Training Proposal for:
Karma Automotive LLC

Agreement Number: ET18-0187

Panel Meeting of: March 23, 2018

ETP Regional Office: San Diego          Analyst: J. Davey

PROJECT PROFILE

<table>
<thead>
<tr>
<th>Contract Attributes:</th>
<th>Priority Rate Retrainee HUA</th>
<th>Industry Sector(s):</th>
<th>Manufacturing Green Technology Nanotechnology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Priority Industry:</td>
<td>Yes No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Counties Served:</th>
<th>Orange, Riverside</th>
<th>Repeat Contractor:</th>
<th>Yes No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Union(s):</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

|-------------------------|---------|-----------|-----------------|

<table>
<thead>
<tr>
<th>Turnover Rate:</th>
<th>5%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Managers/Supervisors: (% of total trainees)</th>
<th>13%</th>
</tr>
</thead>
</table>

FUNDING DETAIL

Program Costs - (Substantial Contribution) = Total ETP Funding

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Costs</td>
<td>$302,400</td>
<td></td>
</tr>
<tr>
<td>(High Earner Reduction)</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Total ETP Funding</td>
<td>$302,400</td>
<td></td>
</tr>
</tbody>
</table>

In-Kind Contribution: 100% of Total ETP Funding Required

$1,000,000
**TRAINING PLAN TABLE**

<table>
<thead>
<tr>
<th>Job No.</th>
<th>Job Description</th>
<th>Type of Training</th>
<th>Estimated No. of Trainees</th>
<th>Range of Hours</th>
<th>Average Cost per Trainee</th>
<th>Post-Retention Wage</th>
</tr>
</thead>
</table>

**Minimum Wage by County:** Job Number 1: $17.50 per hour for Orange County and $16.70 per hour for Riverside County

**Health Benefits:** Yes ☒ No ☐ This is employer share of cost for healthcare premiums – medical, dental, vision.

**Used to meet the Post-Retention Wage?:** Yes ☒ No ☐ Maybe ☐

Up to $2.37 per hour may be used to meet the Post-Retention Wage.

**Wage Range by Occupation**

<table>
<thead>
<tr>
<th>Occupation Titles</th>
<th>Wage Range</th>
<th>Estimated # of Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations Staff</td>
<td></td>
<td>110</td>
</tr>
<tr>
<td>Sr. Operations Staff</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Manufacturing Staff</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>Engineering/IT Staff</td>
<td></td>
<td>175</td>
</tr>
<tr>
<td>Supervisor/Manager</td>
<td></td>
<td>70</td>
</tr>
</tbody>
</table>

**INTRODUCTION**

Headquartered in Irvine, Karma Automotive LLC (Karma) manufactures luxury gas-electric, plug-in electric (hybrid) automobiles. This is Karma’s second ETP Agreement, and the second in the last five years.

**Project Details**

In the prior proposal, the Company hired, trained and retained over 450 newly-hired and Veteran trainees, many of whom work at the new production facility.

Training focused on processes, procedures frontline management training, employee cross-training and Karma’s first plug-in electric hybrid automobile, the Revero. Karma targeted training on a new frontline management training program and employee cross-training. This project will focus on the delivery of technical skills for the Engineering Staff. While trainees may receive training in the same topics, they will not receive the same training as in the previous ETP project.
Karma is now in the final development stage for manufacturing new models for production. Training will provide workers the knowledge and skills necessary to design and develop the next generation of Karma automobiles. Training will help newly hired workers achieve competency quickly.

Training will meet the needs of incumbent workers at Irvine headquarters and manufacturing plant in Moreno Valley. Staff must be cross-trained on all jobs within their department/function. Karma plans to remain a niche, luxury automobile manufacturer, therefore, employees need to maintain the highest level and widest range of skills possible to produce high-quality automobiles.

Karma must continue to improve its internal processes for efficiency in a low production rate environment. Each automobile remains at a specific station longer; therefore, for each station, trainees need to learn a number of different processes and skills to be effective and efficient. The Company has several production routines within the body shop skill set, so it is critical to train frontline workers to work efficiently across this job classification and within their department.

Training Plan

Training will take place at the Company’s facilities in Moreno Valley and Irvine by in-house experts and vendors as needed.

**Business Skills:** Training will be offered to all occupations in supplemental business skills in areas such as Business Acumen, Communication Skills, Customer Experience/Customer Support, and Materials Selection/Product Optimization. This training will improve the ability of the workforce to better manage the overall business while implementing the new products and processes.

**Computer Skills:** Training will be offered to all occupations on systems and computer applications that are applicable to their job role and responsibilities.

**Continuous Improvement:** Training will be offered to all occupations in Karma’s unique operations model, as well as the skills and proficiency necessary for high-level efficiency, quality and customer service. Training will include Change Management, ISO Skills, Leadership Skills and Lean/Six Sigma Skills.

**Hazardous Materials:** Training will be offered to Supervisors/Managers and Operations Staff with supplemental hazardous materials skills in Hazardous Materials training (e.g. adhesives, solvents, chemicals, paint, etc.) and High-Voltage Batter and Systems Awareness.

**Manufacturing Skills:** Training will be offered to Operations Staff in Hybrid Vehicle Manufacturing skills topics including Automotive/Electrical Safety, Body Shop Equipment Operation/Maintenance, Electro Mechanical/Maintenance Skills, Engineering/Systems Skills, and Hybrid Vehicle Manufacturing/Assembly/Quality Control Processes. These skills will ensure new and existing employees are up-to-date with the latest developments in the manufacture and assembly of emerging technologies to ensure efficiency and quality during production.

**Advanced Technology**

The proposed Advanced Technology (AT) training is designed exclusively for Information Technology/Engineering professionals with an emphasis on innovation and new product development to further Karma’s design and engineering goals. Courses will be taught by a combination of vendors and in-house experts. Training will be offered to approximately 100 Engineering/IT Staff.
The trainer-to-trainee ratio will not exceed 1:10 to allow in-depth coverage and personal attention from the instructor. Depending on the types of systems involved and the specific expertise required, the course will range from $75 to $200 per hour, per trainee.

Training of this nature is intensive and requires a large amount of time, dedicated largely to the acquisition of advanced skills including Hybrid Vehicle Engineering/Design Skills, Programming Skills, Web Development, Net Security, Information Security, Cisco Skill and Citrix Skills.

**Computer-Based Training (CBT)**

Karma is requesting to provide up to 100% CBT for select trainees. This will provide Karma flexibility to provide training via the appropriate training modality based on the stages of development and production throughout the two-year term of the agreement.

