TOOLINGU | sme

INSTRUCTOR-LED TRAINING

Face-to-face instruction
with industry experts

FACE-TO-FACE TRAINING BROUGHT TO YOUR FACILITY

Enhance your training program by offering interaction with real-world experts.

With more than 85 years of manufacturing expertise and with the thousands of companies we work with annually, Tooling U-SME has an extraordinarily large network of top-tier manufacturing educators and trainers. Our instructors bring deep industry knowledge and experience as well as a passion for what they teach.

Tooling U-SME instructors provide a dynamic, engaging classroom experience that may be extended out into the work environment. Training is highly interactive, hands-on, and personalized to your business needs.

Our Instructor-Led Training classes:

- Are immediately applicable to real-world scenarios
- Utilize hands-on exercises
- Are dynamic, with instructor and participant interactivity
- Engage peer-to-peer learning
- Complement eLearning to improve comprehension and skill building

We bring the training to you.

You choose the location that's most convenient for you – your facility, conference room, or even a hotel.

Constantly updated, customizable content.

We are always updating our content to ensure we deliver up-to-date, relevant material. The class outlines on the following pages can be customized to meet your needs during the planning stage of our engagement with you.

Benefit from targeted, interactive training from industry experts.

CONTENTS

Top 10 Classes 4

- Train the Trainer: Accelerating Worker Performance 5
- Frontline Leadership 7
- Blueprint Reading 10
- Geometric Dimensioning & Tolerancing (GD&T) 12
- Lean Fundamentals 14
- Failure Mode and Effects Analysis (FMEA) Fundamentals 16
- Design for Manufacturing and Design for Assembly (DFM/DFA) 18
- Value Stream Mapping 20
- Additive Manufacturing (3D Printing) Overview 22
- Root Cause Failure Analysis 24

Featured 15 Classes 26

- CNC Fundamentals 27
- Introduction to Composites 27
- Kaizen Workshop 28
- Frontline Leadership – Coaching and Mentoring 28
- PLCs Fundamentals 29
- Robotics 29
- Statistical Process Control (SPC) 30
- Additive Manufacturing – Implementation and Best Practices 30
- Bearings/Gears 31
- Low Voltage Safety 31
- Basic Electronics 32
- Stamping Dies 32
- Metal Formability 32
- Metal Stamping Press Maintenance 33
- Precision Machine Design 33

Custom Classes 34

Getting Started 35

TOP 10
INSTRUCTOR-LED CLASSES

ENHANCED WORKSHOPS

LEADERSHIP/ FOUNDATIONAL

TRAIN THE TRAINER: ACCELERATING WORKER PERFORMANCE

Description:

As an industry, manufacturing organizations tend to promote higher performers into lead roles without providing them the proper training to develop and mentor their teams. Poor on-the-job training can lead to low morale and high attrition, resulting in adverse performance and missed financial goals. With an increase of new hires, it is more important than ever to provide your trainers with a competency to deliver training in a consistent and concise manner. Tooling U-SME has designed a train-the-trainer (T3) workshop that will elevate a frontline supervisor or team leader's competency to develop and conduct new-hire on-the-job training (OJT) within a manufacturing environment. This team-based, interactive workshop, Train-the-Trainer: Accelerating Worker Performance, will teach best practices in the development and delivery of OJT.

The methodology taught in the class has been derived, inspired and modernized from best practices in OJT by manufacturing in the World War II era. Participants will learn and practice critical OJT delivery steps, such as Prepare the Learner, Explain the Operation, Practice, and Consolidate. They will also learn and practice proper techniques in employee evaluation, under the guidance of best practices.

The class will also cover the necessary knowledge and skills for mentoring and creating a positive learning environment. Finally, the class will discuss best practices in setting up a Worker Qualification Program and will drive home the importance of the trainer's role in the success of a program. This workshop is grounded in theory and emphasized through practice and will develop a professional capability for this area of expertise.

1 ½ DAY CLASS

TRAIN THE TRAINER: ACCELERATING WORKER PERFORMANCE (Continued)

Audience:

Manufacturing frontline supervisor and team leaders who have training and development responsibilities.

