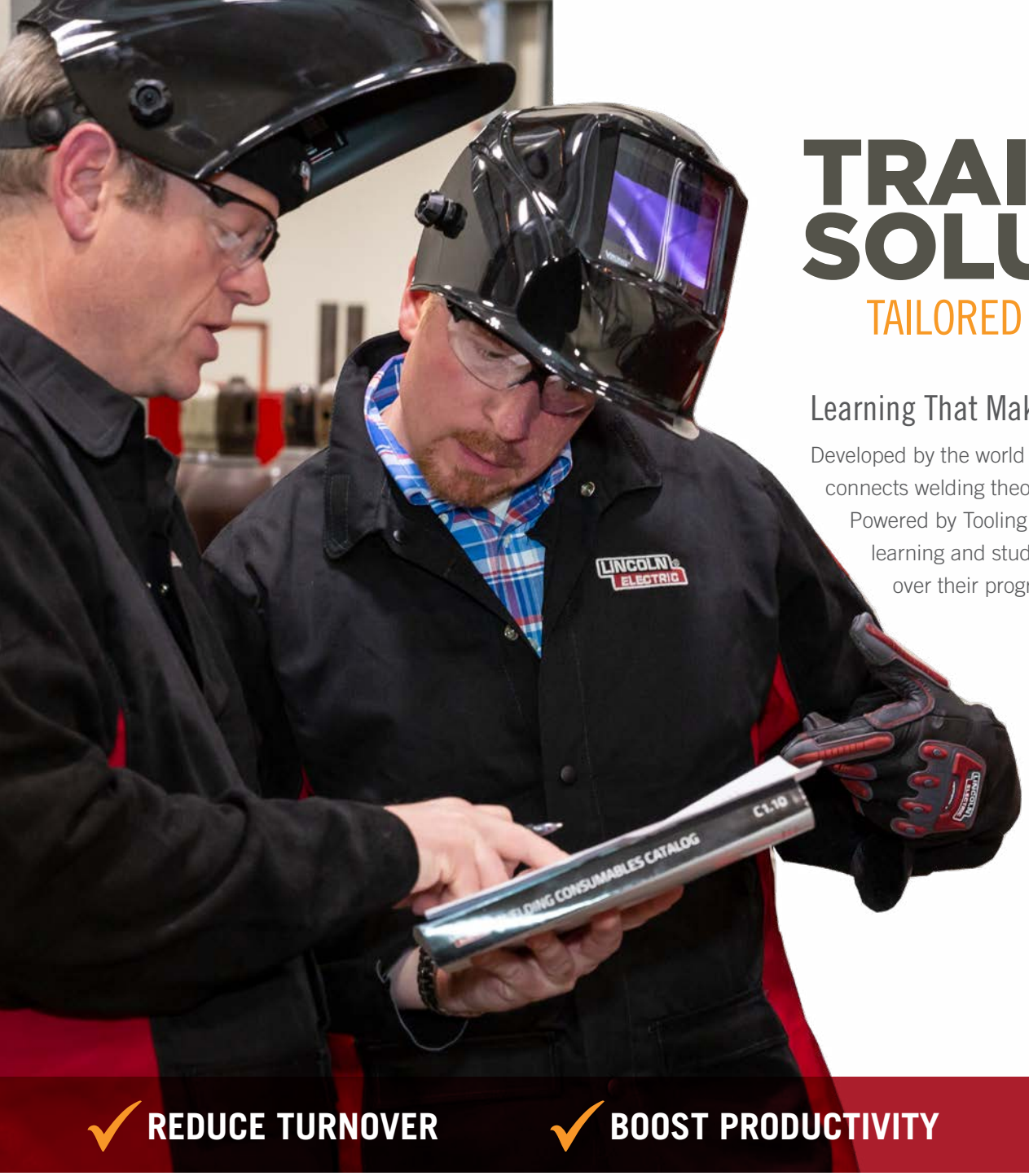
U/LINC™
INSTRUCTION ENGINEERED by LINCOLN ELECTRIC

Powered By

TOOLINGU | sme

EMPOWERING
THE NEXT GENERATION OF
WELDERS
WITH A MORE ENGAGING EDUCATION CURRICULUM

LINCOLN ELECTRIC



TRAINING SOLUTIONS

TAILORED TO YOUR WORKFORCE NEEDS

Learning That Makes a Difference

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

The U/LINC 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

✓ REDUCE TURNOVER **✓ BOOST PRODUCTIVITY** **✓ ON-BOARD FASTER**

U/LINC TOOLINGU | sme

USER-FRIENDLY LMS

SETS INSTRUCTORS UP FOR SUCCESS

THE INSTRUCTIONAL MATERIALS YOU NEED – ALL IN ONE PLACE

Instructors can select a pre-built curriculum or customize their own with more than 18,000 pages of materials from lesson plans and student handouts, to lab activities and PowerPoint presentations. They can also set permissions and course parameters, manage students and track their performance.