With the current and rapid advances in technology, CBT is an integral part of a larger system of practices and policies designed to prepare and support a high skilled workforce. This self-paced CBT delivery method allows Karma's frontline worker's to participate in training during the work day at a time that it best meets their job schedule or demand.

CBT is typically used to supplement/complement planned instructor-led learning in an effort to ensure a solid understanding of the concepts presented. The majority of the training in the proposal is Manufacturing Skills targeted for Operations Staff, Engineering/IT and Supervisors/Managers.

CBT was developed by Tooling U-SME. The curriculum is customized for the manufacturing industry and targets the training needs of the auto industry. Tooling U-SME is constantly developing new content for their CBT library of classes, based on the requests and needs of the manufacturing community.

**Productive Laboratory (PL)**

PL trainees may produce goods for profit as part of the training in the courses identified under the Curriculum. The instructor must be exclusively dedicated to training delivery during all hours of training.

Karma’s business requires trainees possess many skills that must be learned via observation and hands-on experience. The use of PL allows for practical, “hands-on” experience that cannot be duplicated in a classroom setting. Additionally, Karma has some equipment that is in limited supply and requires special power connections and therefore can only be used on the Operations line.

Karma will provide up to 60 hours per-trainee of PL-Manufacturing Skills. Trainees will be directed by the instructor at all times. Training assignments will be task-oriented and specific to the manufacturing or software/hardware equipment. The trainer-to-trainee ratio is 1:1. Training will be conducted at the Company’s Moreno Valley location for Operations and Quality Staff for up to 150 trainees.

**High Unemployment Area**

Approximately 185 trainees in Job Number 1 work in a High Unemployment Area (HUA), a region with unemployment exceeding the state average by at least 25%. The Company’s location in Moreno Valley, Riverside County, qualify for HUA status under these standards. However, Karma is not asking for a wage modification.
Green/Clean Operations

Karma is committed to the use of Green/Clean Technology. The Company manufactures its plug-in hybrid vehicle, and the Revero, which uses roof-top solar panels to charge its high voltage battery. Additionally, the Company is also exploring the installation of solar panels on the roof of its facilities in Irvine and Moreno Valley.

Nanotechnology

Karma’s plug-in hybrid vehicle will have A123’s new battery, which uses Nanotechnology to deliver high power energy in a more lightweight and compact package. In addition, with over 40 microcomputers included in the vehicle design, Nanotechnology plays a key role in the overall vehicle design and manufacture.

Substantial Contribution

Karma Automotive is a repeat contractor with payment earned in excess of $250,000 in its previous ETP contract. However, the amount earned for retrainee, incumbent workers at any single facility was less than $250,000. Karma earned $111,206 for incumbent workers, most of which was earned at the Irvine or Costa Mesa facilities; and, $514,088 in earnings for newly-hired retrainees or veteran trainees, most of which was earned at the Moreno Valley manufacturing facility. Thus, Karma is not subject to Substantial Contribution.

Commitment to Training

Karma’s projected training budget for 2018 is approximately $500,000. Training includes new employee orientation, basic OSHA Training, basic Microsoft Office, and anti-harassment. Additionally, Karma allows employees to attend key industry conferences that provide training break-out sessions and seminars on industry topics and trends. This training will be provided at Karma’s expense during the term of the proposed agreement and beyond.

ETP funds will not displace the existing financial commitment to training. Safety training is provided in accordance with all pertinent requirements under state and federal law.

RECOMMENDATION

Staff recommends approval of this proposal.

PRIOR PROJECTS

The following table summarizes performance by Karma under an ETP Agreement that was completed within the last five years:

<table>
<thead>
<tr>
<th>Agreement No.</th>
<th>Location (City)</th>
<th>Term</th>
<th>Approved Amount</th>
<th>Payment Earned $</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET16-0287</td>
<td>Irvine, Moreno Valley</td>
<td>12/31/15 – 12/30/17</td>
<td>$835,218</td>
<td>$625,294*</td>
<td>(75%)</td>
</tr>
</tbody>
</table>

*Earnings for incumbent workers (Job 1) were $111,206.

DEVELOPMENT SERVICES

Training Funding Partners in Fountain Valley assisted with development for a flat fee of $22,500.
ADMINISTRATIVE SERVICES

Training Funding Partners will also perform administrative services for amount not to exceed 12% of payment earned.

TRAINING VENDORS

To Be Determined
Exhibit B: Menu Curriculum

Class/Lab Hours
8-200

Trainees may receive any of the following:

**BUSINESS SKILLS**
- Business Acumen
- Communication Skills
- Customer Experience/Customer Support
- Data Collection and Recordkeeping
- Effective Business/Technical Writing
- Finance/Accounting Skills
- Marketing/Sales Skills
- Materials Selection/Product Optimization
- New and Revised Standard Operating Procedures
- Presentation Skills
- Procurement/Supply Chain Management

**CONTINUOUS IMPROVEMENT**
- Change Management
- Environmental Sustainability Practices
- ISO Skills
- Leadership Skills
- Lean/Six Sigma
- Process Improvement/Efficiency Skills
- Product Quality Planning/Product Liability
- Project/Program Management
- Risk Management Skills
- Team Building
- Time Management
- Troubleshooting/Root Cause Analysis

**COMPUTER SKILLS**
- Adobe Skills
- Computer-Aided Design (CAD) Systems
- Computer Programming and Software Maintenance
- Concur System Skills
- Document Management Software Systems
- Information Security
- Intermediate/Advanced MS Office Skills
- Kronos System Skills
- Learning Management System Skills
- Microsoft Project
- SAP System Skills
- SharePoint
- Skype for Business Skills
- Tableau
- Workterra System Skills
HAZARDOUS MATERIALS
- Hazardous Materials Training (e.g. adhesives, solvents, chemicals, paint etc.)
- High-Voltage Battery and Systems Awareness

MANUFACTURING SKILLS
- Automotive/Electrical Safety
- Body Shop Equipment Operation/Maintenance
- Electro Mechanical/Maintenance Skills
- Engineering/Systems Skills
- Forklift Training
- Fuel Efficiency Best Practices
- Hybrid Vehicle Manufacturing/Assembly/Quality Control Processes
- Paint Equipment Operation
- Paint Quality, Defects, Prevention, Repair
- Paint Types and Application Techniques
- Lean Manufacturing
- Programmable Logic Control
- Welding Skills

