



CLASS CATALOG

Online Classes | Instructor-Led Training | Learning Services
Customization | Certifications | Assessments





Why Tooling U-SME?

More than 50% of Fortune 500® manufacturing companies choose Tooling U-SME. Why? We offer competency-based learning solutions focused on your performance outcomes. This catalog provides a detailed list of all our online course offerings, including over 500 classes in multiple functional areas—plus information on instructor-led training, certification programs, assessments, custom content, and books and videos. But we do so much more. We'll analyze needs, assess your current knowledge, and develop a program that fills the gaps. Then, we'll help you launch, track, and measure the results. From beginner to advanced, our classes will help you train your new and existing employees and build your next-generation workforce.

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ONLINE & INSTRUCTOR-LED CLASSES

8 Foundational

Includes: Safety, Applied Mathematics, Materials, Inspection, Lean, Quality

11 Machining

Includes: Abrasives; CNC: Fanuc, Haas, Mazak; Manual Machining; Metal Cutting; Workholding

13 Maintenance Includes: Electrical, Mechanical, Hydraulics & Pneumatics, Rigging, Motor Controls, PLCs, Robotics

15 Welding

Includes: Welding Basics, Arc Welding, GMAW, SMAW, GTAW

16 Additive Manufacturing

Includes: Additive Basics, Materials, Design

16 Stamping/Forming/Fabricating

Includes: Press and Stamping Basics, Operations, Coiling, Guides, Dies

17 Composites Processing

Includes: Composites Basics, Molding, Inspection

17 Assembly/Final Stage Processes

Includes: Adhesives, Coatings, Fasteners, Soldering

18 Design & Engineering

Includes: Blueprint Reading, FMEA, GD&T, Root Cause Analysis

18 Leadership

Includes: Supervisor Essentials, Communication, Accounting

TRAINING PRODUCTS & SERVICES

19 Instructor-Led Training

20 Learning Services

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We are your training partner. With credentials.

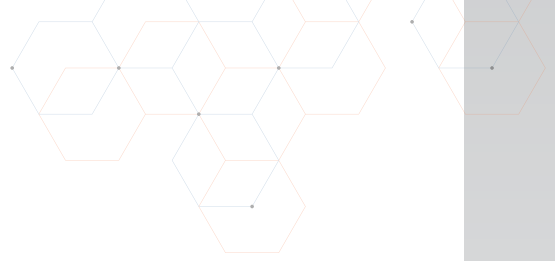
Over the last 85 years, we've worked with hundreds of thousands of individuals, companies, and educational institutions. Our courses are aligned to national credentials including Lean Certification, Certified Manufacturing Engineer, Certified Manufacturing Technologist, and Certified Additive Manufacturing, plus National

Institute for Metalworking Skills (NIMS), Manufacturing Skills Standards Council (MSSC), American Welding Society (AWS), and Siemens Mechatronics certifications. Our courses also may be mapped to individual or state curriculum requirements.

How can we help you?

Find out how we can partner with you to develop a competency-based solution to fit your training needs and your budget.

Contact us at info@toolingu.com or call 866.706.8665.



Tooling U-SME's customized training makes it possible to:

- Develop mission-critical skills
- Minimize the skills gap
- Expedite onboarding and define skills development
- Capture and standardize “tribal knowledge”
- Ensure operational excellence/world-class manufacturing
- Boost operational effectiveness and productivity
- Drive continuous improvement
- Improve quality and reduce scrap
- Leverage new technologies and drive innovation
- Cross train and increase workforce flexibility
- Reduce learning curve for new technologies
- Decrease risk and exposure
- Improve safety
- Drive compliance



COMPETENCIES

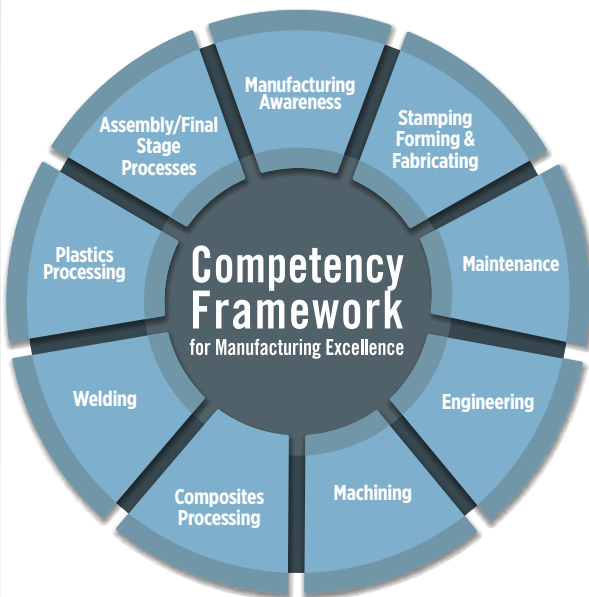
Nine out of 10 manufacturers are struggling to find the skilled workers they need

To address this pressing challenge, Tooling U-SME brought together a cross-section of manufacturing experts to create a new industry resource: a Competency Framework for achieving manufacturing excellence.