Learning Objectives:

- Understand the importance of training and development in eliminating the skills gap
- Define how adults learn most effectively
- Understand the role of a mentor in the development of personnel
- Recall how to create a safe and positive learning environment
- Enhance one's questioning, listening and facilitation skills
- Understand the requirements in developing an OJT program
- Apply best practices in conducting OJT
- Recall tools and techniques for performance evaluation of personnel

Outline at-a-Glance:

- Training's role in reducing the manufacturing skills gap
- The OJT challenge
- OJT program best practices
- Delivering OJT
- Applying OJT good practices
- Performance evaluation tools and techniques
- Comprehensive assessment

FRONTLINE LEADERSHIP

Description:

Effective supervision and management requires a critical balance among technical competency, business acumen, communication effectiveness, customer relations and interpersonal skill.

The Leadership role is more challenging today than ever before. The transition from excellent performer to competent Frontline Leader or Supervisor can be difficult, and it demands a new set of skills. Newly appointed supervisors must be able to position themselves as Frontline Leader in order to gain respect from others. The demands for higher quality and performance are increasing; the workplace is growing more complex. In the face of such challenges, Frontline Leader have to be effective if they are to help people invest the best of their minds, hearts and hands into their work – if the work is to be done well.

This program includes: case studies, video, discussions, individual exercises, role plays, and group work.

Audience

First-line leaders who supervise a group of followers within an organization.

Learning Objectives

- Acquire realistic job-related skills to reinforce a performance- and customer-driven environment in which employees continually achieve standards of excellence, meet company productivity levels, and deliver quality products and services.
- Understand roles and responsibilities as supervisors and/or team leads and how their approach to leading others directly affects outcomes.

3½ DAY CLASS

FRONTLINE LEADERSHIP (Continued)

Course Outline

MODULE 1: FOUNDATIONAL LEADERSHIP PRINCIPLES

Leadership Styles
Lead vs. Manage/Supervise
How to Lead and Influence
Circle of Influence/Circle of Concern
Paradigms
Frontline Leadership Principles
Improve Focus and Concentration
Culture Creation: Values and Principles
Motivation and Trust

MODULE 2: COMMUNICATION

Foundation for Effective Communication
Communication Techniques
How to Influence/Modify Behavior and Ideas
How to Gather Information: Probes
Active Listening
Four Types of Feedback
Feedback and Intent
Recognition and Praise

FRONTLINE LEADERSHIP (Continued)

MODULE 3: PLANNING & GOAL ACHIEVEMENT

Big Rocks

Goals and Priorities

Time Matrix

Delegation

MODULE 4: CONFLICT MANAGEMENT

Conflict Styles

Conflict Handling Methods

Shift from Emotion to Logic

MODULE 5: COACHING AND COUNSELING ESSENTIALS

Coaching and Counseling

Why and How to Establish Performance Expectations

How to Handle Performance Issues

Corrective Action

MODULE 6: DEVELOPING HIGH-FUNCTIONING TEAMS

Team Development and Team Work

FOUNDATIONAL/ DESIGN & ENGINEERING

BLUEPRINT READING

Description:

Engineering drawings (often called blueprints) are the means of communicating the necessary requirements of a product or assembly. While much of a drawing is devoted to the different visual views, there is a great deal of other information to understand. This course covers the basic areas of interpreting mechanical drawings, from the details found in a title block to the meaning of different line types to a proper method for visualizing a part from the two-dimensional images. Participants will also learn how to interpret dimensions and tolerances and review several sample drawings throughout the day.

Audience:

Manufacturing frontline supervisor and team leaders.

Learning Objectives:

- Describe the role blueprints play in the design and manufacturing process
- List the seven main steps in reading a drawing
- Identify the different types of lines used on drawings
- Explain the different types of two-dimensional and three-dimensional views
- Interpret orthographic projection views
- Explain the difference between first-angle and third-angle projection
- Interpret auxiliary and section views
- Describe the items found within a title block
- Interpret callouts for special features such as screw threads and surface roughness
- Identify proper dimensioning and tolerancing techniques
- Determine if all necessary information for a part is given on a print

2 DAY CLASS

BLUEPRINT READING (Continued)

Outline at-a-Glance:

- Importance of engineering drawings
- Basic steps in reading an engineering drawing
- Different line types (hidden, phantom, etc.)
- Pictorial vs. orthographic projection
- How to visualize a part from orthographic views
- First-angle vs. third-angle projection
- The title block
- Interpreting general and local notes
- Auxiliary views
- Section views
- Screw threads
- Surface roughness
- Other common callouts
- Dimensioning practices
- Plus/minus tolerances
- Calculating unknown dimensions
- Introduction to GD&T
- Review of sample drawings
- Wrap-up

GEOMETRIC DIMENSIONING & TOLERANCING (GD&T)

Description:

To better define a product, geometric dimensioning and tolerancing (GD&T) is used as a symbolic way of showing specific tolerances on drawings. GD&T is a valuable language that communicates the design intent to manufacturing and inspection. It is governed by the technical standard ASME Y14.5-2009. This course covers all aspects of GD&T. In addition to learning the theory, participants will see numerous examples that demonstrate specific applications. Participants are welcome to bring sample prints to the class for discussion or private consultation.

