

WVFD

WORKFORCE DEVELOPMENT & EDUCATION

CATALOG

Training Resources for Manufacturing Education

- Online Classes
- Certifications
- Pre-Apprenticeships
- Apprenticeships
- Video Resources
- Assessments

COMPETENCY-BASED LEARNING SOLUTIONS WITH PROVEN RESULTS

Educational and government organizations nationwide partner with Tooling U-SME for innovative, engaging, hybrid training that brings students to class ready for hands-on skills training.

In this catalog, you'll find a list of all our course offerings—online training, certification programs.

Our curriculum is:

- Built on 85 years of experience in manufacturing
- The training choice for more than 600 educational institutions
- Mapped to local, state, and national academic standards and industry certifications

We do so much more than provide curricula. It's our Tooling U-SME team that makes the difference. Just ask our customers: 96 percent say they count on our knowledge to help them find the right solutions, and 99 percent give us the highest ratings on customer service.

HIGH SCHOOL

Hundreds of industry-proven online courses provide you with more time to individualize educational plans and provide hands-on instruction.

POST-SECONDARY

Join hundreds of educational institutions that have partnered with us on adult education programs, high school bridge/dual credit programs, and community college certificate and degree programs.

WORKFORCE DEVELOPMENT ORGANIZATIONS

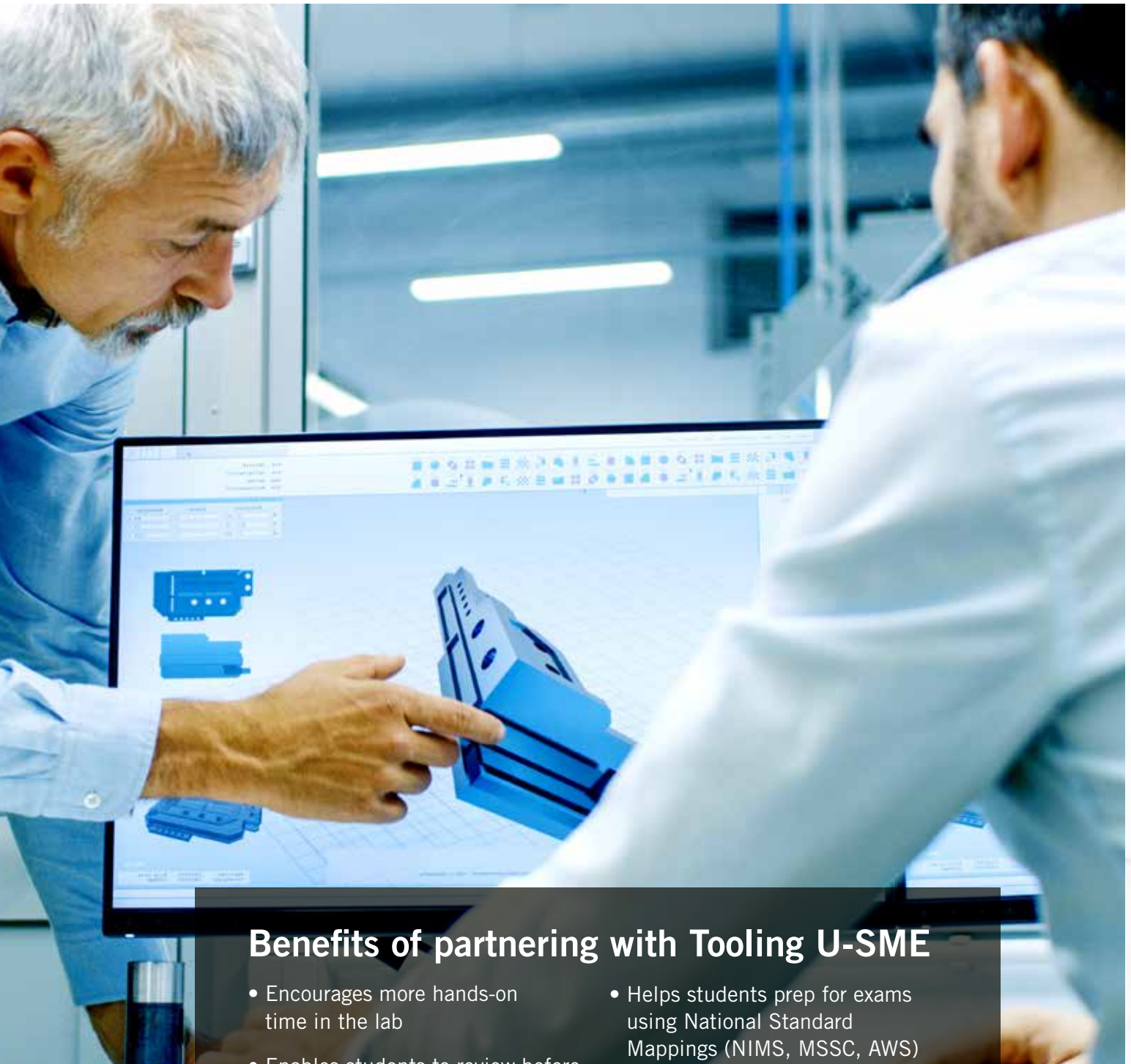
With Tooling U-SME, you get a partner that has an unmatched knowledge of manufacturing training and extensive experience working with government agencies.

