



U/LINC

CURRICULUM ENGINEERED by LINCOLN ELECTRIC

Powered By

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EMPOWERING FUTURE WELDERS

THROUGH INNOVATIVE & ENGAGING CURRICULUM

LINCOLN
ELECTRIC

TRAINING SOLUTIONS

Tailored to Workforce Needs

ENSURING THE INDUSTRY'S WORKFORCE IS WELL PREPARED



Instructional Materials That Make a Difference

Developed by the world leader in arc welding products, Lincoln Electric's U/LINC® educational program connects welding theory, practice and knowledge through the Tooling U-SME learning management system. Powered by Tooling U-SME's learning management system, U/LINC curriculum promotes learning and student engagement while giving the instructor maximum control over their programming.

This partnership makes it easier for welding school instructors and industry trainers to integrate and enhance their welding program with curriculum from one of the leaders in welding education.

The U/LINC Program Advantage

- Flexible, Customizable Classes
- Competency-Based, Industry-Driven Curriculum
- Differentiated Learning Pathways & Options for All Types of Learners
- Assessment Tools & Live Feedback
- 24/7 Availability
- Customizable Performance Dashboard
- Create Your Own Competencies

USER-FRIENDLY LMS

Sets Instructors Up for Success

DETAILED CURRICULUM RESOURCES FOR TEACHING WELDING AT ANY LEVEL

Instructors can select pre-built curriculum or customize their own. Subscribers to the U/LINC educational program can easily search, download and print lesson plans, class assignments, student handouts, and more! Lesson plans contain in-depth directions, tips and teaching strategies that leverage Lincoln Electric's over 100 years of welding training knowledge. They can also set permissions and course parameters, manage students and track their performance.

200+



Lesson Plans

180+



Student Handouts

190+



Assessments

100+



PPT Presentations

100+



Lab Activities

200+



Student Reference Guides

70+



Videos

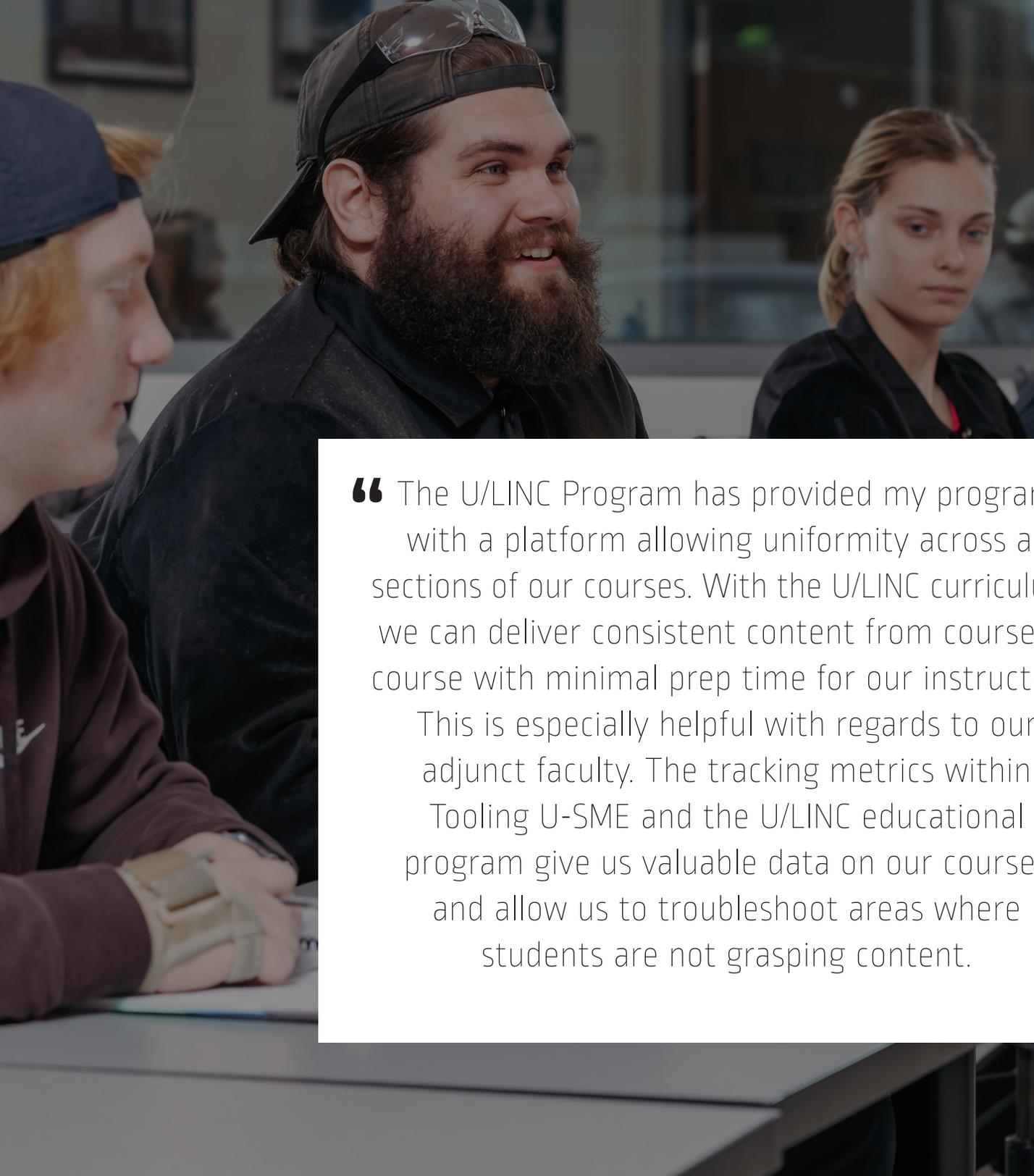
Enhanced Reporting and Tracking Capabilities