Productive Lab Hours
0-60

MANUFACTURING SKILLS (Ratio 1:1)
- Body Shop Equipment Operation/Maintenance
- Paint Shop Equipment Operation/Maintenance
- Hybrid Vehicle Manufacturing and Assembly Processes
- Hybrid Vehicle Power Electronics
- Manufacturing Equipment Skills/ Maintenance
- Manufacturing Fit and Finish/Quality

AT Hours
0-200

ADVANCED TECHNOLOGY (Ratio 1:10)
- CAD Data Management
- CAD Clash Methodologies
- CAD Industry Best Practices to Increase Design Quality
- Computer Aided Three-dimensional Interactive Application
- Cisco Skills
- Citrix Skills
- CompTIA
- Computer-Aided Engineering
- Concurrent Engineering Skills
- Cybersecurity
- Design for Manufacturing/Design of Experiments
- Electric Vehicle Battery Applications
- Engineering Bill of Materials Management
- Failure Mode and Effects Analysis
- Geometric Dimensioning and Tolerancing
- High-Voltage Electronics Design and Management
- HVAC and Phase Change Thermodynamics
- Java Skills
• Manufacturing Automation and Robotics
• Microsoft Server
• N Code
• Nastran
• Power Electronics
• Product Change Management Process and Best Practices
• Product Lifecycle Management – Smarteam – Management of Product Data
• Programming Skills
• Red Hat/Linux
• SQL
• Vehicle Dynamics
• VMWare
• Web Development-.Net Security
• Windows 8 and 10 Network Management

CBT Hours*
0-200

BUSINESS SKILLS
• Basics of Manufacturing Costs 140 (1.5 hours)
• Conflict Resolution for Different Groups 155 (1.5 hours)
• Conflict Resolution Principles 150 (1.5 hours)
• Essentials of Communication 120 (1.5 hours)
• Intro to Managerial Accounting 145 (1.5 hours)
• Personal Effectiveness 190 (1.5 hours)
• Product Design and Development 134 (1.5 hours)
• Quality and Customer Service 175 (1.5 hours)

CONTINUOUS IMPROVEMENT
• Continuous Process Improvement: Identifying and Eliminating Waste 125 (1.5 hours)
• Continuous Process Improvement: Managing Flow 124 (1.5 hours)
• Developing a Lean Culture 135 (1.5 hours)
• Essentials of Leadership 110 (1.5 hours)
• Management Tools: Problem Solving 270 (1.5 hours)
• Management Tools: Product and Process Design 275 (1.5 hours)
• Managing Performance: Best Practices 130 (1.5 hours)
• Managing Performance: Corrective Actions 135 (1.5 hours)
• Managing Practices for Total Quality 320 (1.5 hours)
• Process Design and Development 133 (1.5 hours)
• Process Flow Charting 241 (1.5 hours)
• Quality Overview 100 (1.5 hours)
• Team Leadership 160 (1.5 hours)

MANUFACTURING SKILLS
Additive Manufacturing:
• Additive Manufacturing as a Secondary Process 231 (1.5 hours)
• Additive Manufacturing Materials Science 211 (1.5 hours)
• Additive Manufacturing Methods and Materials 140 (1.5 hours)
• Additive Manufacturing Safety 120 (1.5 hours)
• Design for Additive Manufacturing 201 (1.5 hours)
• Integrating Additive Manufacturing with Traditional Manufacturing 221 (1.5 hours)
- Intro to Additive Manufacturing 110 (1.5 hours)
- The Basic Additive Manufacturing Process 130 (1.5 hours)

**Adhesives:**
- Basics of the Bonding Process 120 (1.5 hours)
- Intro to Adhesive Bonding 110 (1.5 hours)
- Intro to Adhesive Properties 130 (1.5 hours)
- Steps for Adhesive Application 220 (1.5 hours)
- Surface Preparation 210 (1.5 hours)
- Types of Adhesives 140 (1.5 hours)

**Coatings:**
- Coating Defects 150 (1.5 hours)
- Intro to Coating Composition 110 (1.5 hours)
- Processes for Applying Coatings 140 (1.5 hours)
- Surface Preparation for Coatings 120 (1.5 hours)

**Composites:**
- Advanced Materials for Composites 135 (1.5 hours)
- Advanced Thermoset Resins for Composites 130 (1.5 hours)
- Composite Inspection and Defect Prevention 240 (1.5 hours)
- Intro to Composites 110 (1.5 hours)
- Intro to Compression Molding 170 (1.5 hours)
- Intro to Lay-Up and Spray-Up Molding 140 (1.5 hours)
- Overview of Composite Processes 120 (1.5 hours)
- Repair Methods for Composites 250 (1.5 hours)
- Safety for Composite Processing 115 (1.5 hours)
- Surface Finishing Composites 190 (1.5 hours)
- Traditional Composites 125 (1.5 hours)
- Vacuum Bagging Technique: Single-Sided Bagging 230 (1.5 hours)

