ONLINE EDUCATION

OL-001  Symbols For Welding Online Course

.4 CEU  $89.00  SELF-PACED

This online version of Symbols for Welding course is based on the AWS® A2.4 Symbols for Welding and Nondestructive Examination Standard. This system of communication provides the vital link between the designer and the people responsible for producing and planning welding.

Within the online course you will have the opportunity to download the EW-342 Symbols for Welding Learning Packet and work on specific problems; view the Symbols for Welding videos which are broken down into topic sections; take each of the 3 required test. Each test may be taken two times.

Your password is good for a period of one year with unlimited log-ins during that time. Completion time for the course varies with each individual. Take into consideration the necessary time required to watch the videos in addition to the time needed to work through the learning packet and the time to take the test. You may start and stop at any point.

Upon purchase of the course, you will receive an email of your online receipt of purchase and a separate email with account access instructions and link to online course.

You may add the optional paper version of the Symbols for Welding Programmed Learning Packet (EW342) containing 113 pages, which will be mailed to you. Three test are included with each student packet.

OL-002  Visual Inspection Welding Online Course

.4 CEU  $89.00  SELF-PACED

This course concentrates on the single most used method of welding inspection — what we can see with the naked eye. Anyone involved with arc welding inspection, quality control, engineering or supervision should know the fundamentals of what to observe, prior to, during and after welding.

Contains 5 video segments totaling a run time of 60 minutes.

During this course you will learn about common weld gauges, temperature indicators, marking repair welds, visual inspection prior to, during, and after welding, terminology of weld defects, general requirements for equipment and workmanship standards, and a visual inspection checklist.

At your own pace from your computer you will view videos and will be able to take (and retake) online competency exams.

OL-003  Welding Discontinuities & Defects Online Course

.4 CEU  $89.00  SELF-PACED

This course concentrates on defects and discontinuities related to welding and is intended to assist anyone involved in arc welding inspection, quality control, engineering or supervision. The objective is to be able to identify and determine the common causes of weld discontinuities and defects.

Contains 5 video segments totaling a run time of 70 minutes. Quizzes are provided to measure progress along the way with a final test to obtain a certificate of completion.

*IMPORTANT*

HIWT reviews each order for accuracy and to protect you and HIWT from fraud. After authorization and capture of your payment by HIWT personnel, you will be sent an email (typically within 1 business day) with access instructions for your course. Make sure to watch your incoming mail and spam folder. When you score 76% or higher, a Certificate of Completion will be issued for you to print that will contain the continuing education units earned for the online course. In addition, please add “welding.org” to your trusted/safe sender’s list.
ONLINE EDUCATION

OL-004  Destructive Testing Methods Online Course
.4 CEU  $89.00  SELF-PACED

This course concentrates on the various destructive testing methods used to evaluate welds including tensile and impact tests, guided bend tests, nick break tests, fillet weld break tests, and etch tests. It is intended for those involved in welding inspection, quality control, engineering or supervision. The objective is to be able to perform tests and determine the weld defects.

Contains 7 video segments totaling a run time of 43 minutes. Quizzes are provided to measure progress along the way with a final test to obtain a certificate of completion.

OL-005  Nondestructive Testing Methods Online Course
.4 CEU  $89.00  SELF-PACED

This course concentrates on the various nondestructive testing methods used to evaluate welds including visual inspection, liquid penetrant testing, magnetic particle testing, ultrasonic testing, and radiographic testing. It is intended for those involved in welding inspection, quality control, engineering or supervision. The objective is to be able to evaluate welds and determine the weld defects.

Contains 6 video segments totaling a run time of 45 minutes. Quizzes are provided to measure progress along the way with a final test to obtain a certificate of completion.

OL-006  Welding Characteristics Of Steel, Stainless Steel, & Other Metals
.4 CEU  $89.00  SELF-PACED

This course will provide the non-metallurgist with basic knowledge of various metals and their weldability. Anyone involved with welding will benefit from better understanding of welding with different metals. Students will learn the basic principles of metal properties, heat input, preheating, postheating, selecting filler metals plus many more topics including:

- Welding stainless steels
- Welding tool and die steels
- Welding aluminum alloys
- Welding magnesium alloys
- Welding cast iron
- Hard surfacing
- Metals identification for welding
- Welding carbon and low alloy steels

The course consists of 4 main topics:
1. The Metallurgy & Weldability of Carbon Steel
2. The Welding Characteristics of Stainless Steel and Tool Steels
3. The Welding Characteristics of Aluminum and Magnesium
4. Welding Cast Iron and Hard Surfacing Welds

Each topic contains slide segments, video segments and quizzes. The total running time for the video segments is approximately 60 minutes. Once you have completed the 4 topic quizzes and achieved at least a 76% you will then be able to generate a certificate of completion.

