

# TOOL AND DIE MAKER

O\*NET OCCUPATIONAL CODE: 51-4111.00

## Related Training Instruction Framework for Common Job Functions

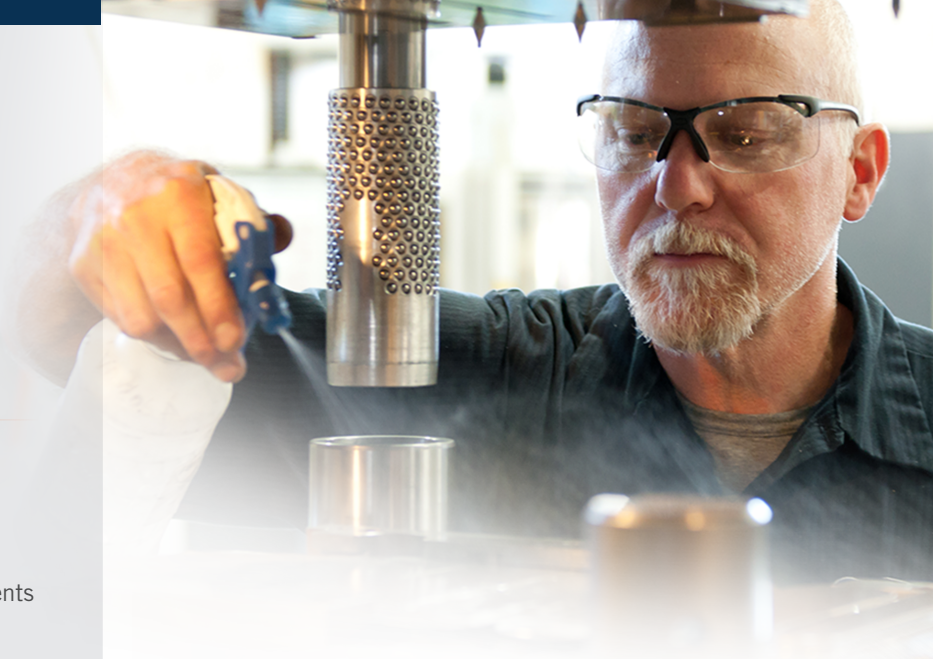
The Apprenticeship Framework from Tooling-U SME provides the industry-endorsed related training instruction (RTI) hours needed to meet the requirements of a competency-based or hybrid apprenticeship program. The Apprenticeship Framework is designed to provide a minimum of 165 RTI hours per framework and can be used to enhance an existing program or provide the building blocks for new programs. Frameworks are divided into five sections that support any 21st-century apprenticeship, and provide and encourage new approaches to building a skilled and competitive workforce.

## Flexible and Convenient

The Apprenticeship Framework quickly provides an RTI resource for any apprenticeship. Online classes provide students with self-paced, easy access to RTI that is available 24x7. An app is available for phones and tablets.

## THE APPRENTICESHIP FRAMEWORK OFFERS:

- Predefined curriculum for each job function
- Online classes that align to classroom objectives and add program capacity
- A minimum of 165 RTI hours per framework
- Supplemental videos
- Access to the Administrative and Student Center
- Guidance from our Client Success team
- Hundreds of additional instructor-led training (ILT) hours



## FRAMEWORK SECTIONS

### Job Skills

Adherence to core fundamental employability skills that employers desire from new and incumbent employees in the workplace.

### Health and Safety

Adherence to safety, health and environmental rules and regulations to avoid workplace injury, and to maximize personal and organizational productivity and profitability.

### Foundations in Manufacturing

Adherence to the essential technical knowledge and skills necessary to build a job-ready manufacturing workforce.

### Technical Expertise

Adherence to the standards designated for a specific craft through the achievement of theory and hands-on skills, where these elements are applied in industry work.

### Leading and Developing People

Adherence to good practices and positive interaction in leading, training or mentoring co-workers within a manufacturing environment.