200+	150+	150+	90+	90+	180+	70+
						
Lesson Plans	Student Handouts	Assessments	PPT Presentations	Lab Activities	Student Reference Guides	Videos

Enhanced Reporting and Tracking Capabilities

- ✓ Design Your Own Performance Dashboard
- ✓ Create-Your-Own Competencies
- ✓ Choose Your Curriculum Sequence
- ✓ Organize Student Groups

CLASSROOM
CURRICULUM MATERIALS

With applications for both manual
and virtual (VRTEX®) welding simulations

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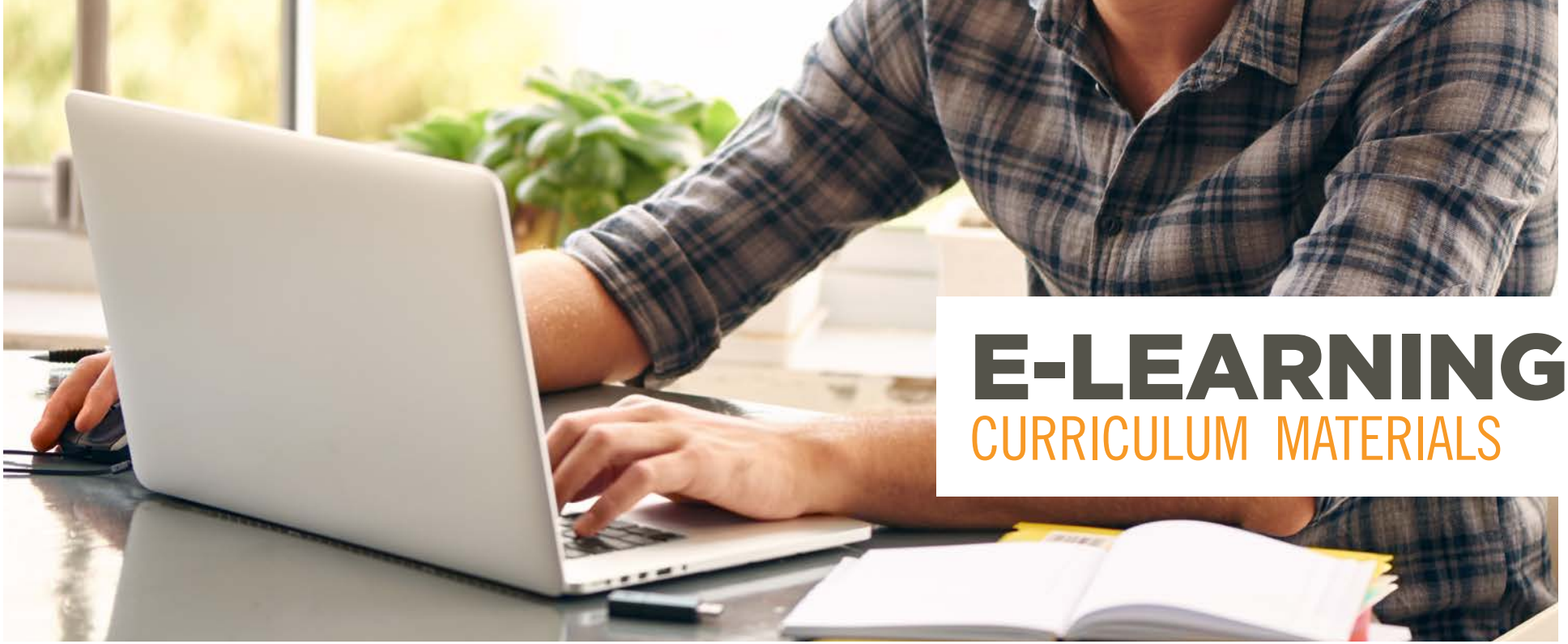
Subject Area	Lesson Title	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions.doc	Assessment Questions.pdf	Student Reference
Safety	Safe Working Conditions	●	●		●	●	●
	Personal Protective Equipment	●	●		●	●	●
	Fire Safety	●	●	●	●	●	●
	Inspecting and Troubleshooting	●	●	●	●	●	●
	AWS/ANSI Z49.1:2012 Standard	●	●		●	●	●
	Electrical Safety	●	●	●	●	●	●
	The SDS Sheet	●	●		●	●	●
	Arc Welding and Cutting Equipment Safety	●	●		●	●	●
	First Aid	●	●	●	●	●	●
	GMAW Safety	●	●		●	●	●
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	●	●	●	●	●	●
	Weld Discontinuities and Defects	●	●	●	●	●	●
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	●	●	●	●	●	●
	GMAW Maintenance and Repair	●	●	●	●	●	●
	GMAW Aluminum Welding	●	●	●	●	●	●
	GMAW Stainless Steel Welding	●	●	●	●	●	●
	GMAW Pipe Welding	●	●	●	●	●	●