The Competency Framework features a comprehensive series of competency models in nine manufacturing functional areas. It is made up of more than 60 job role competency models, which outline knowledge and skill objectives for production, technician, lead technician/technologist, and engineer-level job roles.

The Competency Framework offers advantages that tie directly to business goals:

- Ensures enterprise-wide consistency, making a workforce more flexible and dynamic, and ultimately reducing labor costs
- Streamlines the training process and cuts costs by eliminating unnecessary and redundant training, allowing more training where needed
- Helps managers easily evaluate worker performance levels defined using specific behavioral indicators, reducing subjective assessment and increasing assessment accuracy
- Enhances employee satisfaction based on the rationality of the system
- Explains career pathways and defines what an average performer needs to become a superior performer



Created by a cross-section of manufacturing experts, Tooling U-SME's Competency Framework is a comprehensive series of competency models in nine manufacturing functional areas.



COMPETENCIES

Designed to complement other competency models in the industry, the Competency Framework can be used “as is” or customized to individual work practices at your facility. Another benefit is that the knowledge objectives within the framework are mapped directly to Tooling U-SME’s extensive training resources. All this helps ensure your employees have the knowledge, skills, and abilities they need to be high performers.

FOUNDATIONAL

Foundational: Instructor-Led Training

Basic Electronics
Blueprint Reading
GD&T
Industrial Safety / Low Voltage Safety
Intro to Composites
Train-the-Trainer: Accelerating Worker Performance
Lean Fundamentals
Lean Kaizen Workshop
Lean Value Stream Mapping
Quality Failure Modes and Effects Analysis (FMEA)
Quality / Statistical Process Control (SPC)
Quality Root Cause Analysis

General Safety: Online Classes

Intro to OSHA 101
Ergonomics 102
Personal Protective Equipment 111
Noise Reduction and Hearing Conservation 121
Respiratory Safety 131
Lockout/Tagout Procedures 141
SDS and Hazard Communication 151
Bloodborne Pathogens 161
Walking and Working Surfaces 171
Fire Safety and Prevention 181
Flammable/Combustible Liquids 191
Hand and Power Tool Safety 201
Safety for Lifting Devices 211
Powered Industrial Truck Safety 221
Confined Spaces 231
Environmental Safety Hazards 241
Arc Flash Safety 251
Fall Protection 261
Machine Guarding 271

Department Safety: Online Classes

Safety for Hydraulics and Pneumatics 211
Grinding Safety 211
Additive Manufacturing Safety 121
Mazak Mill: Safety for the Mill 260
Mazak Mill: Safety for the Lathe 265
Safety for Composite Processing 115

Safety for Electrical Work 111
Safety for Assembly 105
Safety for Mechanical Work 111
Safety for Metal Cutting 101
Metal Cutting Fluid Safety 231
Press Brake Safety 100
Rigging Inspection and Safety 210
Robot Safety 211
Safety for Soldering 115
Stamping Safety 115
Welding Safety Essentials 101
PPE for Welding 111
Welding Fumes and Gases Safety 121
Electrical Safety for Welding 131
Oxyfuel Welding Safety 105

Applied Mathematics: Online Classes

(Formerly Shop Essentials)

Math Fundamentals 101
Math: Fractions and Decimals 111
Applied and Engineering Sciences 110
Units of Measurement 112
Basics of Tolerance 121
Manufacturing Process Applications: Part I 124
Manufacturing Process Applications: Part II 125
Blueprint Reading 131
Algebra Fundamentals 141
Geometry: Lines and Angles 151
Geometry: Triangles 161
Geometry: Circles and Polygons 171
Shop Geometry Overview 170
Trigonometry: The Pythagorean Theorem 201
Trigonometry: Sine, Cosine, Tangent 211
Trigonometry: Sine Bar Applications 221
Shop Trig Overview 210
Statistics 231
Interpreting Blueprints 230
Concepts of Calculus 310