CUSTOMIZED TRAINING

Build a complete manufacturing education program with a partner that has deep experience in education and a long history in manufacturing training.



How can we help you? Find out how we can partner with you to develop versatile learning and development training for manufacturing students. Contact us at info@toolingu.com or 866.706.8665.



Benefits of partnering with Tooling U-SME

- Encourages more hands-on time in the lab
- Enables students to review before and after lectures to become more familiar with the topics
- Supports multiple levels of students with multiple learning styles at the same time
- Introduces students to equipment not available
- Helps students prep for exams using National Standard Mappings (NIMS, MSSC, AWS)
- Promotes alternate study times to accommodate any lab size
- Allows teaching multiple standards with one curriculum
- Creates consistency among programs

FUNCTIONAL AREAS

Additive Manufacturing	
Additive Manufacturing	Introduction to additive manufacturing, additive manufacturing safety, additive manufacturing methods and materials
Assembly/Final Stage Processes	
Adhesives	Introduction to adhesive bonding, basics of the bonding process, types of adhesives, surface preparation
Coatings	Introduction to coating composition, surface preparation, processes for applying coatings, coating defects
Fasteners	Introduction to assembly, safety for assembly, overview of threaded fasteners, torque fastener ergonomics
Soldering	What is soldering?, safety for soldering, soldering equipment, soldering applications
Composites Processing	
Composites	Introduction to composites, safety for composites processing, overview of composite processes, materials for composites
Foundational	
Safety	Introduction to OSHA, fire safety and prevention, personal protective equipment, lockout/tagout procedures
Applied Mathematics	Fundamentals, fractions and decimals, units of measurement, basics of tolerance
Lean Manufacturing	Lean manufacturing overview, processes, culture and systems, 5S overview, introduction to Six Sigma, management tools
Materials	Introduction to materials, structure of metals, overview of plastic materials, mechanical properties of metals
Inspection	Basic measurement, linear instrument characteristics, basics of the CMM, surface measurement, GD&T, blueprint reading
Quality	Quality overview, ISO 9000 review, approaches to maintenance, lean manufacturing overview
Industry 4.0	
Smart Manufacturing	Cybersecurity, introduction to the Internet of Things and digital twin
Machining	
Abrasives	Introduction to abrasives, what is grinding?, grinding processes, grinding variables, grinding wheel materials
CNC	History and definition of CNC, mechanics of CNC, CNC coordinates, part program, CAD/CAM overview
CNC Controls: Fanuc	Control panel overview, entering offsets, locating program zero, program execution, program storage
CNC Controls: Haas	Control panel overview, entering offsets, locating program zero, program execution, program storage

Machining (continued)	
CNC Controls: Mazak	Control panel overview, entering offsets, locating program zero, program execution, program storage
Manual Machining	Basics of the manual mill, basics of the engine lathe, engine lathe operation, holmaking on the mill
Metal Cutting	Metal removal processes, safety for metal cutting, what is cutting?, machines for metal cutting
NIMS	Fast-track core machining skills align with NIMS certification standards
Workholding	Introduction to workholding, locating devices, clamping basics, fixture body construction, drill bushing selection
Maintenance	
Electrical Systems	Electrical units, safety for electric work, Introduction to circuits, Introduction to magnetism, DC circuit components
Hydraulics & Pneumatics	Introduction to fluid systems, the forces of fluid power, Introduction to fluid conductors, fittings for fluid systems
Mechanical Systems	Introduction to mechanical systems, safety of mechanical work, forces of machines, lubricant fundamentals
Rigging	Introduction to machine rigging, rigging equipment, lifting and moving equipment, rigging mechanics
Motor Controls	Introduction to electric motors, logic and line diagrams, DC motor applications, solenoids, AC motor applications
PLCs: Allen Bradley	Introduction to PLCs, basics of ladder logic, numbering systems and codes, basic programming
PLCs: Siemens	Numbers, codes and data types for Siemens PLCs, Siemens PLC communication, Siemens SIMATIC modular PLCs, Siemens PLC Programming Concepts
Robotics	Introduction to robotics, robot safety, robot components, end effectors, robot axes, robot sensors
Stamping/Forming/Fabricating	
Stamping	Press basics, stamping safety, punch and die operations, die components, die cutting variables
Press Brake	Press brake safety, press brake components, bending fundamentals, die bending operations
Supervisor Essentials	
Supervisor Essentials	Essentials of leadership, managing performance, basics of manufacturing costs
Welding	
Welding	Oxyfuel, SMAW, GMAW, FCAW, plasma, welding safety, weld types, weld inspection, submerged arc welding, material welding

ONLINE CLASSES

Abrasives

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Basic Grinding Theory 221
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Grinding Wheel Geometry 361

Additive Manufacturing

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Integrating Additive Manufacturing with
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Adhesives

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Types of Adhesives 140
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CNC

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Basics of the CNC Mill 212
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CNC Controls: Fanuc

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CNC Controls: Haas

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CNC Controls: Mazak

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WE ARE YOUR TRAINING PARTNER FOR CREDENTIALS AND CERTIFICATIONS



Our curriculum aligns with local, state and national academic standards and industry credentials, such as National Institute for Metalworking Skills (NIMS), Manufacturing Skills Standards Council (MSSC), American Welding Society (AWS), SME and Siemens Mechatronics certifications. Our courses also may be mapped to individual or state curriculum requirements.