✓ Design Your Own Performance Dashboard

✓ Create-Your-Own Competencies

✓ Choose Your Curriculum Sequence

✓ Organize Student Groups



“ The U/LINC Program has provided my program with a platform allowing uniformity across all sections of our courses. With the U/LINC curriculum, we can deliver consistent content from course to course with minimal prep time for our instructors. This is especially helpful with regards to our adjunct faculty. The tracking metrics within Tooling U-SME and the U/LINC educational program give us valuable data on our courses and allow us to troubleshoot areas where students are not grasping content.

”

*Brian R. Lucas, CWI, CWE
Program Chair, Welding Instructor,
Welding Technology
Central Piedmont Community College*

CLASSROOM

CURRICULUM MATERIALS

With applications for both manual and virtual
[VRTEX®] welding simulations



Subject Area	Lesson Title	Handouts	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions	Student Reference
Safety	Safe Working Conditions	•	•	•		•	•
	Personal Protective Equipment	•	•	•		•	•
	Fire Safety	•	•	•		•	•
	Inspecting and Troubleshooting		•	•	•	•	
	AWS/ANSI Z49.1:2012 Standard		•	•		•	
	Electrical Safety	•	•	•		•	•
	The SDS Sheet	•	•	•		•	•
	Arc Welding and Cutting Equipment Safety	•	•	•		•	•
	First Aid	•	•	•	•	•	•
	GMAW Safety	•	•	•		•	•
	Fumes and Gases	•	•	•		•	•
Grinder Safety	•	•	•	•	•	•	
Principles of Welding	Foundations of Arc Welding	•	•	•	•	•	•
	Variables in Welding	•	•	•	•	•	•
	Welding Technology	•	•	•	•	•	•
	Welding Joints, Positions and Symbols	•	•	•	•	•	•
	Identifying Shapes and Dimensions of Metals	•	•	•	•	•	•
	Material Science in Welding		•	•		•	•
	Material Preparation and Fit-up		•	•	•	•	•
	Welding Standards	•	•	•	•	•	•
	Visual Weld Inspection Plans	•	•	•	•	•	•
	Weld Discontinuities and Defects	•	•	•		•	•
	Inspecting and Testing Welds	•	•	•	•	•	•
	Welder Certification and Qualification		•	•		•	•
	Advanced Foundations of Arc Welding	•	•	•		•	•
	Advanced Variables in Welding		•	•		•	•
	Advanced Welding Technology		•	•		•	•
	Advanced Material Science in Welding	•	•	•	•	•	•
Visual Weld Inspection Tools	•	•	•	•	•	•	
Gas Metal Arc Welding (GMAW)	Vision and Body Position in Welding		•	•	•	•	•
	Principles of GMAW		•	•	•	•	•
	GMAW Shielding Gases		•	•	•	•	•
	GMAW Electrodes		•	•	•	•	•
	GMAW Modes of Metal Transfer		•	•	•	•	•
	Advanced Waveform and Modes of Transfer		•	•	•	•	•
	GMAW Equipment and Accessories		•	•	•	•	•
	Advanced GMAW Process Controls		•	•	•	•	•

Subject Area	Lesson Title	Handouts	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions	Student Reference
Gas Metal Arc Welding (GMAW) (Continued)	GMAW Maintenance and Repair		•	•	•	•	•
	GMAW Aluminum Welding		•	•	•	•	•
	GMAW Stainless Steel Welding		•	•	•	•	•
	GMAW Pipe Welding		•	•	•	•	•
Shielded Metal Arc Welding (SMAW)	Vision and Body Position in Welding		•	•	•	•	•
	Principles of SMAW	•	•	•	•	•	•
	SMAW Electrodes	•	•	•	•	•	•
	SMAW Evaluation and Troubleshooting	•	•	•	•	•	•
	SMAW Maintenance and Repair	•	•	•	•	•	•
	SMAW Techniques	•	•	•	•	•	•
Submerged Arc Welding (SAW)	Principles of SAW	•	•	•	•	•	•
	SAW Consumables	•	•	•	•	•	•
	SAW Equipment	•	•	•	•	•	•
	SAW Evaluation and Troubleshooting	•	•	•	•	•	•
	SAW Maintenance and Repair	•	•	•	•	•	•
	SAW Techniques	•	•	•	•	•	•
Pipe	Discontinuities and Defects in Pipe Welding	•	•	•	•	•	•
	GTAW Pipe Welding Techniques		•	•	•	•	•
	Introduction to SMAW Pipe	•	•	•	•	•	•
	SMAW Equipment for Pipe Welding	•	•	•	•	•	•
	SMAW Pipe Preparation and Fit-Up	•	•	•	•	•	•
	SMAW Pipe Techniques	•	•	•	•	•	•
Flux-Cored Arc Welding (FCAW)	Vision and Body Position in Welding	•	•	•	•	•	•
	Principles of FCAW	•	•	•	•	•	•
	FCAW Electrodes and Shielding Gases	•	•	•	•	•	•
	FCAW Evaluation and Troubleshooting	•	•	•	•	•	•
	FCAW Equipment	•	•	•	•	•	•
	FCAW Maintenance and Repair	•	•	•	•	•	•
Gas Tungsten Arc Welding (GTAW)	FCAW Techniques	•	•	•	•	•	•
	Vision and Body Position in Welding	•	•	•	•	•	•
	Principles of GTAW	•	•	•	•	•	•
	GTAW Electrodes and Consumables	•	•	•	•	•	•
	GTAW Techniques	•	•	•	•	•	•
	GTAW Equipment	•	•	•	•	•	•
	GTAW Aluminum	•	•	•	•	•	•
GTAW of Stainless Steel Alloys	•	•	•	•	•	•	