Subject Area	Lesson Title	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions.doc	Assessment Questions.pdf	Student Reference
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	●	●	●	●	●	●
	SMAW Pipe Welding	●	●	●	●	●	●
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	●	●	●	●	●	●
	FCAW Techniques	●	●	●	●	●	●
	FCAW Pipe Welding	●	●	●	●	●	●
Gas Tungsten Arc Welding (GTAW)	Vision and Body Position in Welding	●	●	●	●	●	●
	Principles of GTAW	●	●	●	●	●	●
	Introduction to GTAW	●	●	●	●	●	●
	GTAW Electrodes and Shielding Gases	●	●	●	●	●	●
	GTAW Techniques	●	●	●	●	●	●
	GTAW Equipment	●	●	●	●	●	●
	Advanced Power Source Variables	●	●	●	●	●	●
	GTAW Maintenance and Repair	●	●	●	●	●	●
Blueprint Reading (BPR)	Line Interpretation and Basic Views	●	●	●	●	●	●
	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	Plasma Arc Cutting: Safety, Set-Up and Operation	●	●	●	●	●	●
	Principles of Oxy-Fuel Cutting	●	●	●	●	●	●

Subject Area	Lesson Title	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions.doc	Assessment Questions.pdf	Student Reference
Robotics	Robotics: Yesterday, Today and Tomorrow	●		●	●	●	●
	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 Procedure Values for a R301B Model Robot	●		●	●	●	●
	Setting up a Jog Frame	●		●	●	●	●
	Teach Circular Motion on a Box	●		●	●	●	●
	Weld a Circle	●		●	●	●	●
	Weaving	●		●	●	●	●
	Wait Instruction – Timer Instruction	●		●	●	●	●
	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	●		●	●	●	●
CNC Plasma Cutting	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 Marker with ACCUMOVE VMD	●		●	●	●	●
	Troubleshooting	●		●	●	●	●

Subject Area	Lesson Title	Instructor Lesson Plan	PowerPoint	Lab Activity	Assessment Questions.doc	Assessment Questions.pdf	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	●	●	●	●	●	●
Fabrication	Reading Plans and Drawings	●	●	●	●	●	●
	Introduction to Fabrication Plans	●	●		●	●	●
	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	●			●	●	●
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

U/LINC™
INSTRUCTION ENGINEERED by LINCOLN ELECTRIC

E-LEARNING CURRICULUM MATERIALS

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

TRACKING & STUDENT ACCOUNTABILITY

Administration

- Ability to set permissions to manage learning
- Administer comprehensive testing
- Automated grade and tracking of pre-tests and final exams
- Display student's time spent on classes and tests
- Create custom bundles of classes for multi-levels of students
- Reports available to track knowledge gained
- Dedicated support team (99% customer satisfaction)