**Computer Numerical Control:**
- Basics of the CNC Lathe 211 (1.5 hours)
- Basics of the CNC Machining Center 130 (1.5 hours)
- Basics of the CNC Mill 212 (1.5 hours)
- Basics of the CNC Swiss-Type Lathe 135 (1.5 hours)
- CAD/CAM Overview 160 (1.5 hours)
- Canned Cycles 310 (1.5 hours)
- Canned Cycles for the Lathe 321 (1.5 hours)
- Canned Cycles for the Mill 322 (1.5 hours)
- CNC Coordinates 140 (1.5 hours)
- CNC Manual Operations 200 (1.5 hours)
- CNC Offsets 210 (1.5 hours)
- CNC Specs for the Lathe 225 (1.5 hours)
- CNC Specs for the Mill 220 (1.5 hours)
- Control Panel Functions for the CNC Lathe 251 (1.5 hours)
- Control Panel Functions for the CNC Mill 252 (1.5 hours)
- Coordinates for the CNC Lathe 221 (1.5 hours)
- Coordinates for the CNC Mill 222 (1.5 hours)
- Creating a CNC Milling Program 302 (1.5 hours)
• Creating a CNC Turning Program 301 (1.5 hours)
• Creating a Mazatrol Program for the Lathe 289 (1.5 hours)
• Creating a Mazatrol Program for the Mill 288 (1.5 hours)
• Creating a Milling Program 290 (1.5 hours)
• Creating a Turning Program 280 (1.5 hours)
• Haas Lathe: Control Panel Overview 255 (1.5 hours)
• Haas Lathe: Entering Offsets 265 (1.5 hours)
• Haas Lathe: First Part Runs 325 (1.5 hours)
• Haas Lathe: Locating Program Zero 275 (1.5 hours)
• Haas Lathe: Program Execution 285 (1.5 hours)
• Haas Lathe: Program Storage 315 (1.5 hours)
• Haas Mill: Control Panel Overview 250 (1.5 hours)
• Haas Mill: Entering Offsets 260 (1.5 hours)
• Haas Mill: First Part Runs 320 (1.5 hours)
• Haas Mill: Locating Program Zero 270 (1.5 hours)
• Haas Mill: Program Execution 280 (1.5 hours)
• Haas Mill: Program Storage 310 (1.5 hours)
• History and Definition of CNC 100 (1.5 hours)
• Introduction to CNC Machines 201 (1.5 hours)
• Mazak Lathe: Control Panel Overview 255 (1.5 hours)
• Mazak Lathe: Entering Offsets 285 (1.5 hours)
• Mazak Lathe: First Part Runs 325 (1.5 hours)
• Mazak Lathe: Locating Program Zero 275 (1.5 hours)
• Mazak Lathe: Program Execution 295 (1.5 hours)
• Mazak Lathe: Program Storage 315 (1.5 hours)
• Mazak Lathe: Safety for the Lathe 265 (1.5 hours)
• Mazak Mill: Control Panel Overview 250 (1.5 hours)
• Mazak Mill: Entering Offsets 280 (1.5 hours)
• Mazak Mill: First Part Runs 320 (1.5 hours)
• Mazak Mill: Locating Program Zero 270 (1.5 hours)
• Mazak Mill: Program Execution 290 (1.5 hours)
• Mazak Mill: Program Storage 310 (1.5 hours)
• Mazak Mill: Safety for the Mill 265 (1.5 hours)
• Mechanics of CNC 110 (1.5 hours)
• Milling Calculations 295 (1.5 hours)
• Offsets on the CNC Lathe 261 (1.5 hours)
• Offsets on the CNC Mill 262 (1.5 hours)
• Part Program 150 (1.5 hours)
• Turning Calculations 285 (1.5 hours)

Electrical Power:
• AC Fundamentals 210 (1.5 hours)
• AC Fundamentals 241 (1.5 hours)
• AC Power Sources 235 (1.5 hours)
• AC Power Sources 281 (1.5 hours)
• Battery Selection 250 (1.5 hours)
• Battery Selection 321 (1.5 hours)
• Conductor Selection 240 (1.5 hours)
• Conductor Selection 291 (1.5 hours)
• DC Circuit Components 140 (1.5 hours)
• DC Circuit Components 221 (1.5 hours)
• DC Power Sources 230 (1.5 hours)
• DC Power Sources 271 (1.5 hours)
• Electrical Instruments 220 (1.5 hours)
• Electrical Instruments 251 (1.5 hours)
• Electrical Print Reading 225 (1.5 hours)
• Electrical Print Reading 261 (1.5 hours)
• Electrical Units 101 (1.5 hours)
• Electrical Units 110 (1.5 hours)
• Intro to Circuits 120 (1.5 hours)
• Intro to Magnetism 130 (1.5 hours)
• NEC Overview 150 (1.5 hours)
• Parallel Circuit Calculations 205 (1.5 hours)
• Parallel Circuit Calculations 311 (1.5 hours)
• Safety for Electric Work 115 (1.5 hours)
• Safety for Electrical Work 111 (1.5 hours)
• Series Circuit Calculations 200 (1.5 hours)
• Series Circuit Calculations 301 (1.5 hours)

Fasteners:
• Intro to Assembly 100 (1.5 hours)
• Intro to Fastener Ergonomics 130 (1.5 hours)
• Intro to Fastener Threads 110 (1.5 hours)
• Overview of Non-Threaded Fasteners 125 (1.5 hours)
• Overview of Threaded Fasteners 117 (1.5 hours)
• Properties for Fasteners 200 (1.5 hours)
• Safety for Assembly 105 (1.5 hours)
• Threaded Fastener Selection 215 (1.5 hours)
• Tools for Threaded Fasteners 120 (1.5 hours)
• Understanding Torque 210 (1.5 hours)

Hydraulics and Pneumatics
• Actuator Applications 240 (1.5 hours)
• Basic Hydraulic Circuit Design 310 (1.5 hours)
• Basic Pneumatic Circuit Design 315 (1.5 hours)
• Contamination and Filter Selection 330 (1.5 hours)
• Fluid System Print Reading 220 (1.5 hours)
• Hydraulic Control Valves 230 (1.5 hours)
• Hydraulic Fluid Selection 320 (1.5 hours)
• Hydraulic Power Sources 210 (1.5 hours)
• Hydraulic Power Sources 302 (1.5 hours)
• Hydraulic Power Variables 200 (1.5 hours)
• Hydraulic Principles and System Design 340 (1.5 hours)
• Intro to Fluid Conductors 130 (1.5 hours)
• Intro to Hydraulic Components 120 (1.5 hours)
• Intro to Pneumatic Components 125 (1.5 hours)
• Pneumatic Control Valves 235 (1.5 hours)
• Pneumatic Control Valves 351 (1.5 hours)
- Pneumatic Power Sources 215 (1.5 hours)
- Pneumatic Power Sources 312 (1.5 hours)
- Pneumatic Power Variables 205 (1.5 hours)
- Pneumatic Power Variables 311 (1.5 hours)
- Safety for Hydraulics and Pneumatics 105 (1.5 hours)
- Safety for Hydraulics and Pneumatics 211 (1.5 hours)
- The Forces of Fluid Power 110 (1.5 hours)
- The Forces of Fluid Power 201 (1.5 hours)

Inspection Skills:
- Advanced Hole Inspection 341 (1.5 hours)
- Basic Measurement 101 (1.5 hours)
- Basic Measurement 110 (1.5 hours)
- Basics of the CMM 120 (1.5 hours)
- Basics of the Optical Comparator 130 (1.5 hours)
- Calculations for Programming the Mill 312 (1.5 hours)
- Calibration and Documentation 371 (1.5 hours)
- Calibration Fundamentals 111 (1.5 hours)
- Calibration Fundamentals 210 (1.5 hours)
- Hardness Testing 221 (1.5 hours)
- Hardness Testing 260 (1.5 hours)
- Hole Inspection 240 (1.5 hours)
- Hole Standards and Inspection 141 (1.5 hours)
- In-Line Inspection Applications 381 (1.5 hours)
- Inspecting a Cylindrical Part 331 (1.5 hours)
- Inspecting a Prismatic Part 321 (1.5 hours)
- Inspecting with CMMs 220 (1.5 hours)
- Inspecting with CMMs 361 (1.5 hours)
- Inspecting with Optical Comparators 230 (1.5 hours)
- Inspecting with Optical Comparators 351 (1.5 hours)
- Linear Instrument Characteristics 115 (1.5 hours)
- Measuring System Analysis 300 (1.5 hours)
- Overview of Threads 150 (1.5 hours)
- Surface Measurement 140 (1.5 hours)
- Surface Texture and Inspection 201 (1.5 hours)
- Thread Inspection 250 (1.5 hours)
- Thread Standards and Inspection 151 (1.5 hours)