Subject Area	Lesson Title	Handouts	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions	Student Reference
Gas Tungsten Arc Welding (GTAW) (Continued)	GTAW of Stainless Steel Alloys	•	•	•	•	•	•
	GTAW of Carbon Steel and Metal Alloys	•	•	•	•	•	•
	Advanced Power Source Variables	•	•	•	•	•	•
	GTAW Maintenance and Repair	•	•	•	•	•	•
Blueprint Reading (BPR)	Line Interpretation and Basic Views		•	•	•	•	•
	Metric System for Welders	•	•	•		•	•
	Additional Views		•	•		•	•
	Sectioning		•	•		•	•
	Assembly Drawings		•	•		•	•
	Dimensioning and Tolerancing		•	•	•	•	•
	Additional Print Information		•	•		•	•
	Structural Shapes		•	•		•	•
	Basic Joints and Process Abbreviations		•	•		•	•
	Fillet Weld Symbols		•	•		•	•
	Groove Weld Symbols	•	•	•		•	•
Pipe Welding Symbols		•	•		•	•	
Additional Weld Symbols		•	•		•	•	
Thermal Cutting	CAC-A Equipment and Setup	•	•	•	•	•	•
	Principles of CAC-A	•	•	•		•	•
	CAC-A Techniques	•	•	•	•	•	•
	Oxyfuel Cutting: Types of Flames	•	•	•	•	•	•
	Oxyfuel Cutting: Introduction	•	•	•	•	•	•
	Oxyfuel Cutting: Safety Inspection	•	•	•	•	•	•
	Oxyfuel Cutting: OFC Setup	•	•	•	•	•	•
	Plasma Arc Cutting: Plasma-the-Fourth State of Matter	•	•	•	•	•	•
	Plasma Arc Cutting: Measurement and layout	•	•	•	•	•	•
Plasma Arc Cutting Machine Setup (all materials)	•	•	•	•	•	•	
Robotics: Teach Pendant	Safety in the Robotics Lab	•	•		•	•	•
	Power-up and Jogging of the Robot	•	•		•	•	•
	Creating and Testing Your First Program	•	•		•	•	•
	Editing Your First Program	•	•		•	•	•
	Cleaning up Your Program	•	•		•	•	•
	Create 2nd program: Bead Around Box	•	•		•	•	•
	Create 3rd program: Actual Weld on Plate	•	•		•	•	•
	Inputting Weld Parameter	•	•		•	•	•
	Setting up a Jog Frame	•	•		•	•	•
	Weld a Circle	•	•		•	•	•
Weaving	•	•		•	•	•	

Subject Area	Lesson Title	Handouts	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions	Student Reference
Robotics: Teach Pendant (Continued)	Wait Instruction – Timer Instruction		•		•	•	•
	Programming Project		•				•
	Program Copy, Delete, Comment, Write Protect		•		•	•	•
	Creating a Zero Position Program		•		•	•	•
	Teaching a Six-Point Tool Center Point		•		•	•	•
	Program Editing by Using the Replace Command		•		•	•	•
Robotics: Copper App	Safety in Robotics Lab		•			•	•
	Programming a Linear Weld		•			•	•
	Programming a Circular Weld		•			•	•
	Editing a Program		•			•	•
	Creating a Custom Weld		•			•	•
CNC Plasma Cutting 1 (Legacy)	History of CNC Plasma Arc Cutting		•			•	•
	Plasma Arc Cutting Safety		•			•	•
	CNC Plasma Cutting Machine		•			•	•
	CNC Related Software and Coordinate Systems		•			•	•
	G-Code Programming		•			•	•
	Introduction to Tool Paths		•			•	•
	Torchmate Driver Software – User Interface		•			•	•
	Test Cutting	•	•		•	•	•
	Introduction to Torchmate CAD		•			•	•
	Basic CAD Project	•	•		•	•	•
	Importing Images into Torchmate CAD	•	•		•	•	•
	Advanced Layout Options	•	•		•	•	•
	Advanced Shape Creation	•	•		•	•	•
	Importing Files From AutoCAD	•	•		•	•	•
	Tracing an Image in Torchmate CAD	•	•		•	•	•
Using the Plate Maker	•	•		•	•	•	
Troubleshooting	•	•		•	•	•	
CNC Plasma Cutting 2 - ACCUMOVE®	History of CNC Plasma Arc Cutting		•			•	•
	Plasma Arc Cutting Safety		•			•	•
	CNC Plasma Cutting Machine		•			•	•
	G-Code Programming		•			•	•
	Introduction to Tool Paths		•			•	•
	CNC Related Software and Coordinate Systems		•			•	•
	Test Cutting		•		•	•	•
	Introduction to Torchmate CAD	•	•			•	•
	Basic CAD Project	•	•		•	•	•
Importing Images into Torchmate CAD	•	•		•	•	•	

