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introducing Tooling U–SME

Tooling U–SME generates high quality learning solutions for the manufacturing community. Validated by the industry’s leading experts, our class content, professional services, and competency mapping align to today’s job-related responsibilities for current and future generations of manufacturers. For over 80 years, we have been successfully building manufacturing training programs that harmonize workforce training with defined business goals and objectives. Over 240,000 individuals and over 5,000 companies and 400 educational institutions throughout the global manufacturing community rely upon us to strengthen the skills of their manufacturing workforce.

CREDENTIALS
Tooling U–SME has been a trusted source in manufacturing education for over 80 years. Our integrity and commitment ensure we stay aligned to national credentials including SME Lean, Certified Manufacturing Engineer and Certified Manufacturing Technologist, National Institute for Metalworking Skills (NIMS), Manufacturing Skill Standards Council (MSSC), American Welding Society (AWS), and Siemens Mechatronics certifications, and can also be mapped to individual or state curriculum requirements.

THE RIGHT TRAINING. THE RIGHT SOLUTIONS.
- BOOST OPERATIONS EFFECTIVENESS
- IMPROVE QUALITY
- REDUCE SCRAP
- EXPEDITE ON-BOARDING
- HEIGHTEN QUALITY CAPABILITIES
- ENHANCE PRODUCTION
- CROSS TRAINING GUARDS AGAINST WORKFORCE SKILLS GAP
- ROLLOUT NEW TECHNOLOGIES
- SHIFT FROM “TRIBAL KNOWLEDGE” TO FORMAL LEARNING

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- CONTAINS LAB
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> Concurrent Engineering
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> Design of Experiments (DOE)
> Design for Manufacturability and Assembly (DFM/DFA)
> Failure Mode and Effects Analysis (FMEA) Fundamentals
> GD&T for DFM
> GD&T
> GD&T Overview
> Global Supply Chain Management
> How to Coach Your People to Think Independently
> Industrial Engineering Fundamentals
> Integrating Green Manufacturing and Lean
> Introduction to Lean: Overview of the Lean Toolbox
> Kaizen Workshop
> Kanban: Inventory and Demand Management
> Lean Product Development
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> Planning Manufacturing Cells
> Precision Machine Design
> Project Risk Management
> Rapid and Accurate Cost Estimating and Quoting
> Rapid Prototyping Fundamentals
> Rapid Technologies and Additive Manufacturing Certificate Programs
> Six Sigma Green Belt
> Six Sigma Yellow Belt
> SMED: Setup / Changeover Reduction
> Strategic Project Management
> Statistical Process Control (SPC) Fundamentals
> 5S: Systematic Organization of the Workplace
> The Human Side of Lean
> Tolerance Stack-Up Analysis
> Understanding the Tools and Best Practices of Lean Manufacturing
> Value Analysis and Value Engineering (VA/VE)
> Value Stream Mapping: Diagram the Information and Material Flows in Your Business
> Walking the Talk Certificate Series

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14-15
assembly/final stage processes

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knowledge earned

Tooling U-SME offers assessments, certifications, and certificate programs that help the manufacturing community benchmark learning against objectives. Our programs, developed by a range of experienced industry professionals, validate the knowledge and skills of individuals to ensure they are well-equipped to meet the requirements for their manufacturing profession.

ASSESSMENTS

Online Assessments
Assess machining, welding and fabrication, maintenance, assembly and foundational skills, and much more.

Practice and Self-Evaluation Tests
Validate manufacturing technology, manufacturing engineering, and electronic/electrical engineering technology skills to ensure employees are meeting industry standards in these fields.

Green Manufacturing Outcome Assessments
Identity areas of success and improvement related to green manufacturing initiatives.

Online Review Programs
Provide essential review of key concepts related to Certified Manufacturing Technologist (CMfgT) and Lean Bronze Certification, and evaluate skills with the pre- and post-test tools.

Supplemental Test Questions
Utilize for existing employee evaluation programs, including out-of-the-box questions and questions tailored to meet your specific needs.

CERTIFICATIONS AND CERTIFICATES

Lean Certification:
SME, along with three other partners – Association for Manufacturing Excellence (AME), American Society for Quality (ASQ), and the Shingo Prize for Operational Excellence – have formed an alliance to establish the standard for continuing manufacturing improvement and Lean practices.