Audience:

Product engineers, inspectors, machinists, CAD designers, manufacturing engineers, tool and die makers, gage designers and makers, management personnel, and support staff who need to understand mechanical prints.

Learning Objectives:

- Describe the benefits of using geometric dimensioning and tolerancing
- Explain how Rule #1 imposes certain geometric controls automatically
- Identify whether a given feature is considered a surface or a feature of size
- Interpret feature control frames and identify correct/incorrect syntax in a given feature control frame
- Calculate virtual condition and describe why it is important
- Define a basic dimension and explain how it relates to GD&T
- Recognize the MMC modifier and calculate the appropriate bonus tolerance

3 DAY
CLASS

GEOMETRIC DIMENSIONING & TOLERANCING (Continued)

- Describe the tolerance zone for each of the 14 GD&T symbols
- Correctly identify datum features and determine their order of precedence
- Determine proper inspection methods for a given GD&T callout

Outline at-a-Glance:

- Review of coordinate dimensioning and tolerancing
- How GD&T can improve a drawing
- Overview of the Y14.5 standard
- Surface vs. feature of size
- Basic dimensions
- Rule #1 – Size controls form
- Definition of MMC, LMC, RFS
- Reading the feature control frame
- Virtual condition
- Form tolerances
- Datums
- Datum targets
- Simulating datums on fixtures and/or CMMs
- Profile tolerances
- Orientation tolerances
- Location tolerances
- Advanced location – projected zone, fixed/floating fasteners
- Runout tolerances
- Bridging the theory of GD&T with the real world
- Discuss sample prints
- Wrap-up

LEAN FUNDAMENTALS

Description:

This course is designed to provide the participant with knowledge to be a critical practitioner with waste and 5S. Having a thorough understanding of waste is fundamental to everything else one might do with the lean body of knowledge. The class will focus on learning to "see" waste, developing approaches to eliminate waste, and finding ways to prevent waste from recurring. The 5S portion of the class will focus on developing a deep understanding of the "why and how" of 5S. Class will include techniques to audit and measure 5S performance. Participants will understand that 5S is a foundational part of the lean journey.

Audience:

Lean practitioners looking for refresher on the basics, front-line associates who are responsible for executing and sustaining 5S, operations managers who are responsible for guiding lean activities, people who are new to the lean principles.

Learning Objectives:

- Identify examples of the eight waste categories
- Understand the impact of waste on the organization
- Identify steps for conducting a Muda Walk
- Define each 5S category
- Relate how 5S has application to both manufacturing and non-manufacturing operations
- Define the steps of a 5S audit

1 DAY
CLASS

LEAN FUNDAMENTALS (Continued)

- Define waste and value-added/non-value added (VA/NVA)
- Learn to see waste through the classic “seven plus one” categories
- Learn how to conduct a Muda Walk
- Define 5S
- Appreciate 5S as a process to get to an end
- Learn tips for each stage of the 5S process
- Develop a 5S audit process
- Create performance measures for VA/NVA and 5S

FAILURE MODE AND EFFECTS ANALYSIS (FMEA) FUNDAMENTALS

Description:

Participants will gain fundamental knowledge and practice on design and process failure mode and effects analysis (FMEA). They'll learn the purpose and benefits of FMEA, the different types of FMEAs and their focus, QS-9000 FMEA requirements and guidelines, FMEA timing and inputs, and steps required for developing FMEA.

Audience:

All levels of design and manufacturing personnel, including first-time practitioners as well as experienced engineers and management. Experienced individuals will refresh their FMEA knowledge, examine advanced strategies, and practice FMEA development with an experienced facilitator. Others involved in continuous improvement strategies will also benefit, including design-responsible engineers or managers and other product design and manufactuing staff, as well as FMEA team members such as operators, technicians, and quality personnel.

