



MACHINING

MACHINING FUNDAMENTALS

5S Overview	Cutting Processes	Hole Standards and Inspection	Math: Fractions and Decimals	Thread Standards and Inspection
Band Saw Operation	Essentials of Heat Treatment of Steel	Intro to OSHA	Metal Cutting Fluid Safety	Trigonometry: Sine, Cosine, Tangent
Basic Cutting Theory	Ferrous Metals	Introduction to Mechanical Properties	Noise Reduction/Hearing Conservation	Units of Measurement
Basic Measurement	Fire Safety and Prevention	Introduction to Metal Cutting Fluids	Overview of Machine Tools	Walking and Working Surfaces
Basics of Tolerance	Geometry: Circles and Polygons	ISO 9001: 2015 Review	Personal Protective Equipment	
Bloodborne Pathogens	Geometry: Lines and Angles	Lean Manufacturing Overview	Powered Industrial Truck Safety	
Blueprint Reading	Geometry: Triangles	Lockout/Tagout Procedures	Safety for Lifting Devices	
Calibration Fundamentals	Hand and Power Tool Safety	Math Fundamentals	SDS and Hazard Communication	

GRINDING TECH

Basic Grinding Theory	Cylindrical Grinder Operation	Grinding Variables	Major Rules of GD&T	Supporting and Locating Principles
Basics of G Code Programming	Dressing and Truing	Grinding Wheel Geometry	Metrics for Lean	Surface Grinder Operation
Basics of the Centerless Grinder	Essentials of Communication	Grinding Wheel Materials	Process Flow Charting	Surface Texture and Inspection
Basics of the Cylindrical Grinder	Essentials of Leadership	Intro to Fastener Threads	Setup for the Centerless Grinder	Troubleshooting
Basics of the Surface Grinder	Grinding Ferrous Metals	Introduction to CNC Machines	Setup for the Cylindrical Grinder	
Centerless Grinder Operation	Grinding Nonferrous Metals	Introduction to GD&T	Setup for the Surface Grinder	
Chucks, Collets, and Vises	Grinding Processes	Introduction to Grinding Fluids	SPC Overview	
Clamping Basics	Grinding Safety	Locating Devices	Strategies for Setup Reduction	

MACHINE OPERATOR

Basics of G Code Programming	Classification of Steel	Engine Lathe Operation	Locating Devices	Offsets on the CNC Mill
Basics of the CNC Lathe	Control Panel Functions for the CNC	Engine Lathe Setup	Machine Guarding	Safety for Metal Cutting
Basics of the CNC Mill	Lathe Control Panel Functions for the	Holemaking on the Manual Mill	Manual Mill Basics	SPC Overview
Benchwork and Layout Operations	CNC Mill Coordinates for the CNC Lathe	Intro to EDM	Manual Mill Operation	Supporting and Locating Principles
Chucks, Collets, and Vises	Coordinates for the CNC Mill	Intro to Fastener Threads	Manual Mill Setup	Surface Texture and Inspection
Clamping Basics	Engine Lathe Basics	Introduction to CNC Machines	Offsets on the CNC Lathe	

CNC PROGRAMMER

Automated Systems and Control	Canned Cycles for the Mill	Intro to Six Sigma	Major Rules of GD&T	Speed and Feed for the Lathe
Calculations for Programming the Lathe	Creating a CNC Milling Program	Introduction to CAD and CAM for	Metrics for Lean	Speed and Feed for the Mill
Calculations for Programming the Mill	Creating a CNC Turning Program	Machining	Quality and Customer Service	
Canned Cycles for the Lathe	In-Line Inspection Applications	Introduction to GD&T	Robot Axes	
		Introduction to Metals		

PRODUCTION MACHINIST

ANSI Insert Selection	Carbide Grade Selection	Essentials of Leadership	Mill Tool Geometry	Taper Turning on the Engine Lathe
Basic Cutting Theory	Creating a CNC Milling Program	Impact of Workpiece Materials	Optimizing Tool Life and Process	Threading on the Engine Lathe
Calculations for Programming the Lathe	Creating a CNC Turning Program	Introduction to GD&T	Process Flow Charting	Troubleshooting
Calculations for Programming the Mill	Cutting Tool Materials	Lathe Tool Geometry	Speed and Feed for the Lathe	
Canned Cycles for the Lathe	Drill Tool Geometry	Major Rules of GD&T	Speed and Feed for the Mill	
Canned Cycles for the Mill	Essentials of Communication	Metrics for Lean	Strategies for Setup Reduction	

TOOL AND DIE MAKER

Basic Grinding Theory	Die Cutting Variables	Grinding Nonferrous Metals	Grinding Wheel Geometry	Setup for the Cylindrical Grinder
Basics of the Cylindrical Grinder	Dressing and Truing	Grinding Processes	Grinding Wheel Materials	Setup for the Surface Grinder
Basics of the Surface Grinder	Fixture Design Basics	Grinding Safety	Introduction to Grinding Fluids	Surface Grinder Operation
Cylindrical Grinder Operation	Grinding Ferrous Metals	Grinding Variables	Material Tests for Welding	