Manufacturing Process Skills:
- Algebra Fundamentals 141 (1.5 hours)
- Applied and Engineering Sciences 110 (1.5 hours)
- Approaches to Maintenance 120 (1.5 hours)
- Approaches to Maintenance 131 (1.5 hours)
- Automated Systems and Control 135 (1.5 hours)
- Band Saw Operation 211 (1.5 hours)
- Basic Cutting Theory 201 (1.5 hours)
- Basic Grinding Theory 221 (1.5 hours)
- Basics of the Centerless Grinder 233 (1.5 hours)
- Basics of the CNC Turning Center 120 (1.5 hours)
- Basics of the Cylindrical Grinder 232 (1.5 hours)
• Basics of the Engine Lathe 115 (1.5 hours)
• Basics of the Manual Mill 110 (1.5 hours)
• Basics of the Surface Grinder 231 (1.5 hours)
• Basics of Tolerance 120 (1.5 hours)
• Basics of Tolerance 121 (1.5 hours)
• Benchwork and Layout Operations 210 (1.5 hours)
• Benchwork and Layout Operations 241 (1.5 hours)
• Blueprint Reading 130 (1.5 hours)
• Blueprint Reading 131 (1.5 hours)
• Cell Design and Pull Systems 161 (1.5 hours)
• Centerless Grinder Operation 253 (1.5 hours)
• Centerless Grinder Operation 260 (1.5 hours)
• Concepts of Calculus 310 (1.5 hours)
• Cylindrical Grinder Operation 250 (1.5 hours)
• Cylindrical Grinder Operation 252 (1.5 hours)
• Distribution Systems 221 (1.5 hours)
• Distribution Systems 320 (1.5 hours)
• Dressing and Truing 230 (1.5 hours)
• Dressing and Truing 341 (1.5 hours)
• Drill Bushing Selection 230 (1.5 hours)
• Drill Tool Geometry 371 (1.5 hours)
• Engine Lathe Basics 211 (1.5 hours)
• Engine Lathe Operation 225 (1.5 hours)
• Engine Lathe Setup 231 (1.5 hours)
• Equipment/Tool Design and Development 137 (1.5 hours)
• Essentials of Heat Treatment of Steel 211 (1.5 hours)
• Exotic Alloys 301 (1.5 hours)
• Fanuc Lathe: Control Panel Overview 255 (1.5 hours)
• Fanuc Lathe: Entering Offsets 265 (1.5 hours)
• Fanuc Lathe: First Part Runs 325 (1.5 hours)
• Fanuc Lathe: Locating Program Zero 275 (1.5 hours)
• Fanuc Lathe: Program Execution 285 (1.5 hours)
• Fanuc Lathe: Program Storage 315 (1.5 hours)
• Fanuc Mill: Control Panel Overview 250 (1.5 hours)
• Fanuc Mill: Entering Offsets 260 (1.5 hours)
• Fanuc Mill: First Part Runs 320 (1.5 hours)
• Fanuc Mill: Locating Program Zero 270 (1.5 hours)
• Fanuc Mill: Program Execution 280 (1.5 hours)
• Fanuc Mill: Program Storage 310 (1.5 hours)
• Fittings for Fluid Systems 135 (1.5 hours)
• Fittings for Fluid Systems 251 (1.5 hours)
• Flammable/Combustible Liquids 191 (1.5 hours)
• Forces of Machines 121 (1.5 hours)
• Geometry Fundamentals for Welding 171 (1.5 hours)
• Geometry: Circles and Polygons 171 (1.5 hours)
• Geometry: Circles and Polygons 185 (1.5 hours)
• Geometry: Lines and Angles 151 (1.5 hours)
• Geometry: Lines and Angles 155 (1.5 hours)
• Geometry: Triangles 161 (1.5 hours)
• Geometry: Triangles 165 (1.5 hours)
• Hand and Power Tool Safety 145 (1.5 hours)
• Hand and Power Tool Safety 201 (1.5 hours)
• Holemaking on the Manual Mill 271 (1.5 hours)
• Holemaking on the Mill 230 (1.5 hours)
• Impact of Workpiece Materials 391 (1.5 hours)
• Industrial Network Integration 260 (1.5 hours)
• Interpreting Blueprints 230 (1.5 hours)
• Interpreting GD&T 310 (1994) (1.5 hours)
• Interpreting GD&T 315 (2009) (1.5 hours)
• Intro to Abrasives 100 (1.5 hours)
• Intro to EDM 100 (1.5 hours)
• Intro to Fluid Systems 100 (1.5 hours)
• Intro to GD&T 200 (1994) (1.5 hours)
• Intro to GD&T 205 (2009) (1.5 hours)
• Intro to Six Sigma 170 (1.5 hours)
• Intro to Six Sigma 171 (1.5 hours)
• Introduction to CAD and CAM for Machining 241 (1.5 hours)
• Introduction to Circuits 201 (1.5 hours)
• Introduction to Electric Motors 301 (1.5 hours)
• Introduction to Fluid Conductors 241 (1.5 hours)
• Introduction to GD&T 301 (1.5 hours)
• Introduction to Grinding Fluids 261 (1.5 hours)
• Introduction to Hydraulic Components 221 (1.5 hours)
• Introduction to Magnetism 211 (1.5 hours)
• Introduction to Mechanical Properties 111 (1.5 hours)
• Introduction to Mechanical Systems 101 (1.5 hours)
• Introduction to Metal Cutting Fluids 221 (1.5 hours)
• Introduction to Metals 121 (1.5 hours)
• Introduction to Physical Properties 101 (1.5 hours)
• Introduction to Plastics 131 (1.5 hours)
• Introduction to Pneumatic Components 231 (1.5 hours)
• Lathe Tool Geometry 351 (1.5 hours)
• Major Rules of GD&T 311 (1.5 hours)
• Manual Mill Basics 201 (1.5 hours)
• Manual Mill Operation 220 (1.5 hours)
• Manual Mill Operation 251 (1.5 hours)
• Manual Mill Setup 221 (1.5 hours)
• Manufacturing Management 180 (1.5 hours)
• Manufacturing Process Applications: Part I 124 (1.5 hours)
• Manufacturing Process Applications: Part II 125 (1.5 hours)
• Math Fundamentals 101 (1.5 hours)
• Math Fundamentals for Welding 161 (1.5 hours)
• Math: Fractions and Decimals 105 (1.5 hours)
• Math: Fractions and Decimals 111 (1.5 hours)
• Math: Fundamentals 100 (1.5 hours)
• Math: Units of Measurement 115 (1.5 hours)
• Metal Cutting Fluid Safety 231 (1.5 hours)
• Mill Tool Geometry 361 (1.5 hours)
- NEC(R) Overview 231 (1.5 hours)
- Optimizing Tool Life and Process 381 (1.5 hours)
- Overview of Engine Lathe Setup 205 (1.5 hours)
- Overview of Exotic Metals 225 (1.5 hours)
- Overview of Machine Tools 121 (1.5 hours)
- Overview of Manual Mill Setup 200 (1.5 hours)
- Power Transmission Components 120 (1.5 hours)
- Powered Industrial Truck Safety 210 (1.5 hours)
- Powered Industrial Truck Safety 221 (1.5 hours)
- Preventive Maintenance for Fluid Systems 140 (1.5 hours)
- Preventive Maintenance for Fluid Systems 261 (1.5 hours)
- Production System Design and Development 136 (1.5 hours)
- Setup for Centerless Grinders 320 (1.5 hours)
- Setup for the Centerless Grinder 243 (1.5 hours)
- Setup for the Cylindrical Grinder 242 (1.5 hours)
- Setup for the Surface Grinder 241 (1.5 hours)
- Shop Algebra Overview 200 (1.5 hours)
- Shop Geometry Overview 170 (1.5 hours)
- Shop Trig Overview 210 (1.5 hours)
- Siemens Human Machine Interfaces 250 (1.5 hours)
- Siemens Safety Integrated for Factory Automation 360 (1.5 hours)
- Specs for Servomotors 330 (1.5 hours)
- Speed and Feed for the Lathe 301 (1.5 hours)
- Speed and Feed for the Mill 311 (1.5 hours)
- Spring Applications 231 (1.5 hours)
- Statistics 220 (1.5 hours)
- Statistics 231 (1.5 hours)
- Strategies for Setup Reduction 251 (1.5 hours)
- Surface Grinder Operation 240 (1.5 hours)
- Surface Grinder Operation 251 (1.5 hours)
- Symbols and Diagrams for Motors 311 (1.5 hours)
- Taper Turning on the Engine Lathe 240 (1.5 hours)
- Thermoplastics 251 (1.5 hours)
- Thermosets 261 (1.5 hours)
- Threading on the Engine Lathe 235 (1.5 hours)
- Trig: Pythagorean Theorem 205 (1.5 hours)
- Trig: Sine Bar Applications 225 (1.5 hours)
- Trig: Sine, Cosine and Tangent 215 (1.5 hours)
- Trigonometry: Sine Bar Applications 221 (1.5 hours)
- Trigonometry: Sine, Cosine, Tangent 211 (1.5 hours)
- Trigonometry: The Pythagorean Theorem 201 (1.5 hours)
- Troubleshooting 181 (1.5 hours)
- Troubleshooting Coating Defects 170 (1.5 hours)
- Troubleshooting: Identifying Problems 180 (1.5 hours)
- Troubleshooting: Taking Corrective Actions 184 (1.5 hours)
- Troubleshooting: Understanding Causes and Effects 182 (1.5 hours)
- TS 16949:2009 Overview 220 (1.5 hours)
- TS 16949:2009 Overview 221 (1.5 hours)
- Units of Measurement 112 (1.5 hours)
• What Is Grinding? 110 (1.5 hours)