Subject Area	Lesson Title	Handouts	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions	Student Reference
CNC Plasma Cutting 2 - ACCUMOVE® (Continued)	Advanced Layout Options	•	•		•	•	•
	Advanced Shape Creation	•	•		•	•	•
	Importing DXF Files	•	•		•	•	•
	Tracing an Image in Torchmate CAD	•	•		•	•	•
	Using the Plate Maker with ACCUMOVE® VMD	•	•		•	•	•
	Torchmate® VMD Dricer Software User Interface		•			•	•
	Troubleshooting		•			•	•
Fabrication	Reading Plans and Drawings	•	•	•	•	•	•
	Introduction to Fabrication Plans	•	•	•		•	•
	Introduction to Fabrication Hand Tools		•	•		•	•
	Fabrication Shop Equipment	•	•	•	•	•	•
	Measurement	•	•	•	•	•	•
	Introduction to Fabrication Shop Equipment		•	•		•	•
	Fabrication Hand Tools	•	•	•	•	•	•
	Material Preparation for Fabrication	•	•	•	•	•	•
	Drawing a Plan	•	•			•	•
	Strength of Materials	•	•	•		•	•
	Developing the Cut List and Bill of Materials	•	•	•	•	•	•
	Cost Analysis	•	•	•	•	•	•
	Loads and Static Forces	•	•	•	•	•	•
	Principles of Fabrication Quality	•	•	•		•	•
Principles of Project Design	•	•	•	•	•	•	
Mathematics in Welding	Math in the Work Place		•			•	•
	Addition and Subtraction of Fractions		•		•		•
	Addition and Subtraction of Mixed Fractions		•			•	•
	Multiplication of Fractions and Mixed Fractions	•	•			•	•
	Division of Fractions and Mixed Fractions		•			•	•
	Conversion of Fractional Inch to Decimal Inch		•			•	•
	Addition and Subtraction of Decimals		•			•	•
	Multiplication and Division of the Decimal Inch		•			•	•
	Conversion of Decimals to Closest Fractional Inch		•			•	•
	Introduction to Dimensional Analysis		•			•	•
	Using Dimensional Analysis in Welding Problem Solving		•			•	•
	Conversion of Angles to Decimal Degrees		•			•	•
	Calculating Perimeter and Area of Objects		•			•	•
Calculating Volume of Objects		•			•	•	
Calculating Material Weights		•			•	•	

Subject Area	Lesson Title	Handouts	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions	Student Reference
Manufacturing and Engineering	Introduction to Welding Codes		•	•	•	•	•
	Understanding Welder Qualification Testing		•	•	•	•	•
	Understanding Numbering Systems Used by Welding Codes		•	•		•	•
	Understanding Welding Procedure Qualifications		•	•	•	•	•
	Basics of Welding Code Documentation		•	•	•	•	•
	Visual Inspection		•	•	•	•	•
	Destructive Testing		•	•	•	•	•
	Nondestructive Testing		•	•	•	•	•
Careers	Careers in the Welding Industry		•	•		•	•
	Credentials to Enhance a Career in Welding		•	•		•	•
	Welding Inspector as a Career		•	•		•	•
	Welding Instructor as a Career		•	•		•	•
	Communications in the Work Place		•	•		•	•
	Interviewing for a Welding Position		•	•		•	•
	Problem Solving in the Workplace		•	•		•	•
	Practical Living with a Welding Career		•	•		•	•

E-LEARNING

CURRICULUM MATERIALS





E-LEARNING Curriculum Materials

TRACKING & STUDENT ACCOUNTABILITY

Administration

- Set permissions to manage learning
- Administer comprehensive testing
- Automated grade and tracking of tests
- Track student's time spent on classes and tests
- Create custom bundles of classes for multi-levels of students
- Dedicated support team