Learning Objectives:

- Explore key assumptions required for different types of FMEAs
- Study severity, occurrence, and detection, ranking interpretation and application
- Consider the differences among requirements, failures, effects, causes, and controls
- Learn how to avoid the common pitfalls
- Understand links between FMEAs and other key documents
- Use step-by-step procedures for completing FMEAs

2 DAY
CLASS

FAILURE MODE AND EFFECTS ANALYSIS (FMEA) FUNDAMENTALS (Continued)

Outline at-a-Glance:

- Introduction
- Pre-assessment
- Instructor-led development of a sample FMEA
- FMEA definition, questions, purpose, and benefits
- Types of FMEAs, their focus, and their relationship with QS-9000
- Timing of FMEA development and revisions
- FMEA team composition and data inputs

DESIGN FOR MANUFACTURING AND DESIGN FOR ASSEMBLY (DFM/DFA)

Description:

This three-day workshop will provide fundamental knowledge and hands-on practice with Design for Manufacturing and Design for Assembly (DFM/DFA) and key tools. Topics addressed include the overview and application of DFM and DFA strategies, Design for Productivity, Process Capability, and Realistic Tolerancing. This course can be tailored to fit special needs of new product and process development, or it can focus on application for existing designs and manufacturing environments.

Why all these topics together? DFM/DFA is a collection of related tools that can be used for a variety of situations. Training that focuses on only one of these subjects at a time cannot effectively show how these tools work together to analyze, simplify, and reinvent product and process designs to create higher quality, productivity, and profitability before, during, and after launch. Workshop participants apply the various tools in an integrated fashion to experience the start-to-finish effects of an effective DFM/DFA approach using actual product and process examples, drawings, and data.

Audience:

Program managers, design-responsible engineers or managers, and team members such as operators and technicians, quality personnel, and other product design and manufacturing personnel.

Learning Objectives:

- Understand key DFx concepts including Design for Manufacturing, Design for Assembly, Design for Lean, and Design for Six Sigma
- Identify key elements of any component or assembly design that must be considered during DFM/DFA analysis and application

3 DAY
CLASS

Learning Objectives {continued}:

- Learn how to involve key stakeholders, including vendors and suppliers, to ensure they have input to DFM/DFA activities
- Understand how to structure the DFM/DFA process to facilitate the engineering team through the process for both new products and/or redesigned products/processes
- Use step-by-step guidelines for analyzing DFA including design for handling, presentation, orientation, insertion, fastening, plus error-proofing, mistake-proofing, and Poka Yoke applications for design and process elements
- Understand DFM guidelines and general tolerancing recommendations for the most popular manufacturing processes, including injection molding, machining, metal forming, casting, etc.
- Conduct a variety of capability studies including Cp, Cpk, Pp, and Ppk
- Calculate and assign appropriate tolerances for new designs
- Take away 15 key Geometric Dimensioning and Tolerancing (GD&T) strategies for increasing tolerances and reducing cost without compromising product function
- Learn to take advantage of GD&T principles without adding GD&T to the drawings
- Use step-by-step guidelines for dimensioning, tolerancing, and optimization using both coordinate and geometric tolerancing

Outline at-a-Glance:

- Design for Assembly
- Error-Proofing, Mistake-Proofing, and Poka Yoke
- GD&T for DFM
- Design for Metal Forming
- Design for Surface Treatment
- Design for Machining
- Design for Casting
- Design for Plastic and Rubber Parts
- Tolerance Design for Six Sigma
- Small-Group Applications Projects

LEAN/DESIGN & ENGINEERING

VALUE STREAM MAPPING

Description:

This introductory, hands-on course teaches participants how to document and quantify material and information flow within their organizations using Value Stream Mapping. The course explains how to capture and document the current state for a process and provides guidance on how to envision, map, and plan for improvements to create the future state. A comprehensive case study is used to allow students to practice drawing Value Stream Maps using a standard set of symbols. As part of the learning, key questions are raised to encourage students to employ continuous improvement thinking and methods when developing future state Value Stream Maps for the case study company. The class provides excellent instruction on how to see, document, and communicate process flow from a continuous improvement point of view, and provides a standard methodology for moving from the current condition to an improved future condition.

Audience:

Individuals who already have a basic understanding of continuous improvement and are seeking a proven way to identify, document, and communicate improvement opportunities within their organizations. It is especially relevant for managers or improvement team leaders who need to develop Value Stream Mapping capabilities.