Materials Processing:
• Ceramics 250 (1.5 hours)
• Ferrous Metals and Alloys 210 (1.5 hours)
• Heat Treatment of Steel 230 (1.5 hours)
• Intro to Materials 100 (1.5 hours)
• Mechanical Properties of Metals 120 (1.5 hours)
• Metal Classification 150 (1.5 hours)
• Metal Manufacturing 140 (1.5 hours)
• Nonferrous Metals 241 (1.5 hours)
• Nonferrous Metals and Alloys 220 (1.5 hours)
• Overview of Plastic Materials 115 (1.5 hours)
• Overview of Plastic Processes 145 (1.5 hours)
• Overview of Properties for Plastics 135 (1.5 hours)
• Physical Properties of Metals 130 (1.5 hours)
• Plastics 240 (1.5 hours)
• Principles of Injection Molding 255 (1.5 hours)
• Principles of Thermoforming 265 (1.5 hours)
• Structure of Metals 110 (1.5 hours)

Mechanical Systems:
• Bearing Applications 210 (1.5 hours)
• Bearing Applications 221 (1.5 hours)
• Belt Drive Applications 230 (1.5 hours)
• Belt Drive Applications 241 (1.5 hours)
• Clutch and Brake Applications 250 (1.5 hours)
• Forces of Machines 110 (1.5 hours)
• Gear Applications 245 (1.5 hours)
• Gear Applications 251 (1.5 hours)
• Gear Geometry 240 (1.5 hours)
• Gear Geometry 261 (1.5 hours)
• Intro to Mechanical Systems 100 (1.5 hours)
• Lubricant Fundamentals 130 (1.5 hours)
• Mechanical Power Variables 200 (1.5 hours)
• Safety for Mechanical Work 105 (1.5 hours)
• Safety for Mechanical Work 111 (1.5 hours)
• Spring Applications 220 (1.5 hours)