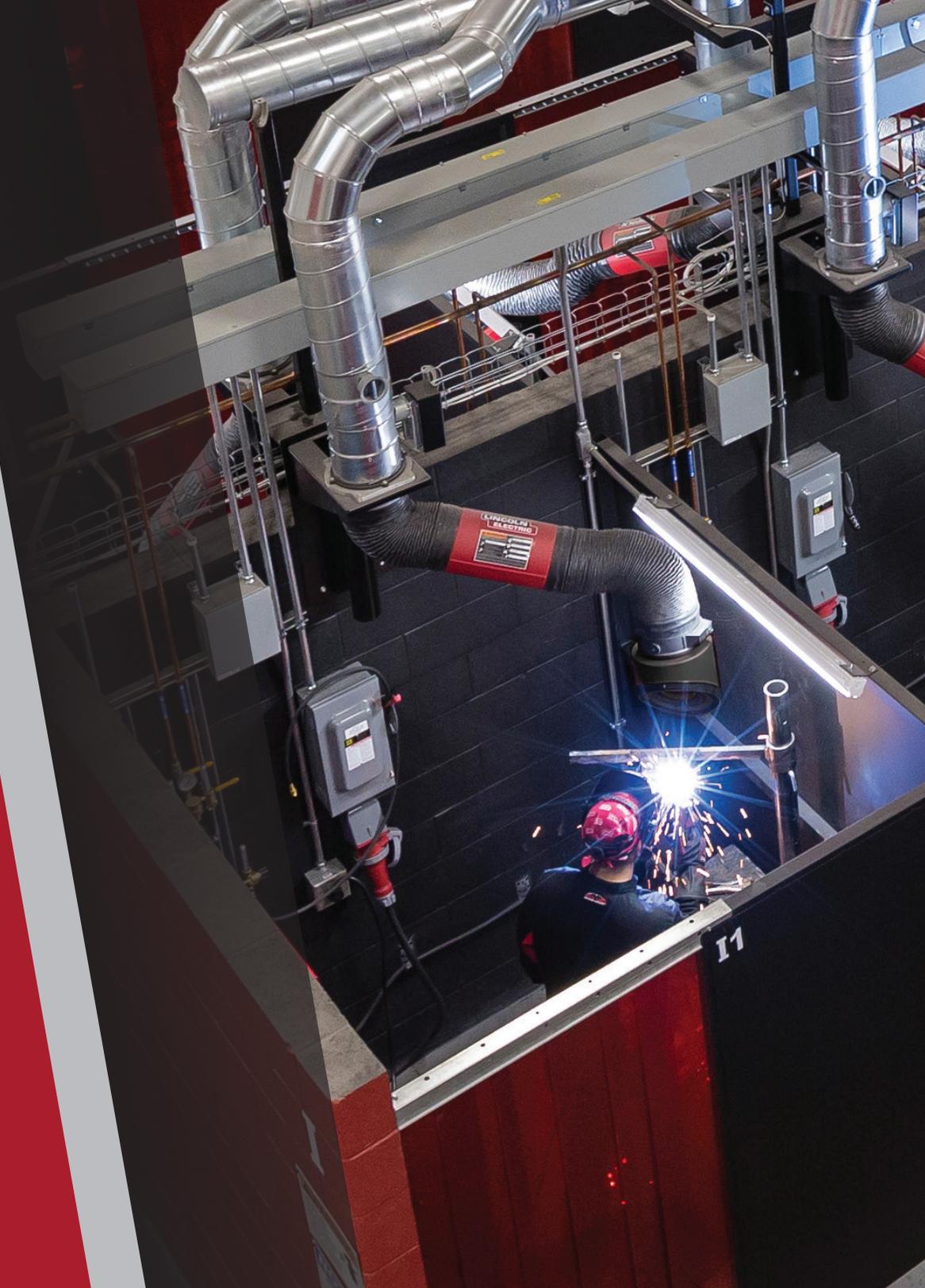
Students

- Flexible curriculum with 24/7 access
- Ability to complete at work at their own pace
- User-friendly system
- Content available at their convenience
- Immediate feedback
- Audio voice-over

Lesson Title	Lesson Title
Thermal Cutting Overview	Advanced GMAW Applications
Oxyfuel Cutting Applications	GMAW Applications
Safety for Metal Cutting	Introduction to GMAW
Welding Fumes and Gases Safety	Fabrication Process
PPE for Welding	Introduction to FCAW
Welding Safety Essentials	FCAW Applications
Electrical Safety for Welding	Introduction to GTAW
Overview of Soldering	GTAW Applications
Welding Ferrous Metals	Math Fundamentals for Welding
Welding Nonferrous Metals	Geometry for Welding
Introduction to Welding	Plasma Cutting
Introduction to Welding Processes	Introduction to Automation
Material Tests for Welding	Introduction to Submerged Arc Welding
Overview of Weld Types	What is Oxyfuel Welding?
Overview of Weld Defects	Oxyfuel Welding Safety
Welding Symbols and Codes	Electrode Selection
Electrical Power for Arc Welding	Arc Welding Aluminum Alloys
Introduction to SMAW	
SMAW Applications	