Learning Objectives:

- Define Value Stream and how it relates to material and information flow
- Explain how the Value Stream Map is used to encourage improvement
- Draw a Value Stream Map using a standard set of symbols

2 DAY
CLASS

VALUE STREAM MAPPING (Continued)

- Determine key opportunities for improvement from the current- state Value Stream Map
- Develop current, ideal, and future state Value Stream Maps
- Create an improvement plan to move from the current to the future condition

Outline at-a-Glance:

- Key points of continuous improvement and their relationship to Value Stream Mapping
- Material and information flow using a Value Stream Map – looking at the big picture
- Symbols and key metrics of Value Stream Mapping
- Case Study: Developing current, ideal, and future state maps
- Key points to consider when developing ideal and future state maps

ADDITIVE MANUFACTURING

ADDITIVE MANUFACTURING (3D PRINTING) OVERVIEW

Description:

Additive manufacturing, commonly referred to as 3D printing, is a manufacturing process that supports all aspects of the product development cycle—from prototype to end-use production parts. Additive technologies build up parts by adding a layer at a time, providing the ability to create complex shapes and geometries. Additive manufacturing can reduce time-to-market, improve product quality, enhance collaboration and streamline parts integration. In this multi-level program, participants will learn about the current technologies, how they work, and how best to use them to improve operations.

Audience:

Engineers (mechanical, tooling, quality, materials, process), new product designers, design and engineering leadership (VPs, directors, senior managers), and management involved in additive manufacturing decisions.

Learning Objectives:

- Identify current additive manufacturing technologies and primary applications
- Identify additive manufacturing processes and available material choices
- Understand the landscape of the industry and describe the business and economics

Outline at-a-Glance:

Additive Manufacturing Overview

- Definition of additive manufacturing (AM)
- Benefits of AM compared to other technologies

2 DAY
CLASS

ADDITIVE MANUFACTURING (3D PRINTING) OVERVIEW (Continued)

Additive Manufacturing Processes

- What are Additive Manufacturing processes and why use them?
- Binder jetting
- Directed energy deposition
- Material jetting
- Material extrusion
- Powder bed fusion
- Sheet lamination
- Vat photopolymerization
- Key systems & features from OEMs (3D Systems, Stratasys, EOS, etc.)
- Additive manufacturing terminology – DMLS, FDM, SLA, etc.
- Additive manufacturing materials – plaster, plastics, sand, metals, etc.
- Introduction to secondary processes using additive manufacturing
- Processes and technologies enhanced through additive manufacturing technologies

Additive Manufacturing Inputs

- Introduction to 3D imaging, reverse engineering and inspections
- Additive manufacturing file (AMF) format
- What to expect from CAD files
- Potential problems with bad files
- Software to fix and adjust bad files
- Outputting STL files

Design for Additive Manufacturing

- Freedom-of-design using additive manufacturing
- Design for additive manufacturing
- Select which process or technology to use
- Complexity is “free”

Business and Economics of Additive Manufacturing

- Economics of outsourcing vs in-house
- ROI of selected systems
- Economics of concept modelers and large-frame additive manufacturing systems
- Additional resources and information
- Order parts effectively
- Purchase equipment, materials, and services
- Utilization of standards for qualification

ROOT CAUSE FAILURE ANALYSIS

Description:

Root cause failure analysis (RCFA) addresses a problem that has appeared in a previously stable environment. Although this technique is most often applied to a production environment, the principles also work in any non-manufacturing arena that has a sudden occurrence of a problem. This technique searches for the element of change (perhaps in a constantly changing environment) which allowed the system to go out of control and evidence the problem. RCFA relies on data to analyze the conditions that now allow the problem to be seen against the conditions when the problem was not apparent. Participants will learn when to perform a root cause failure analysis, the root cause failure analysis process and regulatory guidance, and concerns with respect to RCFA. Several root cause failure analysis techniques include stressing the use of change analysis, barrier analysis, and event and causal factor analysis. These techniques are demonstrated through practical exercises.

Audience:

Maintenance engineers, operations engineers, technical support engineers, and quality assurance engineers.