Metal Stamping Press/Metalworking:
• ANSI Insert Selection 250 (1.5 hours)
• ANSI Insert Selection 341 (1.5 hours)
• Band Saw Blade Selection 215 (1.5 hours)
• Carbide Grade Selection 230 (1.5 hours)
• Carbide Grade Selection 331 (1.5 hours)
• Chucks, Collets, and Vises 110 (1.5 hours)
• Clamping Basics 108 (1.5 hours)
• Classification of Steel 201 (1.5 hours)
• Cutting Fluids 210 (1.5 hours)
• Cutting Processes 111 (1.5 hours)
- Cutting Processes 140 (1.5 hours)
- Cutting Tool Materials 220 (1.5 hours)
- Cutting Tool Materials 321 (1.5 hours)
- Cutting Variables 200 (1.5 hours)
- Drill Geometry 247 (1.5 hours)
- Fixture Body Construction 200 (1.5 hours)
- Fixture Design Basics 210 (1.5 hours)
- Hard Turning 315 (1.5 hours)
- High-Speed Machining 310 (1.5 hours)
- Intro to Screw Machining 160 (1.5 hours)
- Intro to Workholding 104 (1.5 hours)
- Locating Devices 107 (1.5 hours)
- Machines for Metal Cutting 130 (1.5 hours)
- Machining Titanium Alloys 325 (1.5 hours)
- Metal Removal Processes 110 (1.5 hours)
- Milling Geometry 245 (1.5 hours)
- Optimizing Insert Life 305 (1.5 hours)
- Safety for Metal Cutting 101 (1.5 hours)
- Safety for Metal Cutting 115 (1.5 hours)
- Sawing Fundamentals 155 (1.5 hours)
- Speed and Feed Selection 300 (1.5 hours)
- Supporting and Locating Principles 106 (1.5 hours)
- Tool Geometry 240 (1.5 hours)
- Toolholders for Turning 260 (1.5 hours)
- What Is Cutting? 120 (1.5 hours)

Motor Controls:
- AC Motor Applications 240 (1.5 hours)
- AC Motor Applications 322 (1.5 hours)
- Acceleration Methods 385 (1.5 hours)
- Contactors and Motor Starters 250 (1.5 hours)
- Control Devices 211 (1.5 hours)
- Control Devices 260 (1.5 hours)
- DC Motor Applications 230 (1.5 hours)
- DC Motor Applications 321 (1.5 hours)
- Deceleration Methods 380 (1.5 hours)
- Electronic Semiconductor Devices 350 (1.5 hours)
- Intro to Electric Motors 200 (1.5 hours)
- Limit Switches and Proximity Sensors 231 (1.5 hours)
- Limit Switches and Proximity Sensors 360 (1.5 hours)
- Logic and Line Diagrams 220 (1.5 hours)
- Logic and Line Diagrams 312 (1.5 hours)
- Photoelectric and Ultrasonic Devices 365 (1.5 hours)
- Photonic Semiconductor Devices 355 (1.5 hours)
- Reduced Voltage Starting 370 (1.5 hours)
- Relays, Contactors, and Motor Starters 201 (1.5 hours)
- Reversing Motor Circuits 310 (1.5 hours)
- Solenoids 235 (1.5 hours)
- Solenoids 331 (1.5 hours)
• Solid-State Relays and Starters 375 (1.5 hours)
• Symbols and Diagrams for Motors 210 (1.5 hours)
• Timers and Counters 340 (1.5 hours)

Press Brakes:
• Bending Fundamentals 120 (1.5 hours)
• Die Bending Operations 130 (1.5 hours)
• Operating the Press Brake 200 (1.5 hours)
• Press Brake Components 110 (1.5 hours)
• Press Brake Safety 100 (1.5 hours)
• Press Brake Specifications 220 (1.5 hours)

Programmable Logic Controllers:
• Additional Function Block Diagram Instructions for Siemens PLCs 330 (1.5 hours)
• Additional Ladder Diagram Instructions for Siemens PLCs 320 (1.5 hours)
• Basic Function Block Diagram Programming for Siemens PLCs 290 (1.5 hours)
• Basic Ladder Diagram Programming for Siemens PLCs 280 (1.5 hours)
• Basic Programming 250 (1.5 hours)
• Basics of G Code Programming 231 (1.5 hours)
• Basics of Ladder Logic 220 (1.5 hours)
• Basics of Siemens PLCs 200 (1.5 hours)
• Data Manipulation 360 (1.5 hours)
• Function Block Diagram Timers and Counters for Siemens PLCs 310 (1.5 hours)
• Hand-Held Programmers of PLCs 280 (1.5 hours)
• Hardware for PLCs 210 (1.5 hours)
• Intro to PLCs 200 (1.5 hours)
• Ladder Diagram Timers and Counters for Siemens PLCs 300 (1.5 hours)
• Math for PLCs 320 (1.5 hours)
• Networking for PLCs 270 (1.5 hours)
• Numbering Systems and Codes 230 (1.5 hours)
• Numbers, Codes, and Data Types for Siemens PLCs 220 (1.5 hours)
• Overview of PLC Registers 305 (1.5 hours)
• PID for PLCs 350 (1.5 hours)
• PLC Diagrams and Programs 300 (1.5 hours)
• PLC Inputs and Outputs 240 (1.5 hours)
• PLC Installation Practices 340 (1.5 hours)
• PLC Program Control Instructions 310 (1.5 hours)
• PLC Timers and Counters 260 (1.5 hours)
• Sequencer Instructions for PLCs 330 (1.5 hours)
• Shift Registers 370 (1.5 hours)
• Siemens PLC Communication 230 (1.5 hours)
• Siemens PLC Hardware 210 (1.5 hours)
• Siemens PLC Inputs and Outputs 240 (1.5 hours)
• Siemens PLC Programming Concepts 270 (1.5 hours)
• Siemens SIMATIC Modular PLCs 260 (1.5 hours)
• Siemens SIMATIC S7-1200 PLCs 340 (1.5 hours)
• Siemens SIMATIC S7-1500 PLCs 350 (1.5 hours)
Quality and Testing:
- 5S Overview 151 (1.5 hours)
- 5S Overview 155 (1.5 hours)
- Approaches to Quality Management 255 (1.5 hours)
- Cell Design and Pull Systems 160 (1.5 hours)
- Conducting an Internal Audit 200 (1.5 hours)
- Conducting an Internal Audit 201 (1.5 hours)
- Conducting Kaizen Events 191 (1.5 hours)
- Conducting Kaizen Events 260 (1.5 hours)
- Creating an EIA/ISO Program for the Mazak Lathe 287 (1.5 hours)
- Creating an EIA/ISO Program for the Mazak Mill 286 (1.5 hours)
- Intro to Machine Rigging 110 (1.5 hours)
- Intro to Supply Chain Management 140 (1.5 hours)
- ISO 9000 Overview 110 (1.5 hours)
- ISO 9000 Review 121 (1.5 hours)
- ISO 9001:2015 Review 122 (1.5 hours)
- Lifting and Moving Equipment 130 (1.5 hours)
- Process Flow Charting 240 (1.5 hours)
- Rigging Equipment 120 (1.5 hours)
- Rigging Inspection and Safety 210 (1.5 hours)
- Rigging Mechanics 220 (1.5 hours)
- Six Sigma Goals and Tools 310 (1.5 hours)
- SPC Overview 210 (1.5 hours)
- SPC Overview 211 (1.5 hours)
- Strategies for Setup Reduction 250 (1.5 hours)
- Total Productive Maintenance 141 (1.5 hours)
- Total Productive Maintenance Overview 150 (1.5 hours)
- Total Quality Management Overview 261 (1.5 hours)
- Value Stream Mapping: The Current State 301 (1.5 hours)
- Value Stream Mapping: The Future State 305 (1.5 hours)
- Value Stream Mapping: The Future State 311 (1.5 hours)
- Value Stream Mapping: The Present State 300 (1.5 hours)