LABORATORY

CURRICULUM MATERIALS



Process	Lesson Title	Instructor Lesson Plan	Student Handout	Video	WPS	Weld Assessment Rubric	Student Reference
SMAW	E6010 Stringer Bead 10 GA	.	.	.	.	.
	E6013 Stringer Bead	.	.	.	.	.
	E7018 Stringer Bead	.	.	.	.	.
	E6010 2F (Horizontal) T Joint 10 GA	.	.	.	.	.
	E6010 2F (Horizontal) T Joint 1/4 in.	.	.	.	.	.
	E7018 2F (Horizontal) T Joint 10 GA	.	.	.	.	.
	E7018 2F (Horizontal) T Joint 1/4 in.	.	.	.	.	.
	E6010 2F (Horizontal) T Joint 3/8 in.	.	.	.	.	.
	E7018 2F (Horizontal) T Joint 3/8 in.	.	.	.	.	.
	E6010 2F (Flat) Lap 10 GA	.	.	.	.	.
	E6013 2F (Flat) Lap 10 GA	.	.	.	.	.
	E7018 2F (Flat) Lap 10 GA	.	.	.	.	.
	E6010 3F (Vertical Up) T Joint	.	.	.	.	.
	E7018 3F (Vertical Up) T Joint 1/4 in.	.	.	.	.	.
	E7018 3F (Vertical Up) T Joint	.	.	.	.	.
	E7018 3F (Vertical Up) T Joint 3/8 in.	.	.	.	.	.
	E6010 3F (Vertical Up) T Joint 3/8 in.	.	.	.	.	.
	E6010 3F (Vertical Up) Lap 10 GA	.	.	.	.	.
	E6010 3F (Vertical Down) T Joint 10 GA	.	.	.	.	.
	E6013 3F (Vertical Down) T Joint 10 GA	.	.	.	.	.
	E6013 3F (Vertical Down) Lap	.	.	.	.	.
	E6010 4F (Overhead) T Joint 3/8 in.	.	.	.	.	.
	E7018 4F (Overhead) T Joint 3/8 in.	.	.	.	.	.
	E6010 4F (Overhead) T Joint 3/8 in.	.	.	.	.	.
	E6010 4F (Overhead) T Joint 1/4 in.	.	.	.	.	.
	E7018 4F (Overhead) T Joint 10 GA	.	.	.	.	.
	E7018 4F (Overhead) T Joint 1/4 in.	.	.	.	.	.
	E6010 4F (Overhead) Lap 10 GA	.	.	.	.	.
	E6013 4F (Overhead) Lap 10 GA	.	.	.	.	.
	E6010 1G (Flat) Groove 3/8 in.	.	.	.	.	.
	E7018 1G (Flat) Groove 3/8 in.	.	.	.	.	.
	E6013 1G (Flat) Groove 3/8 in.	.	.	.	.	.
	E7018 2G (Horizontal) Groove 3/8 in.	.	.	.	.	.
	E6010 2G (Horizontal) Groove 3/8 in.	.	.	.	.	.
	E6013 2G (Horizontal) Groove 3/8 in.	.	.	.	.	.
	E6010 3G (Vertical Up) Groove 3/8 in.	.	.	.	.	.
	E7018 3G (Vertical Up) Groove 3/8 in.	.	.	.	.	.
	E6013 3G (Vertical Up) Groove 3/8 in.	.	.	.	.	.
	E7018 4G (Overhead) Groove 3/8 in.	.	.	.	.	.
	E6010 4G (Overhead) Groove 3/8 in.	.	.	.	.	.
	E6013 4G (Overhead) Groove 3/8 in.	.	.	.	.	.

Process	Lesson Title	Instructor Lesson Plan	Student Handout	Video	WPS	Weld Assessment Rubric	Student Reference
GMAW	Short Arc Flat Bead on Plate 1/4 in.	•		•			•
	Axial Spray Flat Stringer 1/4 in.	•		•			•
	Short Arc Flat Bead on Plate 1/4 in. 0.035	•		•			•
	Short Arc Flat Bead on Plate 1/4 in. 0.045	•					•
	Short Arc 2F (Horizontal) T Joint 10 GA	•		•			•
	Short Arc 2F (Horizontal) T Joint 1/4 in.	•		•			•
	Axial Spray 2F (Horizontal) T Joint 3/8 in.	•		•			•
	Pulse 2F (Horizontal) T Joint 3/8 in. 0.035	•					•
	Pulse 2F (Horizontal) T Joint 3/8 in. 0.045	•					•
	Spray 2F (Horizontal) T Joint 3/8 in. 0.052	•		•			•
	Spray 2F (Horizontal) T Joint 1/4 in.	•		•			•
	Short Arc 2F (Horizontal) T Joint 1/4 in.	•		•			•
	Pulse 2F (Horizontal) T Joint 3/8 in. 0.052	•					•
	Short Arc 2F (Flat) Lap 10 GA	•		•			•
	Short Arc 3F (Vertical Up) T Joint 1/4 in.	•		•			•
	Pulse 3F (Vertical Up) T Joint 3/8 in. 0.035	•					•
	Pulse 3F (Vertical Up) T Joint 3/8 in. 0.045	•					•
	Spray 3F (Vertical Up) T Joint 3/8 in.	•					•
	Short Arc 3F (Vertical Up) T Joint 3/8 in.	•		•			•
	Pulse 3F (Vertical Up) T Joint 3/8 in. 0.052	•					•
	Short Arc 3F (Vertical Down) T Joint 10 GA	•		•			•
	Short Arc 3F (Vertical Down) T Joint 1/4 in.	•		•			•
	Short Arc 3F (Vertical Down) Lap 10 GA	•		•			•
	Short Arc 4F (Overhead) T Joint 10 GA	•					•
	Pulse 4F (Overhead) T Joint 3/8 in. 0.035	•					•
	Pulse 4F (Overhead) T Joint 3/8 in. 0.045	•					•
	Pulse 4F (Overhead) 3/8 in. T Joint 0.052	•					•
	Short Arc 1G (Flat) Groove 3/8 in.	•					•
	Axial Spray 1G (Flat) Groove 3/8 in. 0.045	•		•			•
	Axial Spray 1G (Flat) Groove 3/8 in. 0.052	•		•			•
	Pulse 1G (Flat) Groove 3/8 in. 0.035	•					•
	Pulse 1G (Flat) Groove 3/8 in. 0.045	•					•
	Pulse 1G (Flat) Groove 3/8 in. 0.052	•					•
	Spray 1G (Flat) Groove 3/8 in. 0.052	•					•
	Short Arc 2G (Horizontal) Groove 3/8 in.	•		•			•
	Pulse 2G (Horizontal) Groove 3/8 in. 0.045	•					•
	Pulse 2G (Horizontal) Groove 3/8 in. 0.035	•					•
	Pulse 2G (Horizontal) Groove 3/8 in. 0.052	•					•
	Short Arc 3G (Vertical Up) Groove 3/8 in.	•		•			•
	Pulse 3G (Vertical Up) Groove 3/8 in. 0.045	•					•
	Pulse 3G (Vertical Up) Groove 3/8 in. 0.035	•					•