Materials: Online Classes

Introduction to Physical Properties 101
Introduction to Mechanical Properties 111
Introduction to Metals 121
Introduction to Plastics 131
Introduction to Ceramics 141
Introduction to Composites 151
Composite Processing 152
Metal Manufacturing 140
Classification of Steel 201

Essentials of Heat Treatment of Steel 211
Hardness Testing 221
Ferrous Metals 231
Nonferrous Metals 241
Thermoplastics 251
Thermosets 261
Principles of Injection Molding 255
Principles of Thermoforming 265
Exotic Alloys 301



FOUNDATIONAL (CONTINUED)

Inspection: Online Classes

Basic Measurement 101
Calibration Fundamentals 111
Basics of Tolerance 121
Blueprint Reading 131
Hole Standards and Inspection 141
Thread Standards and Inspection 151
Surface Texture and Inspection 201
Hardness Testing 221
Measuring System Analysis 300
Introduction to GD&T 301
Introduction to GD&T 200 (1994)
Major Rules of GD&T 311
Interpreting GD&T 310 (1994)
GD&T Applications 312
Inspecting a Prismatic Part 321
Inspecting a Cylindrical Part 331
Advanced Hole Inspection 341
Inspecting with Optical Comparators 351
Inspecting with CMMs 361
Calibration and Documentation 371
In-Line Inspection Applications 381

Lean: Online Classes

Lean Manufacturing Overview 101
Continuous Process Improvement: Managing Flow 124
Continuous Process Improvement: Identifying and Eliminating Waste 125
Developing a Lean Culture 135
Total Productive Maintenance 141
5S Overview 151
Cell Design and Pull Systems 161
Intro to Six Sigma 171
Troubleshooting 181
Conducting Kaizen Events 191
SPC Overview 211
Metrics for Lean 231
Process Flow Charting 241
Strategies for Setup Reduction 251
Total Quality Management Overview 261
Management Tools: Problem Solving 270
Management Tools: Product and Process Design 275

Value Stream Mapping: The Present State 301
Value Stream Mapping: The Future State 311
Six Sigma Goals and Tools 310
Maintaining a Consistent Lean Culture 330
Transforming Lean Into Business Results 340
Measuring Lean Systems 350

Lean: Instructor-Led Training

Lean Fundamentals
Kaizen Workshop
Value Stream Mapping

Quality: Online Classes

Quality Overview 111
ISO 9000 Review 121
ISO 9001: 2015 Review 122
Approaches to Maintenance 131
Process Design and Development 133
Product Design and Development 134
Production System Design and Development 136
Equipment/Tool Design and Development 137
Intro to Supply Chain Management 140
Quality and Customer Service 175
Conducting an Internal Audit 201
IATF 16949: 2016 Overview 222

Quality: Instructor-Led Training

Failure Modes and Effects Analysis (FMEA)
Quality / Statistical Process Control (SPC)
Root Cause Analysis

Sample of Supplemental Videos

What Lean Means
Mapping Your Value Stream
Managing Teams in Manufacturing

MACHINING

Machining: Instructor-Led Training

Bearings/Gears
CNC Fundamentals
Industrial Safety / Low Voltage Safety
Robotics
Programmable Logic Controllers (PLCs)

Abrasives: Online Classes

Intro to Abrasives 101
Grinding Processes 201
Grinding Safety 211
Basic Grinding Theory 221
Basics of the Surface Grinder 231
Basics of the Cylindrical Grinder 232
Basics of the Centerless Grinder 233
Setup for the Surface Grinder 241
Setup for the Cylindrical Grinder 242
Setup for the Centerless Grinder 243
Surface Grinder Operation 251
Cylindrical Grinder Operation 252
Centerless Grinder Operation 253
Introduction to Grinding Fluids 261
Grinding Variables 301
Grinding Ferrous Metals 311
Grinding Nonferrous Metals 321
Grinding Wheel Materials 331
Dressing and Truing 341
Grinding Wheel Selection 351
Grinding Wheel Geometry 361

CNC: Online Classes

Intro to CNC Machines 201
History and Definition of CNC 202
Basics of the CNC Lathe 211
Basics of the CNC Mill 212
Basics of the CNC Swiss-Type Lathe 135
Coordinates for the CNC Lathe 221
Coordinates for the CNC Mill 222
Basics of G Code Programming 231
Intro to CAD and CAM for Machining 241
Control Panel Functions for the CNC Lathe 251
Control Panel Functions for the CNC Mill 252
Offsets on the CNC Lathe 261
Offsets on the CNC Mill 262