OL-007  Welding Procedures & Qualification
.4 CEU  $89.00  SELF-PACED

This course concentrates on the steps typically followed when developing and qualifying Welding Procedure Specifications (WPS). Additionally, welder and welding operator performance qualification will be discussed.

Contains 1 main topic covering welding codes, procedures, and welder qualification plus 5 video segments totaling a run time of 25 minutes. Quizzes are provided to measure progress along the way with a final test to obtain a certificate of completion.

At your own pace from your computer you will view videos and will be able to take (and retake) online competency exams.
HIWT offers a variety of logo branded items.

- Heather Red T-Shirt - PI55
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  S, M, L, XL, XXL
  $16.00

- Navy Get-Wired T-Shirt – PI54
  Front left chest and full back print
  S, M, L, XL, XXL
  $21.95

- Dark Heather Gray T-Shirt – PI60
  Front left chest and full back print
  S, M, L, XL, XXL
  $22.95

- Dark Heather Gray Hooded Sweatshirt – PI61
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  $41.95

- Grey Hooded Sweatshirt - PI01
  W/ embroidered 3-color logo
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  $41.95

- Black "Patch" Hat - PI72
  6 panel adjustable mesh black hat w/ logo patch
  $16.95

- Two-Tone Garment Dyed Cap - PI34
  In pebble/black.
  One size fits all.
  $16.95

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Please visit our website www.welding.org for a complete list.
Would you like to learn a specific process or refresh your welding skills?

HIWT offers Individual Courses

Hobart Institute of Welding Technology offers individual courses in major arc welding processes. A list of courses is below. Please visit our website www.welding.org for course descriptions, pricing and dates offered.

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<th>Course Number</th>
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<td>Welding Technology &amp; Blueprint Reading</td>
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<td>OAW101</td>
<td>Oxyacetylene Welding, Cutting, &amp; Brazing</td>
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<td>SMA101</td>
<td>Shielded Metal Arc Welding Basic</td>
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<td>SMA301</td>
<td>Shielded Metal Arc Welding 6” Pipe 2G &amp; 5G Uphill</td>
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<td>SMA401</td>
<td>Shielded Metal Arc Welding 6” Pipe 6G Uphill</td>
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<td>SMA402</td>
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<td>SMA403</td>
<td>Shielded Metal Arc Welding 6” Pipe Downhill</td>
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<td>SMA502</td>
<td>Shielded Metal Arc Welding Pipe Downhill API® 12-on-12 Branch</td>
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<td>Pipe Layout for Pipefitters &amp; Welders I</td>
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<td>FCA101</td>
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<td>FCA201</td>
<td>Flux Cored Arc Welding Advanced</td>
</tr>
<tr>
<td>FAB101</td>
<td>Introduction to Metal Fabrication</td>
</tr>
</tbody>
</table>

Technical Training Courses

HIWT’s Technical Training Courses are designed for welding professionals of all levels seeking to take their education to the next level. These courses offer CEU’s toward the hours needed to maintain certifications, as well as expand knowledge on welding processes, visual inspection of welds and nondestructive testing of welds.

<table>
<thead>
<tr>
<th>Course number</th>
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<tr>
<td>VI400</td>
<td>Fundamentals of Visual Inspection</td>
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<tr>
<td>MET101</td>
<td>Fundamentals of Metallurgy</td>
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<tr>
<td>NW515</td>
<td>Welding for the Non-Welder</td>
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<td>AWI520</td>
<td>Arc Welding Inspection</td>
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<tr>
<td>LP800</td>
<td>Liquid Penetrant &amp; Magnetic Particle Inspection</td>
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<tr>
<td>CWS550</td>
<td>Preparation for AWS® CWS Examination Course</td>
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<tr>
<td>CWI540</td>
<td>Preparation for AWS® CWI® Certified Welding Inspector Examination Course</td>
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<tr>
<td>RCW545</td>
<td>Preparation for Recertification of CWI® Course</td>
</tr>
<tr>
<td>CWI540-C</td>
<td>Preparation for AWS® CWI® Code Endorsement</td>
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