Robotics
- Applications for Robots 130 (1.5 hours)
- Concepts of Robot Programming 210 (1.5 hours)
- End Effectors 125 (1.5 hours)
- Intro to Robotics 110 (1.5 hours)
- Robot Axes 140 (1.5 hours)
- Robot Components 120 (1.5 hours)
- Robot Installations 230 (1.5 hours)
- Robot Maintenance 170 (1.5 hours)
- Robot Safety 115 (1.5 hours)
- Robot Safety 211 (1.5 hours)
- Robot Sensors 150 (1.5 hours)
- Robot Troubleshooting 160 (1.5 hours)
- Robot Troubleshooting 331 (1.5 hours)
- Robotic Control Systems 240 (1.5 hours)
- Robotic Drives, Hardware and Components 220 (1.5 hours)
- Vision Systems 250 (1.5 hours)

Soldering/Welding:
- Advanced GMAW Applications 302 (1.5 hours)
- Arc Welding Aluminum Alloys 310 (1.5 hours)
- Arc Welding Power Sources 260 (1.5 hours)
- Arc Welding Processes 120 (1.5 hours)
- Arc Welding Safety 115 (1.5 hours)
- Arc Welding Symbols and Codes 250 (1.5 hours)
- Coil Handling Equipment 140 (1.5 hours)
- Coil Loading Procedures 250 (1.5 hours)
- Die Cutting Variables 200 (1.5 hours)
- Die Setting Procedures 300 (1.5 hours)
- Electrical Power for Arc Welding 140 (1.5 hours)
- Electrical Power for Arc Welding 241 (1.5 hours)
- Electrical Safety for Welding 131 (1.5 hours)
- Electrode Selection 270 (1.5 hours)
- Fabrication Process 232 (1.5 hours)
- FCAW Applications 230 (1.5 hours)
- FCAW Applications 321 (1.5 hours)
- Ferrous Metals 231 (1.5 hours)
- Ferrous Metals for Welding 200 (1.5 hours)
- GMAW Applications 220 (1.5 hours)
- GMAW Applications 301 (1.5 hours)
- Grinding Ferrous Metals 311 (1.5 hours)
- Grinding Nonferrous Materials 321 (1.5 hours)
- Grinding Processes 120 (1.5 hours)
- Grinding Processes 201 (1.5 hours)
- Grinding Safety 211 (1.5 hours)
- Grinding Variables 200 (1.5 hours)
- Grinding Variables 301 (1.5 hours)
- Grinding Wheel Geometry 220 (1.5 hours)
- Grinding Wheel Geometry 361 (1.5 hours)
- Grinding Wheel Materials 210 (1.5 hours)
- Grinding Wheel Materials 331 (1.5 hours)
- Grinding Wheel Selection 351 (1.5 hours)
- GTAW Applications 240 (1.5 hours)
- GTAW Applications 331 (1.5 hours)
- Guiding System Components 230 (1.5 hours)
- Intro to Submerged Arc Welding 160 (1.5 hours)
- Introduction to Automation 291 (1.5 hours)
- Introduction to FCAW 261 (1.5 hours)
- Introduction to GMAW 251 (1.5 hours)
- Introduction to GTAW 262 (1.5 hours)
- Introduction to SMAW 252 (1.5 hours)
- Introduction to Welding 141 (1.5 hours)
- Introduction to Welding Processes 151 (1.5 hours)
- Lead-Free Soldering 230 (1.5 hours)
- Material Tests for Welding 201 (1.5 hours)
- Monitoring Press Operations 220 (1.5 hours)
- Nonferrous Metals for Welding 205 (1.5 hours)
- Overview of Soldering 271 (1.5 hours)
- Overview of Weld Defects 222 (1.5 hours)
- Overview of Weld Types 130 (1.5 hours)
- Overview of Weld Types 221 (1.5 hours)
- Oxyfuel Cutting Applications 282 (1.5 hours)
- Oxyfuel Welding Applications 207 (1.5 hours)
- Oxyfuel Welding Safety 105 (1.5 hours)
- Plasma Cutting 265 (1.5 hours)
- Plasma Cutting 283 (1.5 hours)
- PPE for Welding 111 (1.5 hours)
- Press Basics 110 (1.5 hours)
- Punch and Die Operations 120 (1.5 hours)
- Safety for Soldering 115 (1.5 hours)
- SAW Applications 255 (1.5 hours)
- SMAW Applications 210 (1.5 hours)
- SMAW Applications 311 (1.5 hours)
- Solder and Flux Selection 210 (1.5 hours)
- Soldering Applications 200 (1.5 hours)
- Soldering Equipment 130 (1.5 hours)
- Soldering PCBs 220 (1.5 hours)
- Stamping Safety 115 (1.5 hours)
- Stripper System Components 235 (1.5 hours)
- Thermal Cutting Overview 281 (1.5 hours)
- Visual Inspection of Welds 280 (1.5 hours)
- Welding Ferrous Metals 211 (1.5 hours)
- Welding Fumes and Gases Safety 121 (1.5 hours)
- Welding Nonferrous Metals 212 (1.5 hours)
- Welding Safety Essentials 101 (1.5 hours)
- Welding Symbols and Codes 231 (1.5 hours)
- What Is Arc Welding? 110 (1.5 hours)
- What Is Oxyfuel Welding? 100 (1.5 hours)
- What Is Soldering? 110 (1.5 hours)

*Safety training (class + CBT) is capped at 10% of a trainee’s total training hours.

Note: Reimbursement for retraining is capped at 200 total training hours per trainee, regardless of the method of delivery. PL is capped at 60 total training hours per trainee.