Process	Lesson Title	Instructor Lesson Plan	Student Handout	Video	WPS	Weld Assessment Rubric	Student Reference
GMAW (Continued)	Pulse 3G (Vertical Up) Groove 3/8 in. 0.052	•					•
	Short Arc 4G (Overhead) Groove 3/8 in.	•					•
	Pulse 4G (Overhead) Groove 3/8 in. 0.035	•					•
	Pulse 4G (Overhead) Groove 3/8 in. 0.045	•					•
	Pulse 4G (Overhead) Groove 3/8 in. 0.052	•					•
	Spray 2F (Horizontal) T Joint 3/8 in. on Aluminum	•					•
	Pulse 2F (Horizontal) T Joint on Aluminum	•					•
	Pulse 2F (Horizontal) T Joint 3/8 in. on Aluminum	•					•
	Pulse 2F (Flat) Lap 10 GA on Aluminum	•					•
	Pulse 3F (Vertical Up) T Joint on Aluminum	•					•
	Spray 1G (Flat) Groove 3/8 in. on Aluminum	•					•
	Pulse 2G (Horizontal) Groove 3/8 in. on Aluminum	•					•
	Pulse 3G (Vertical Up) Groove on Aluminum	•					•
	Spray 2F (Horizontal) T Joint on Stainless Steel	•					•
	Pulse 2F (Horizontal) T Joint on Stainless Steel	•					•
	Pulse 2F (Flat) Lap 10 GA on Stainless Steel	•					•
	Pulse 3F (Vertical Down) T Joint on Stainless Steel	•					•
	Pulse 3F (Vertical Down) Lap 10 GA on Stainless Steel	•					•
	Spray 1G (Flat) Groove 3/8 in. on Stainless Steel	•					•
Pulse 3G (Vertical Up) Groove on Stainless Steel	•					•	

Process	Lesson Title	Instructor Lesson Plan	Student Handout	Video	WPS	Weld Assessment Rubric	Student Reference
GTAW	Flat 10 GA on Mild Steel	•					•
	2F (Horizontal) T Joint on Mild Steel	•		•			•
	Pulse 2F (Horizontal) T Joint on Aluminum	•					•
	2F (Horizontal) T Joint on Aluminum	•					•
	Pulse 2F (Horizontal) T Joint on Stainless Steel	•					•
	Pulse 2F (Horizontal) T Joint on Mild Steel	•		•			•
	2F (Horizontal) T Joint 3/8 in. on Stainless Steel	•					•
	2F (Flat) Lap on Aluminum	•					•
	2F (Flat) Lap on Stainless Steel	•					•
	2F (Flat) Lap on Mild Steel	•		•			•
	Pulse 2F (Flat) Lap on Aluminum	•					•
	Pulse 2F (Flat) Lap on Mild Steel	•		•			•
	Pulse 2F (Flat) Lap on Stainless Steel	•					•
	Pulse 2F (Horizontal) Autogenous Lap on Aluminum	•					•
	Pulse 2F (Horizontal) Autogenous Lap on Mild Steel	•		•			•
	Pulse 2F (Horizontal) Autogenous Lap on Stainless Steel	•					•
	Pulse 3F (Vertical Up) T Joint on Stainless Steel	•					•
	Pulse 3F (Vertical Up) T Joint on Mild Steel	•					•
	Pulse 3F (Vertical Up) T Joint on Aluminum	•					•
	3F (Vertical Up) T Joint on Mild Steel	•		•			•
	3F (Vertical Up) T Joint on Aluminum	•					•
	Pulse 3F (Vertical Up) Lap on Aluminum	•					•
	Pulse 3F (Vertical Up) Autogenous Lap on Stainless Steel	•					•
	Pulse 3F (Vertical Up) Lap on Stainless Steel	•					•
	Pulse 3F (Vertical Up) Autogenous Lap on Mild Steel	•					•
	Pulse 3F (Vertical Up) Lap on Mild Steel	•					•
	Pulse 3F (Vertical Up) Autogenous Lap on Aluminum	•					•
	3F (Vertical Up) Autogenous Lap on Aluminum	•					•
	3F (Vertical Up) Lap on Mild Steel	•		•			•
	3F (Vertical Up) Lap on Aluminum	•					•
	3F (Vertical Up) Autogenous Lap on Stainless Steel	•					•
	3F (Vertical Up) Lap on Stainless Steel	•					•
	3F (Vertical Up) Autogenous Lap on Mild Steel	•					•
	3F (Vertical Down) Lap on Mild Steel	•					•
	Pulse 4F (Overhead) T Joint on Mild Steel	•					•
	Pulse 4F (Overhead) T Joint on Aluminum	•					•
	Pulse 4F (Overhead) T Joint on Stainless Steel	•					•
	F (Overhead) Lap on Stainless Steel	•					•
	F (Overhead) Lap on Mild Steel	•					•
	Pulse 4F (Overhead) Autogenous Lap on Aluminum	•					•
	Pulse 4F (Overhead) Autogenous Lap on Stainless Steel	•					•