## Job Skills

Tooling U-SME Department	Related Training Instruction Topics Covered	RTI Hours
Lean	5S	1.5
Shop Essentials (Applied Mathematics)	Manufacturing Awareness	3
Supervisor Essentials	Industrial and Labor Relations, Sexual Harassment Prevention, Communications, Active Listening, Reading for Comprehension	9
Quality	Customer Focus	1.5
<b>Total</b>		<b>15</b>

## Health and Safety

Tooling U-SME Department	Related Training Instruction Topics Covered	RTI Hours
Safety	General Workplace Safety, Personal Protective Equipment, Fall Protection, Confined Spaces, Machine Safety, Fire Safety and Prevention, Back Injury Prevention, Respiratory Protection, Industrial Ergonomics, LOTO, Hazard Communication Training, Hazardous Materials Handling and Storage, Bloodborne Pathogens	24
Metal Cutting	Machine Safety, Metalworking Fluid Safety	3
<b>Total Hours</b>		<b>27</b>

## Foundations in Manufacturing

Tooling U-SME Department	Related Training Instruction Topics Covered	RTI Hours
Shop Essentials (Applied Mathematics)	Basic Arithmetic Operations, Decimals and Percentages, Units of Measurement, Geometry, Trigonometry, Statistical Process Control (SPC)	13.5
Inspection	Fundamentals of Blueprint Reading, Inspection (Tools and Techniques), GD&T	9
Quality	TPM Program, Quality Management System (QMS)	3
Lean	Continuous Improvement System, Lean Manufacturing, Statistical Process Control (SPC), Root Cause Analysis, Continuous Improvement System, TPM Program	19.5
CNC	Calculating Machine Feeds and Speeds, CAD/CAM Design, Calculating Part Features	7.5
Materials	Classifications of Metals, Heat Treatment, General Characteristics of Metals, Hardness Testing	15
<b>Total</b>		<b>67.5</b>

## Technical Expertise

Tooling U-SME Department	Related Training Instruction Topics Covered	RTI Hours
Abrasives	Safe Working Procedures, Surface Grinder Machine Controls and Coolants, Mounting, Truing and Dressing of Grinding Wheels, Setting Up Surface Grinder Workholding Devices, Accessories and Attachments, Surface Grinding Operations, Universal, Cylindrical or Cutter Grind Machine Controls and Coolants, Setting Up Universal, Cylindrical or Cutter Grind Workholding Devices, Accessories and Attachments, Universal, Cylindrical or Cutter Grind Operations	27
CNC	Components, Functions and Operating Principles, Components, Functions and Operating Principles of Vertical and Horizontal Milling Machines, Cartesian Coordinate System	18
CNC Controls: Fanuc	Cartesian Coordinate System	6
CNC Controls: Haas	Cartesian Coordinate System	6
CNC Controls: Mazak	Cartesian Coordinate System	12
Lean	Heat Treat Process	1.5
Manual Machining	Layout, Components, Functions and Operating Principles, Threading and/or Form Cutting Tools and Tool Holders, Lathe Planning and Setup, Turning Operations, Components, Functions and Operating Principles of Vertical and Horizontal Milling Machines, Setting Up Workholding Devices and Accessories, Milling Operations	15

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## Technical Expertise

Tooling U-SME Department	Related Training Instruction Topics Covered	RTI Hours
Materials	Machinability and Chip Formation	1.5
Metal Cutting	Bench and Pedestal Grinders, Machinability and Chip Formation, Speeds, Feeds and Depths of Cut, Safe Working Practices, Coolant Requirements, Cutting Tools and Tool Holders, Drilling Operations, Threading and/or Form Cutting Tools and Tool Holders, Setting Up Cutting Tools and Tool Holders, Components, Functions and Operating Principles of the EDM Equipment	18
Quality	Fit and Function	1.5
Safety	Power Hand Tools	1.5
Welding	Machining Processes	1.5
Workholding	Workholding Devices and Setup Accessories, Workholding Devices, Attachment and Accessories, Setting Up Universal, Cylindrical or Cutter Grind Workholding Devices, Accessories and Attachments	7.5
<b>Total Hours</b>		<b>117</b>

## Leading and Developing People

Tooling U-SME Department	Related Training Instruction Topics Covered	RTI Hours
Supervisor Essentials	Team Building, Conflict Resolution, Project Management, Performance Management, Mentoring Others	9
<b>Total</b>		<b>9</b>