CNC Specs for the Mill 220
CNC Specs for the Lathe 225
Creating a CNC Turning Program 301
Creating a CNC Milling Program 302
Calculations for Programming the Lathe 311
Calculations for Programming the Mill 312
Canned Cycles for the Lathe 321
Canned Cycles for the Mill 322

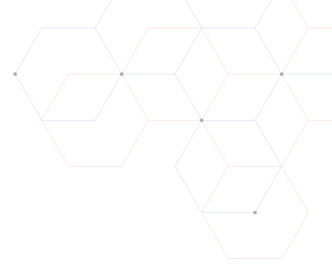
CNC Control–Fanuc: Online Classes

Fanuc Mill: Control Panel Overview 250
Fanuc Lathe: Control Panel Overview 255
Fanuc Mill: Entering Offsets 260
Fanuc Lathe: Entering Offsets 265
Fanuc Mill: Locating Program Zero 270
Fanuc Lathe: Locating Program Zero 275
Fanuc Mill: Program Execution 280
Fanuc Lathe: Program Execution 285
Fanuc Mill: Program Storage 310
Fanuc Lathe: Program Storage 315
Fanuc Mill: First Part Runs 320
Fanuc Lathe: First Part Runs 325

CNC Control–Haas: Online Classes

Haas NGC: Control Panel Overview 101
Haas NGC: Entering Mill Offsets 201
Haas NGC: Entering Lathe Offsets 202
Haas NGC: Locating Program Zero on the Mill 211
Haas NGC: Locating Program Zero on the Lathe 212
Haas Mill: Control Panel Overview 250
Haas Lathe: Control Panel Overview 255
Haas Mill Classic Controls: Entering Offsets 260
Haas Lathe: Entering Offsets 265
Haas Mill Classic Controls: Locating Program Zero 270
Haas Lathe: Locating Program Zero 275
Haas Mill: Program Execution 280
Haas Lathe: Program Execution 285
Haas Mill: Program Storage 310
Haas Lathe: Program Storage 315
Haas Mill: First Part Runs 320
Haas Lathe: First Part Runs 325





MACHINING (CONTINUED)

CNC Control—Mazak: Online Classes

Mazak Mill: Control Panel Overview 250
Mazak Lathe: Control Panel Overview 255
Mazak Mill: Safety for the Mill 260
Mazak Lathe: Safety for the Lathe 265
Mazak Mill: Locating Program Zero 270
Mazak Lathe: Locating Program Zero 275
Mazak Mill: Entering Offsets 280
Mazak Lathe: Entering Offsets 285
Creating an EIA/ISO Program for the Mazak Mill 286
Creating an EIA/ISO Program for the Mazak Lathe 287
Creating a Mazatrol Program for the Mill 288
Creating a Mazatrol Program for the Lathe 289
Mazak Mill: Program Execution 290
Mazak Lathe: Program Execution 295
Mazak Mill: Program Storage 310
Mazak Lathe: Program Storage 315
Mazak Mill: First Part Runs 320
Mazak Lathe: First Part Runs 325

Manual Machining: Online Classes

Manual Mill Basics 201
Engine Lathe Basics 211
Manual Mill Setup 221
Engine Lathe Setup 231
Benchwork and Layout Operations 241
Manual Mill Operation 251
Engine Lathe Operation 261
Holemaking on the Mill 271
Threading on the Engine Lathe 301
Taper Turning on the Engine Lathe 240

Metal Cutting: Online Classes

Safety for Metal Cutting 101
Cutting Processes 111
Overview of Machine Tools 121
Basic Cutting Theory 201
Intro to Screw Machining 160
Band Saw Operations 211
Intro to Metal Cutting Fluids 221
Metal Cutting Fluid Safety 231
Prints for Metal Cutting Operations 241
Toolholders for Turning 260
Speed and Feed for the Lathe 301
Speed and Feed for the Mill 311

Cutting Tool Materials 321
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ANSI Insert Selection 341
Advanced Tool Materials 345
Lathe Tool Geometry 351
Mill Tool Geometry 361
Drill Tool Geometry 371
Optimizing Tool Life and Process 381
Impact of Workpiece Materials 391
High-Speed Machining 310
Hard Turning 315
Machining Titanium Alloys 325
Intro to EDM 100

NIMS: Online Classes

NIMS Core Skills 111
NIMS Core Machining Skills 121
NIMS Core Milling Skills 131
NIMS Core Turning Skills 132
NIMS Core CNC Milling Skills 141
NIMS Core CNC Turning Skills 142
NIMS Core Advanced Machining Skills 151
NIMS Core Measurement and Materials Skills 211
NIMS Core Job Planning Skills 221
NIMS Core Mill Programming and Setup Skills 231
NIMS Core Lathe Programming and Setup Skills 232
NIMS Core Drill Press Skills 241
NIMS Core Grinding Skills 251
NIMS Core Manual Milling Skills 261
NIMS Core Manual Turning Skills 262