Process	Lesson Title	Instructor Lesson Plan	Student Handout	Video	WPS	Weld Assessment Rubric	Student Reference
GTAW (Continued)	Pulse 4F (Overhead) Lap on Mild Steel	•					•
	Pulse 4F (Overhead) Autogenous Lap on Mild Steel	•					•
	Pulse 4F (Overhead) Lap on Aluminum	•					•
	Pulse 4F (Overhead) Lap on Stainless Steel	•					•
	1G (Flat) Butt Walking the Cup on Mild Steel	•		•			•
	Pulse 1G (Flat) Butt Walking the Cup on Stainless Steel	•					•
	Pulse 1G (Flat) Butt Walking the Cup on Mild Steel	•					•
	1G (Flat) Butt on Aluminum	•					•
	Pulse 1G (Flat) Butt on Aluminum	•					•
	1G (Flat) V Groove 3/8 in. Walking the Cup on Stainless Steel	•					•
	1G (Flat) Butt Walking the Cup on Stainless Steel	•					•
	Pulse 2G (Horizontal) Butt Walking the Cup on Mild Steel	•					•
	2G (Horizontal) Butt 10 GA Walking the Cup on Mild Steel	•					•
	2G (Horizontal) Butt 3/8 in. Walking the Cup on Mild Steel	•					•
	2G (Horizontal) Butt Walking the Cup on Stainless Steel	•					•
	2G (Horizontal) Butt on Aluminum	•					•
	Pulse 2G (Horizontal) Butt on Aluminum	•					•
	2G (Horizontal) V Groove Walking the Cup on Stainless Steel	•					•
	Pulse 2G (Horizontal) Butt Walking the Cup on Stainless Steel	•					•
	3G (Vertical Up) Butt 10 GA Walking the Cup on Mild Steel	•					•
	3G (Vertical Up) Groove 3/8 in. Walking the Cup on Mild Steel	•					•
	3G (Vertical Up) Butt on Aluminum	•					•
	Pulse 3G (Vertical Up) Butt on Aluminum	•					•
	3G (Vertical Up) V Groove Walking the Cup on Stainless Steel	•					•
	Pulse 3G (Vertical Up) Butt Walking the Cup on Mild Steel	•					•
	Pulse 3G (Vertical Up) Butt Walking the Cup on Stainless Steel	•					•
	3G (Vertical Up) Butt Walking the Cup on Stainless Steel	•					•
	4G (Overhead) Butt 10 GA Walking the Cup on Mild Steel	•					•
	4G (Overhead) Butt 3/8 in. Walking the Cup on Mild Steel	•					•
	Pulse 4G (Overhead) Butt on Mild Steel	•					•
	4G (Overhead) Butt 10 GA Walking the Cup on Stainless Steel	•					•
	4G (Overhead) Butt Walking the Cup on Stainless Steel	•					•
	Pulse 4G (Overhead) Butt on Aluminum	•					•
	4G (Overhead) Butt on Aluminum	•					•

Process	Lesson Title	Instructor Lesson Plan	Student Handout	Video	WPS	Weld Assessment Rubric	Student Reference
FCAW	FCAW-G Flat Stringer Bead	.	.	.	.	.
	FCAW-S Stringer Bead	.	.	.	.	.
	FCAW-S Flat Pad	.	.	.	.	.
	FCAW-G Flat Pad	.	.	.	.	.
	FCAW-G 2F (Flat) Lap 3/8 in.	.	.	.	.	.
	FCAW-S 2F (Horizontal) T Joint 3/8 in.	.	.	.	.	.
	FCAW-G 3F (Vertical Up) T Joint 3/8 in.	.	.	.	.	.
	FCAW-S 3F (Vertical Up) T Joint 3/8 in.	.	.	.	.	.
	FCAW-G 4F (Overhead) T Joint 3/8 in.	.	.	.	.	.
	FCAW-S 4F (Overhead) T Joint 3/8 in.	.	.	.	.	.
	FCAW-G 1G (Flat) Groove 3/8 in.	.	.	.	.	.
	FCAW-S 1G (Flat) Groove 3/8 in.	.	.	.	.	.
	FCAW-G 2G (Horizontal) Groove 3/8 in.	.	.	.	.	.
	FCAW-S 2G (Horizontal) Groove 3/8 in.	.	.	.	.	.
	FCAW-G 3G (Vertical Up) Groove 3/8 in.	.	.	.	.	.
	FCAW-S 3G (Vertical Up) Groove 3/8 in.	.	.	.	.	.
	FCAW-G 4G (Overhead) Groove 3/8 in.	.	.	.	.	.

Process	Lesson Title	Instructor Lesson Plan	Student Handout	Video	WPS	Weld Assessment Rubric	Student Reference
PIPE	API Fit Up Tack Up	•	•				
	ASME Fit Up and Tack Up	•	•				
	API 1G	•	•				
	API 2G	•	•				
	API 5G	•	•				
	API 6G	•	•				
	ASME 1G	•	•				
	ASME 2G	•	•				
	ASME 5G	•	•				
	ASME 6G	•	•				



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