Learning Objectives:

- Defining a problem in measurable terms
- Taking temporary problem containment actions: why and when
- Identifying root cause using provided tools and techniques
- Examining the need and methods of verifying and validating the cause to the exclusion of other possibilities
- Finding the root cause, or not
- Taking appropriate corrective actions and assuring success
- Applying lessons learned to system

2 DAY
CLASS

ROOT CAUSE FAILURE ANALYSIS (Continued)

Outline at-a-Glance:

- Root Cause Failure Analysis Overview
- Hardware Failure Analysis
- Change Analysis
- Barrier Analysis
- Event and Causal Factor Analysis

FEATURED 15
CLASSES

FOCUSED TRAINING

MACHINING

CNC FUNDAMENTALS

2 DAY CLASS

Description:

This introductory course presents the practical basics for learning how to use the latest CNC equipment. By incorporating a proven “key concepts” approach, it examines the techniques needed for programming and operating a variety of CNC machine tools with emphasis on CNC machining and turning centers. Participants will gain a firm understanding of the basics required to become proficient with this sophisticated and popular form of manufacturing equipment.

FOUNDATIONAL AND COMPOSITES PROCESSING

INTRODUCTION TO COMPOSITES

2 DAY CLASS

Description:

This course is designed for the student that has little or no prior experience with composite materials and processes. It is also an excellent refresher for those that have some experience in this area. In this course we introduce a variety of composite materials, forms, processes, laminate design ideas, and basic construction and manufacturing principles.

LEAN

KAIZEN WORKSHOP

3-5 DAY CLASS

Description:

Kaizen is the engine in the lean journey. Kaizen Events are targeted improvement efforts. This course is designed to have participants learn how to problem solve in a team environment through the use of lean thinking. Using the principles of lean, participants will work together to plan and implement improvements to a defined topic and conduct a "Kaizen Event." Scope and boundaries will be established and the team will attack the issues until resolution is implemented. Most companies do not have enough time to effectively problem solve, so "band-aid" improvements are made. In lean, Kaizen is a way to use cross-functional resources in short periods or bursts of dedicated time to effectively improve processes. Kaizen is an intense, well-defined event used to help organizations problem-solve with a systematic approach. The approach utilizes people in a dynamic and fast-paced environment and usually at the origin of the issue being improved. Kaizen techniques utilize many different lean tools, such as line balancing, time observations, SMED, Value Stream Mapping, 5S techniques, and DMAIC.

LEADERSHIP

FRONTLINE LEADERSHIP – COACHING AND MENTORING

2-3 DAY CLASS

Description:

Participants will learn highly effective ways to be a coach and mentor within their organization. Participants will learn useful skills about coach and mentor responsibilities, differences between being a coach and mentor, and when to train and when to provide professional guidance. There is a focus on skills development and assessing and providing feedback. Time is spent allowing participants to practice instructing.

MACHINING/MAINTENANCE

PLCs FUNDAMENTALS

4 DAY CLASS

Description:

This course covers the fundamentals and principles of Industrial Programmable Logic Controller (PLC). The focus is on how PLC's work and gives practical information on maintaining PLC systems. Students will examine the control of systems with a PLC simulator and laptops. Emphasis will be on using the PLC as a diagnostic tool for troubleshooting the processing system.

MACHINING/ MAINTENANCE

ROBOTICS

3 DAY CLASS

Description:

The goal of this class, available for all robot types, is to provide students the knowledge and confidence to operate the robots using the teach pendant.

Topics include: safety, operating controls, software Instruction and program flow, jogging the robot using joystick control, and RAPID programming.

QUALITY

STATISTICAL PROCESS CONTROL (SPC)

2 DAY CLASS

Description:

This course will provide fundamental knowledge and hands-on practice with the Statistical Process Control (SPC) and key tools. Topics addressed include the overview and application of basic statistical concepts, basic problem solving and quality tools, variable control charts, attribute control charts, measurement systems analysis (MSA), gage R&R, and capability analysis.

ADDITIVE MANUFACTURING

ADDITIVE MANUFACTURING – IMPLEMENTATION AND BEST PRACTICES

1-2 DAY CLASS

Description:

Participants receive comprehensive introductory knowledge of the 3D printing industry. Covering terms and definitions, software and hardware, as well as discussing applications and case studies, students will begin to understand the benefits of 3D printing in a way that is relevant to their business needs.