Workholding: Online Classes

Intro to Workholding 101
Locating Devices 121
Clamping Basics 108
Chucks, Collets, and Vises 110
Supporting and Locating Principles 111
Fixture Body Construction 200
Fixture Design Basics 201
Drill Bushing Selection 230

Sample of Supplemental Videos

Cutting Tool Geometries
Milling and Machining Centers

MAINTENANCE

Maintenance: Instructor-Led Training

Basic Electronics
Industrial Safety / Low Voltage Safety
Programmable Logic Controllers (PLCs)
Robotics

Electrical Systems: Online Classes

Electrical Units 101
Safety for Electrical Work 111
Introduction to Circuits 201
Introduction to Magnetism 211
DC Circuit Components 221
NEC Overview 231
AC Fundamentals 241
Electrical Instruments 251
Electrical Print Reading 261
DC Power Sources 271
AC Power Sources 281
Conductor Selection 291
Series Circuit Calculations 201
Parallel Circuit Calculations 311
Battery Selection 321

Hydraulics & Pneumatics: Online Classes

Intro to Fluid Systems 101
The Forces of Fluid Power 201
Safety for Hydraulics and Pneumatics 211
Introduction to Hydraulic Components 221
Introduction to Pneumatic Components 231
Introduction to Fluid Conductors 241
Fittings for Fluid Systems 251
Preventive Maintenance for Fluid Systems 261
Hydraulic Power Variables 301
Hydraulic Power Sources 302
Pneumatic Power Variables 311
Pneumatic Power Sources 312
Hydraulic Control Valves 341
Hydraulic Schematics and Basic Circuit Design 342
Pneumatic Control Valves 351
Pneumatic Schematics and Basic Circuit Design 352
Actuator Applications 361
Hydraulic Fluid Selection 371
Contamination and Filter Selection 381
Hydraulic Principles and System Design 391

Mechanical Systems: Online Classes

Introduction to Mechanical Systems 101
Safety for Mechanical Work 111
Forces of Machines 121
Mechanical Power Variables 202
Power Transmission Components 201
Lubricant Fundamentals 211
Bearing Applications 221
Spring Applications 231
Belt Drive Applications 241
Gear Applications 251
Gear Geometry 261
Clutch and Brake Applications 271

Rigging: Online Classes

Intro to Machine Rigging 110
Rigging Equipment 120
Lifting and Moving Equipment 130
Rigging Inspection and Safety 210
Rigging Mechanics 220

Motor Controls: Online Classes

Relays, Contactors, and Motor Starters 201
Control Devices 211
Distribution Systems 221
Limit Switches and Proximity Sensors 231
Introduction to Electric Motors 301
Symbols and Diagrams for Motors 311
Logic and Line Diagrams 312
DC Motor Applications 321
AC Motor Applications 322
Solenoids 331
Reversing Motor Circuits 341
Motor Drive Systems and Maintenance 347
Electrical Maintenance for Motor Drive Systems 348
Mechanical Maintenance for Motor Drive Systems 349
Specs for Servomotors 330
Timers and Counters 340
Electronic Semiconductor Devices 350
Photonic Semiconductor Devices 355
Limit Switches and Proximity Sensors 360
Photoelectric and Ultrasonic Devices 365
Reduced Voltage Starting 370
Solid-State Relays and Starters 375
Deceleration Methods 380
Acceleration Methods 385

MAINTENANCE (CONTINUED)

PLCs—Allen Bradley/Rockwell: Online Classes

Introduction to PLCs 201
Hardware for PLCs 211
Basics of Ladder Logic 221
Numbering Systems and Codes 222
PLC Inputs and Outputs 231
Basic Programming for PLCs 241
PLC Timers and Counters 251
Networking for PLCs 261
Hand-Held Programmers of PLCs 280
PLC Diagrams and Programs 300
Overview of PLC Registers 305
PLC Program Control Instructions 310
Math for PLCs 320
Sequencer Instructions for PLCs 330
PLC Installation Practices 340
PID for PLCs 350
Data Manipulation 360
Shift Registers 370