Our online programs provide a comprehensive review of key concepts related to these certifications. Each one provides vocabulary and definitions, interactive exercises, pre- and post-course tests, and a downloadable PDF of each course.

HOW CAN WE HELP YOU?

To review our national credential mappings, or discuss a custom mapping to your state standards or your syllabi, please contact us at info@toolingu.com or [866.706.8665](tel:866.706.8665).

SME CERTIFICATIONS

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 Additive Manufacturing Certification.

LEAN CERTIFICATION

This industry-leading program provides 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 three leading nonprofit 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 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 of 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 who already holds the CMfgT can qualify with a minimum of seven years of combined manufacturing-related work experience or education. Details are available at sme.org/CMfge.

ADDITIVE MANUFACTURING CERTIFICATION

Certification in Additive Manufacturing is offered through a collaborative program between Tooling U-SME and UL. Combining UL's multi-tiered training program and Tooling U-SME's professional certification, it's a single resource from two industry leaders.

Certified Additive Manufacturing – Fundamentals (CAM-F)

The CAM-F is ideal for individuals who work in or seek to work in additive manufacturing roles in the automotive, aerospace, or medical equipment industries. It is also ideal for high schools and colleges as a capstone or stand-alone achievement to increase workforce readiness in additive manufacturing. The certification demonstrates knowledge of the fundamentals of additive manufacturing, including terms and definitions, software and hardware, and applications.

Certified Additive Manufacturing – Technician (CAM-T)

The CAM-T is ideal for individuals who hold a two-year associate degree in additive manufacturing or are currently enrolled in a college program, and/or have one or more years of working experience in a manufacturing-related field. The certification demonstrates knowledge of key roles and responsibilities for an additive manufacturing technician, including the additive manufacturing process chain, design for additive manufacturing, materials and process selection, secondary processes, and key safety considerations.

sme.org/amcert





TRACKING AND STUDENT ACCOUNTABILITY

ADMINISTRATION

- Sets permissions to manage learning
- Administers comprehensive testing
- Provides automated grades and tracking of pre-tests and final exams
- Displays time students spend on classes and tests
- Creates custom bundles of classes for multiple levels of students
- Generates reports to track knowledge gained
- Delivers unparalleled administrative support and training
- Offers classes in Spanish and simplified Chinese
- Provides a dedicated support team (99 percent customer satisfaction)

STUDENTS

- Enjoy flexible curriculum with 24/7 access from computers with Internet connections
- Complete work at/on their own pace/time
- Work on a user-friendly system
- Take advantage of the Tooling U-SME class app for Apple or Android tablets and mobile devices (NEW)
- Review content at their convenience
- Have access to transcripts
- Receive certificates of completion upon passing
- Get immediate feedback
- Benefit from audio voice-overs

PRE-APPRENTICESHIP AND APPRENTICESHIP IMPLEMENTATION

Tooling U-SME applied our competency-based qualification methodology to pre-apprenticeships and apprenticeship programs that leverage both demonstrated performance indicators with related training instruction (RTI) and on-the-job training (OJT) hour requirements.



PRE-APPRENTICESHIP

We work with our partners to serve dislocated workers, high school programs and the underemployed: women, veterans, and disadvantaged youth. Tooling U-SME's advanced manufacturing program trains students in the basic, foundational skills for advanced manufacturing and enables them to choose a specialized career pathway.



APPRENTICESHIP

We have mapped our training and development resources, which include access to Tooling U-SME online classes, to the knowledge, skills and abilities that are identified for each apprenticeship program based on our competency framework.



ASSESSMENTS

Pre- and post-assessments created for the apprenticeship programs will be used to assess prior knowledge, giving apprentices credit for prior learning, and to assess a post-assessment to show knowledge gained from the training.





APPRENTICESHIP



FILLING THE SKILLS GAP WITH TOOLING U-SME

Partnering with educators, workforce agencies, and the manufacturing industry, we build capacity and provide workforce education to help narrow the skills gap within manufacturing communities. We help fill the skilled-worker pipeline with our training and development solutions, including:

- Competency-based, industry-driven curriculum
- Alignment with nationally recognized certifications – NIMS, MSSC, AWS, PMMI, Siemens, and SME
- Department of Labor-approved pre-apprenticeship and apprenticeship programs
- Workforce performance assessments
- Flexible, customizable, high-quality classes that increase your capacity

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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