> Bronze Level:
 Begins the industry-leading Lean Certification program and validates employees’ tactical Lean experience and solid understanding of Lean principles and tools.

> Silver Level:
 Expands upon employees’ knowledge and understanding of Lean principles and tools. Silver level candidates should be fully capable of orchestrating the transformation of a complete value stream.

> Gold Level:
 Focuses on the strategic transformation of the enterprise. Gold level candidates have sufficient Lean experience and knowledge to teach Lean strategy and leadership, AND completely transform an organization.

Certified Manufacturing Technologist (CMfgT)
The CMfgT certification primarily 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.

Certified Manufacturing Engineer (CMfgE)
Professionals who earn a CMfgE demonstrate a comprehensive knowledge of manufacturing processes and practices. CMfgE candidates must have a minimum of eight years of combined manufacturing-related education and/or work experience, including a minimum of four years of work experience. A CMfgT with a minimum of seven years manufacturing-related work experience and/or education also qualifies.

Green Workforce Certificate Programs
SME and the Purdue University Technical Assistance Program (TAP) developed the Green Outcome Assessment that candidates can take to obtain the Green Manufacturing Specialist Certificate. The program helps companies and employees integrate green initiatives into their daily work and improve their bottom-line impact on the environment.
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CONTENT
Knowledge EdgeSM features over 1,200 eBooks and individual chapters in downloadable format, over 700 videos and video clips available on demand, more than 16,000 technical papers, and over 10,000 knowledge entries in the Manufacturing Knowledge Base wiki.
### ASSEMBLY/FINAL STAGE PROCESS
- A Guide to High Performance Powder Coating
- Affordable Automation for Small & Medium Facilities
- Brazing & Soldering
- Electrocoat Paint Finishing Defects
- Fastening & Assembly
- Finishing Systems Design and Implementation
- Getting Factory Automation Right (The First Time)
- Liquid Paint Finishing Defects
- Managing a Paint Shop
- Painting & Powder Coating
- Plating & Surface Coatings
- Successful Assembly Automation

### COMPOSITES PROCESSING
- Automated Composite Layup & Spray Up
- Composite Materials (thermoset fiber-reinforced composites; thermoplastics)
- Composite Materials & Manufacturing
- Composite Tooling Design
- Composites Post Fabrication & Joining
- Compression Molding
- Filament Winding
- Introduction to Composites Technology
- Liquid Molding
- Manual Composite Layup & Spray Up
- Powder Metallurgy
- Pultrusion

### ENGINEERING/MANAGEMENT
- ABC/ABM Understanding Manufacturing Costs
- Benchmarking Manufacturing Processes — Program Reference Guide
- Concept Modeling
- Concurrent Engineering Design
- Continuous Improvement-Sustaining the Effort
- Controlling Design Variants
- Design for Manufacture and Assembly
- DFMM: Design for Manufacturing (case studies)
- Direct Metal Manufacturing
- Ergonomic Safety (case studies)
- Ergonomics in Manufacturing
- Factory Man: How Jim Harbour discovered Toyota’s quality and productivity methods and helped the U.S. auto industry get competitive
- Failure Mode Effects Analysis
- From Concept to Customer: Portfolio, Pipeline, and Strategic Project Management
- Gaging & Inspection Tool Design
- Inspection and Measurement in Manufacturing
- Kaizen Event Fieldbook
- Kanban Systems
- Lean 9001: Battle for the Arctic Rose
- Lean Manufacturing for the Small Shop, 2nd Edition
- Lean Manufacturing Systems and Cell Design
- Lean Manufacturing: A Plant Floor Guide
- Lean Tooling
- Machine Vision & Error Proofing