PLCs—Siemens: Online Classes

Basics of Siemens PLCs 200
Siemens PLC Hardware 210
Numbers, Codes, and Data Types for
Siemens PLCs 220
Siemens PLC Communication 230
Siemens Human Machine Interfaces 250
Siemens PLC Inputs and Outputs 240
Siemens SIMATIC Modular PLCs 260
Siemens PLC Programming Concepts 270
Basic Ladder Diagram Programming for
Siemens PLCs 280
Basic Function Block Diagram Programming
for Siemens PLCs 290
Ladder Diagram Timers and Counters for
Siemens PLCs 300
Function Block Diagram Timers and Counters
for Siemens PLCs 310
Additional Ladder Diagram Instructions
for Siemens PLCs 320
Additional Function Block Diagram Instructions
for Siemens PLCs 330

Siemens SIMATIC S7-1200 PLCs 340
Siemens SIMATIC S7-1500 PLCs 350
Siemens Safety Integrated for
Factory Automation 360

Robotics: Online Classes

Introduction to Robotics 201
Robot Safety 211
Robot Components 120
End Effectors 125
Applications for Robots 130
Automated Systems and Control 135
Robot Axes 140
Robot Sensors 150
Robot Troubleshooting 331
Robot Maintenance 170
Concepts of Robot Programming 341
Robotic Drives, Hardware, and Components 220
Robot Installations 230
Robotic Control Systems 240
Vision Systems 250
Industrial Network Integration 260

Sample of Supplemental Videos

TPM: Total Productive Maintenance Industrial
Robotics
Autonomous Activities



WELDING

Welding: Online Classes

- What Is Oxyfuel Welding? 100
- Oxyfuel Welding Safety 105
- Welding Safety Essentials 101
- PPE for Welding 111
- Welding Fumes and Gases Safety 121
- Electrical Safety for Welding 131
- Introduction to Welding 141
- What Is Arc Welding? 110
- Introduction to Welding Processes 151
- Arc Welding Processes 120
- Math Fundamentals for Welding 161
- Geometry Fundamentals for Welding 171
- Material Tests for Welding 201
- Welding Ferrous Metals 211
- Welding Nonferrous Metals 212
- Overview of Weld Types 221
- Overview of Weld Defects 222
- Welding Symbols and Codes 231
- Fabrication Process 232
- Electrical Power for Arc Welding 241
- Introduction to GMAW 251
- Introduction to SMAW 252
- Introduction to FCAW 261
- Introduction to GTAW 262
- Introduction to Submerged Arc Welding 160
- Arc Welding Power Sources 260
- Overview of Soldering 271
- Thermal Cutting Overview 281
- Oxyfuel Cutting Applications 282
- Plasma Cutting 283
- Intro to Automation 291
- GMAW Applications 301
- Advanced GMAW Applications 302
- SMAW Applications 311
- FCAW Applications 321
- GTAW Applications 331
- Oxyfuel Welding Applications 207
- SAW Applications 255
- Arc Welding Aluminum Alloys 310



ADDITIVE MANUFACTURING

Additive Manufacturing: Online Classes

Introduction to Additive Manufacturing 111
Additive Manufacturing Safety 121
The Basic Additive Manufacturing Process 131
Additive Manufacturing Methods and Materials 141
Design for Additive Manufacturing 201
Additive Manufacturing Materials Science 211
Integrating Additive Manufacturing with Traditional Manufacturing 221
Additive Manufacturing as a Secondary Process 231

Sample of Supplemental Videos

Rapid Prototyping
Medical Applications of Rapid Prototyping

Additive Manufacturing: Instructor-Led Training

Implementation and Best Practices of Additive Manufacturing
Mastering the Fundamentals of Additive Manufacturing

STAMPING/FORMING/ FABRICATING

Stamping: Online Classes

Press Basics 110
Stamping Safety 115
Punch and Die Operations 120
Die Components 130
Coil Handling Equipment 140
Die Cutting Variables 200
Monitoring Press Operations 220
Guiding System Components 230
Stripper System Components 235

Sample of Supplemental Videos

Punch Presses

Stamping: Instructor-Led Training

Metal Formability
Metal Stamping Press Maintenance
Stamping Dies

Press Brake: Online Classes

Press Brake Safety 100
Press Brake Components 110
Bending Fundamentals 120
Die Bending Operations 130
Operating the Press Brake 200
Press Brake Specifications 220



COMPOSITES PROCESSING

Composites: Online Classes

Safety for Composite Processing 115
Traditional Composites 125
Advanced Thermoset Resins for Composites 130
Advanced Materials for Composites 135
Intro to Lay-up and Spray-up Molding 140
Intro to Compression Molding 170
Surface Finishing Composites 190
Vacuum Bagging Technique:
 Single-Sided Bagging 230
Composite Inspection and Defect Prevention 240
Repair Methods for Composites 250