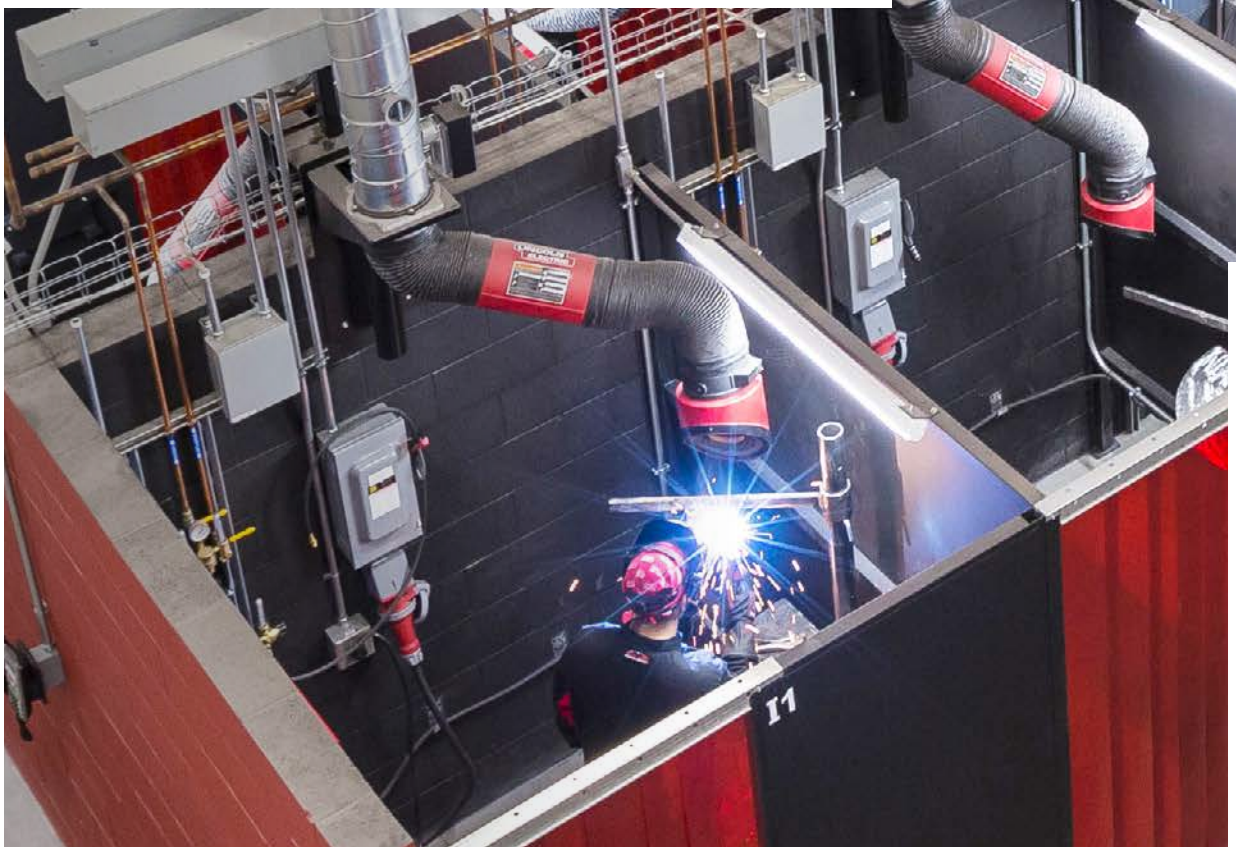
Students

- Flexible curriculum with 24/7 access from computer with internet
- Ability to complete at their own pace/own time
- User-friendly system
- Review content at their convenience
- Immediate feedback
- Audio voice-over

LINCOLN ELECTRIC

LABORATORY
CURRICULUM MATERIALS

With applications for both manual and virtual (VRTEX®) welding simulations



"U/LINC has provided my program a platform that allows for uniformity across all sections of our courses. We all originate from different areas in our industry, and we often approach topics and issues from different directions. With U/LINC we are able to 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 U/LINC gives us valuable data on our courses and allows us to trouble shoot areas where students are not grasping content. I will also add that I have never experienced such a fantastic level of customer service as I have received from Tooling U-SME and U/LINC."

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

Process	Lesson Title	Instructor Lesson Plan	Student Reference	Video
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 Reference	Video
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 Reference	Video
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	•	•	
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	•	•	

Process	Lesson Title	Instructor Lesson Plan	Student Reference	Video
GTAW (continued)	3F (Vertical Up) T Joint on Stainless Steel	•	•	
	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	•	•	
	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	•	•	

Process	Lesson Title	Instructor Lesson Plan	Student Reference	Video
GTAW (continued)	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	•	•	
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.	•	•	•
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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