### ENGINEERING/MANAGEMENT (cont.)
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- Managing Teams in Manufacturing
- Manufacturing Plant Layout
- Measurement & Gaging
- Mechanical & Non-Destructive Testing
- Medical Applications of Rapid Prototyping
- Passion for Manufacturing
- Precision Machine Design
- Rapid Castings: Rapid Prototypes for Metal Casting Processes
- Rapid Injection Mold Tooling
- Rapid Manufacturing
- Rapid Prototyping
- Rapid Prototyping & Manufacturing
- Rapid Tooling, Rapid Parts
- Re-Engineering the Manufacturing Enterprise
- Reverse Engineering: 3D Data Capture
- RFID: Tool Tracking Solutions
- Six Sigma and Other Continuous Improvement Tools for the Small Shop
- Stereolithography and Other R&P&M Technologies
- Story of a Lean Journey
- Strategic Project Management
- Success Factors for Implementing Change: A Manufacturing Viewpoint
- The Hitchhiker’s Guide to Lean
- The Human Side of Lean Manufacturing at TECHNICOLOR
- The Lean Company: Making the Right Choices
- The Power of Small Ideas

### FOUNDATIONAL
- A Lean Supply Chain at John Deere
- A Primer on the Taguchi Method, 2nd Edition
- Autonomous Activities - TPM in America Video
- Benchmarking Manufacturing Processes: Introspection; Reaching Outward (two-part video series)
- Breakthrough Kaizen Events
- Building a Lean Culture
- C-17 Quality
- C-17 Production Operations and Lean Manufacturing
- Continuous Quality Improvement
- Customer Focused Manufacturing
- Employee Involvement: A Key Strategy to Running a Healthy Business
- Engineering a Lean Supply Chain
- Five S Factory Makeover
- Flexible Material Handling
- Flexible Small Lot Production for JIT
- Focusing Ideas on What Matters Most
FOUNDATIONAL (cont.)
Fundamentals of Composites Manufacturing, 2nd Edition + Instructor’s Guide
Fundamentals of Manufacturing, 3rd and 2nd Edition
Fundamentals of Manufacturing Solutions Manual
Fundamentals of Manufacturing Supplement (to the 2nd edition)
Getting More and Better Ideas
Green Lean: Achieving Outstanding Environmental Performance with Lean
Incorporating Lean: From the Factory to Front Office
Introduction to Lean Manufacturing
Introduction to Lean Tooling
Lean Accounting
Lean Automation
Lean Culture
Lean ITS
Lean Manufacturing at Miller SQA
Lean Manufacturing at TAC Manufacturing
Lean Manufacturing in a Small Shop
Lean Product Design
Lean Six Sigma, the Power to Drive Rapid and Sustained Value Creation
Lean Tooling in Action
Leaning the Supply Chain
Learning Lean Through Simulation
Lessons from the Field: Making Lean Finally Work
Liberating and Transforming: Employee Ideas and Lean Culture
Making Ideas a Central Part of Work
Mapping Your Value Stream
Metal Forming Simulation
Minimum Quantity Lubrication
Mistake Proofing: Achieving Zero Defects
Plastic Blow Molding
Plastic Injection Molding
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Plastic Injection Molding 2: Material Selection and Product Design Fundamentals
Plastic Injection Molding 3: Mold Design and Construction Fundamentals
Plastic Injection Molding 4: Manufacturing Startup and Management
Plastic Molds
Plastic Thermoforming
Plastics Finishing
Poka Yoke: Mistake Proofing
Preparation & Initial Activities to Implement TPM: TPM in America Video 1
Preventive & Predictive Maintenance Tools & Techniques: TPM in America Video 3
Quick Changeover for Lean Manufacturing
Right-Sized Equipment
Setup Reduction
Single Piece Flow

FOUNDATIONAL (cont.)
Six Sigma
Six Sigma Process Improvement: Program Development in a High Speed Process Environment
Supplier Development — Boeing JDAM
Supply Chain Management
The Challenge of Staying Lean After Initial Application
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The Computerized Maintenance Management System - TPM in America Video 4
The Cost of Poor Quality
Threading
Time to Market: Reducing Product Lead Time
Tool and Die Maintenance & Troubleshooting
Tool Materials
Total Productive Maintenance Blitz
TPM in America Reference Guidebook
TPM: Total Productive Maintenance Training Operators for TPM: TPM in America Video 2
Value Stream Mapping
Visual Controls
What Lean Means
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MACHINING
Adaptation of the High Performance Milling Process
Advanced Grinding
Basics of Grinding
Chatter Avoidance for High Performance Machining
Chip Formation During High Speed Machining of Tempered Steel
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Workholding

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