Composites: Instructor-Led Training

Intro to Composites

Sample of Supplemental Videos

Automated Composite Layup and Spray Up
Filament Winding
Composites Post Fabrication and Joining

ASSEMBLY/FINAL STAGE PROCESSES

Adhesives: Online Classes

Intro to Adhesive Bonding 110
Basics of the Bonding Process 120
Intro to Adhesive Properties 130
Types of Adhesives 140
Surface Preparation 210
Steps for Adhesive Application 220

Coatings: Online Classes

Intro to Coating Composition 110
Surface Preparation for Coatings 120
Processes for Applying Coatings 140
Coating Defects 150
Troubleshooting Coating Defects 170

Fasteners: Online Classes

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

Soldering: Online Classes

What is Soldering? 110
Safety for Soldering 115
Soldering Equipment 130
Soldering Applications 200
Solder and Flux Selection 210
Soldering PCBs 220
Lead-Free Soldering 230

Sample of Supplemental Videos

Plastics Machining and Assembly
Fastening and Assembly
Brazing and Soldering
Design for Manufacture and Assembly
(DFMA)



DESIGN & ENGINEERING

Design & Engineering: Instructor-Led Training

Blueprint Reading
Design for Manufacturing/Design for
Assembly (DFM/DFA)
Failure Modes and Effects Analysis (FMEA)
Geometric Dimensioning & Tolerance (GD&T)
Precision Machine Design
Root Cause Analysis
Value Stream Mapping

Sample of Supplemental Videos

Lean Product Development
Measurement and Gaging
Gaging and Inspection Tool Design
Design for Manufacture and Assembly
(DFMA)
DFM: Design for Manufacturing

LEADERSHIP

Supervisor Essentials: Online Classes

Essentials of Leadership 110
Essentials of Communication 120
Managing Performance: Best Practices 130
Managing Performance: Corrective Actions 135
Basics of Manufacturing Costs 140
Intro to Managerial Accounting 145
Conflict Resolution Principles 150
Conflict Resolution for Different Groups 155
Team Leadership 160
Manufacturing Management 180
Personal Effectiveness 190
Managing the Diverse Workplace 210
Harassment and Discrimination 215
Performance Management and the Law 230

Supervisor Essentials: Instructor-Led Training

Coaching and Mentoring for Front
Line Supervisor (FLS)
Front Line Supervisor (FLS) Leadership Skills
Train-the-Trainer: Accelerating Worker Performance

LEADERSHIP

INSTRUCTOR-LED TRAINING

Real-World Expertise

Successful manufacturers recognize the value in long-time employees using their expertise to mentor less-experienced team members. From startups that lack institutional knowledge, to thriving businesses that have lost veteran workers to retirement, most companies can benefit from the value-added experience of learning from experts.

Bring the real world to your staff with Tooling U-SME Instructor-Led Training. Work with instructors who are knowledgeable, experienced, and have a passion for teaching others about manufacturing. Our instructors offer a depth of industry knowledge that is matched only by their professional experience and their passion for the subject matter.

Your employees benefit from:

- Engaging with industry experts and practicing professionals
- Learning complex ideas through dynamic exchange
- Experiencing comprehensive coverage combined with hands-on applications
- Combining instructor interaction with other forms of training, such as online
- Enhancing their understanding through peer-to-peer discussions

We have dozens of topics to choose from, including Blueprint Reading, Leadership Skills, Additive Manufacturing, Lean Fundamentals, and many, many more.





LEARNING SERVICES

Tap into the highest level of expertise in workforce development for your training needs.

Tooling U-SME works on-site with your human resources, management, and front-line team members to develop a business case for a training and development program, determine gaps in performance, and build a training strategy that delivers measurable Return on Investment (ROI). As your partner, we can design a custom, competency-based training curriculum with blended learning, build career progression models aligned to pay scales, validate competencies with knowledge tests and skills assessments, and ensure performance standards are measurable and trackable. All of this is aligned to your business goals.

No matter where your organization is in its learning and development path, there's an opportunity to evaluate whether your training is meeting your needs effectively. Whether you need to develop a training program from the bottom up, you need training for a particular piece of equipment or process, or you want to benchmark your existing program, our Learning Services team can analyze your needs and build a custom solution.



CUSTOMIZATION

Forward-thinking organizations invest in custom programs

Precisely and effectively address your company's proprietary needs and reflect your corporate culture with customized content.

Tooling U-SME offers a range of content customization services that can seamlessly integrate your content into a strategic training plan to make sure your people learn what they need for your organization.