- Identify the various 3D printing technologies and their benefits/limitations
- Review basic 3D printing process
- Understand the hardware and software for 3D digital file management
- Identify common materials for each 3D printing technology
- Describe integration of 3D printing with secondary manufacturing processes (e.g., casting and molding)
- Identify basic safety and quality considerations specific to 3D printing

FOUNDATIONAL/ MACHINING/MAINTENANCE

BEARINGS/GEARS

2 DAY CLASS

Description:

During this two-day class, participants will cover the following topics:

- Overview of the many different types of bearings used in mechanical applications
- Gear grinding in the manufacturing process
- Gear grinding inspection
- Troubleshooting gear results
- Proper handling of all tools and equipment

FOUNDATIONAL/ MACHINING/MAINTENANCE

LOW VOLTAGE SAFETY

1 DAY CLASS

Description:

This course provides a thorough knowledge of the recommended safe behaviors for those who work around electrical hazards. Attendees gain an understanding of the latest guidelines and regulations from NFPA 70E and OSHA. Electrical workers and safety professionals learn key practical information: best work practices in electrical safety and how to apply them in real-world situations.

FOUNDATIONAL/ MACHINING/MAINTENANCE

BASIC ELECTRONICS

3 DAY CLASS

Description:

Participants will learn the fundamental concepts, symbols, and components of electronic circuits. They will sharpen their troubleshooting skills to help reduce downtime of equipment and gain invaluable experience using and understanding common electronic test equipment. The course covers all aspects of industrial electronics, including Ohm's law, terminology, common circuits, test equipment, and safety.

STAMPING/FORMING/ FABRICATION

STAMPING DIES

3 DAY CLASS

Description:

This course is an intensive and comprehensive training and recognition program designed to develop the knowledge skill set relating to stamping dies. First, participants sit for a pre-exam to pinpoint challenge areas and then use the next three days of intensive stamping die training to address these challenge areas.

STAMPING/FORMING/ FABRICATION

METAL FORMABILITY

2 DAY CLASS

Description:

This program provides a basic overview of the metal formability process with an in-depth look at techniques and practices that will enhance operations.

STAMPING/FORMING/ FABRICATION

METAL STAMPING PRESS MAINTENANCE

1 DAY CLASS

Description:

This program will train attendees in the following areas:

- How to maximize uptime, even with less-than-perfect machinery
- The Theory of the Box
- Safe metal stamping press operations
- The design and usage of metal stamping presses
- Efficient and practical preventative maintenance inspection procedures

DESIGN & ENGINEERING

PRECISION MACHINE DESIGN

2 DAY CLASS

Description:

A precision machine is an integrated system that relies on the attributes of one component to augment the weaknesses of another component. In this course, emphasis is placed on the design of mechanical and structural precision machine components and their integration with sensor and control systems to maximize performance. In the discussion of the design of components and assemblies, emphasis is placed on how the design will affect overall accuracy, repeatability, and resolution of the machine. Therefore, design engineers will be provided with state-of-the-art information and design tools needed to design internationally competitive precision machines.

CUSTOM CLASSES

Training developed just for you.

Tooling U-SME offers an extensive catalog of competency-based classes that provide the advanced manufacturing knowledge needed by employers today. But our catalog is just the starting point. We're able to customize classes to meet your company's business needs – from production to engineering, frontline leadership to management, and more. Through our extensive network of instructors, we can deliver training on hard-to-find or very targeted topics outside of our catalog.

Contact us today at 866-706-8665 to discuss your specific needs.

CLASSES DESIGNED FOR YOU

GET STARTED

Expert workforce training with ILT.

Are you ready to bring targeted training from industry experts to your workforce? Fill out this form and return to us by email at **info@toolingu.com or by fax at 216.706.6601**. This information will help us start to better understand your organization and its needs for effective and efficient planning.

Company	
Division / Department / Location	
City, State, Zip Code	
Point of Contact (POC) Name	
POC Title	
POC Phone	
POC Email Address	

BACKGROUND INFORMATION

What PRODUCTS are designed and/or manufactured and/or assembled at your facility?	
What METHODS, TYPES OF EQUIPMENT and PROCESSES are used to manufacture these products?	
Number of locations requiring training	
Target Audience	

PROJECT OBJECTIVES

What knowledge or skills will this course address?	
What business objective will this training support?	
What organizational barriers should be considered for implementing this training?	
What specific problems should the instructor address during the course?	
What previous training have the employees had on this topic?	
What was the method of delivery for any previous training on this topic?	
Expected number of class participants	
Desired timeframe for delivery	
What operational constraints need to be considered for scheduling the training?	
How will the success of this training be measured?	

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

In addition to our Instructor-Led Training, 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.

TOOLINGU | sme

email: info@toolingu.com | 866.706.8665 | TOOLINGU.COM

12435-073118