Upload Services for Pre-Developed Content

Use our format guide and templates to convert and upload your pre-existing content for web-based delivery. Your online content fits seamlessly into our system.

Complete Content Services from our Design Staff

Gain access to our own content development resources to transform your expertise into web-based training of the highest quality. Deliver your training to your people, anywhere in the world.



CUSTOMIZATION



CERTIFICATIONS

Knowledge earned. And validated.

Tooling U-SME offers outcome assessments, certifications, and certificate programs that allow you to benchmark your employees' knowledge against an industry-recognized standard. Programs are developed with experienced industry professionals to test effectiveness and provide the validation you need.

Review Programs

Our online review programs provide a comprehensive review of key concepts for the Certified Manufacturing Technologist (CMfgT) and the Lean Bronze Certifications. Each one provides vocabulary and definitions, interactive exercises, pre- and post-course tests, and a downloadable PDF of each course.

Certifications

Lean Certification

This industry-leading program provides individuals, companies, and educators with a comprehensive and effective roadmap for professional and workforce development that aligns with industry-recognized standards. The program is the result of a partnership among leading non-profit organizations — the Association for Manufacturing Excellence (AME), the Shingo Institute, and SME — that work together as the Lean Certification Alliance to set the standard for operational excellence and workforce improvement. Lean Certification not only helps individuals attain the knowledge, it validates it. Find out more at sme.org/leancert.

Lean Certification is pursued at the level most appropriate to your participant's career, knowledge, and experience.

- Lean Bronze Certification focuses on the fundamentals of lean from a tactical perspective.
- Lean Silver Certification integrates lean knowledge with leadership experience.
- Lean Gold Certification focuses on the strategic transformation of an entire enterprise.

Certified Manufacturing Technologist (CMfgT)

The CMfgT is an entry-level certification that benefits new manufacturing engineers and experienced manufacturers without other credentials. Pursuing a CMfgT Certification requires a minimum of four years combined manufacturing-related education and/or work experience. Learn more at sme.org/CMfgT.

Certified Manufacturing Engineer (CMfgE)

Professionals seeking a CMfgE Certification have advanced manufacturing engineering experience, with a minimum of eight years of combined manufacturing-related education and/or work experience, including a minimum of four years of work experience. A professional seeking a CMfgE can qualify with a minimum of eight years of combined manufacturing-related work experience or education. Details available at sme.org/CMfgE.

Certified Additive Manufacturing

The Certified Additive Manufacturing – Fundamentals (CAM-F) is ideal for individuals seeking to work in additive manufacturing roles in automotive, aerospace, and medical equipment. It is also ideal for high schools and colleges as a capstone or standalone achievement to increase workforce readiness in additive manufacturing.

The Certified Additive Manufacturing – Technician

(CAM-T) is ideal for individuals with a two-year associate's degree in additive manufacturing or is currently enrolled in a college program, and/or has one or more years of working experience in a manufacturing related field.

Learn more at www.sme.org/amcert.

ASSESSMENTS

Close the skills gap to stay competitive

Effective assessment of knowledge is a critical first step in your overall training plan.

At Tooling U-SME, we know exactly what you need. Our assessments allow you to align competencies, curriculum, and the needs of individual workers so they can study their specific courses in a self-paced learning environment. Assessment questions are derived from our extensive course libraries, which are fully mapped to our industry-proven curriculum.

Effective training establishes a baseline of knowledge for each person, compares that baseline to the knowledge and skill requirements of a role, and then applies the exact amount of training to close the gap, ensuring that the knowledge and skills have been retained and applied on the job. The bottom line is that effective assessment of knowledge is a critical step in your overall training plan.

Assess manufacturing technology, engineering, lean processes and practices, machining, welding, fabrication, maintenance, assembly, foundational skills, and much more using Tooling U-SME's 50+ pre-developed assessments, or we'll work with you to develop assessments based on your specific needs.

For more information, visit:

toolingu.com/training/assessments



ASSESSMENTS



WHY TOOLING U-SME?

- The leader in manufacturing training solutions
- Proven solutions for corporate, education, and government organizations
- A single partner who can assemble the resources necessary to support your initiatives
- More than 85 years of experience in providing learning services, assessment programs, and credential certifications
- Hundreds of thousands of individuals, and over 5,000 companies and 550 educational institutions throughout the global manufacturing community rely upon Tooling U-SME

UP-TO-DATE CONTENT

We release new and updated content every month. Plus, we have hundreds of classes available in Spanish and dozens translated into simplified Chinese. To view our most current class listings, visit toolingu.com/catalog



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