

IN-DEPTH MACHINING TRAINING

Amatrol's Machining program features systems focused on a variety of machining areas, including manual machining, CNC machines, and preparation for industry-standard certification. Each Machining learning system and program has its own in-depth curriculum designed to teach the knowledge and skills relevant in today's advanced manufacturing environment. Amatrol's eLearning curriculum features a highly-interactive, multimedia format that includes stunning 3D graphics and videos, voiceovers of all text, and quizzes and exercises.

Learning Systems	Topics Include:
MANUAL MACHINE TOOLS	
Machine Tools 1 (95-MP-1)	Band Saw & Drill Press Operations, Milling Machines & Processes, Lathe Operations, Turning Operations
CNC MACHINE TOOLS	
CNC Machine Tools (95-CNC1D)	CNC Mill Programming, Circular Interpolation, Speeds & Feeds, Canned Cycles, Cutter Compensation
CNC MACHINE OPERATOR	
CNC Machine Operator (950-CNCOP1)	CNC Machining, CNC Programming, CNC Turning & Grinding, CNC Machine Troubleshooting & Maintenance, Milling, Turning, Industrial Safety, Dimensional Measurement, Mechanical Print Reading, Geometric Dimensioning & Tolerancing, Machining Processes, Statistical Process Control
PRINCIPLES OF CNC MACHINING	
Principles of CNC (MXCN101)	Computer Numerical Controllers, Cartesian Coordinate System, Reference Points, Part Program Overview
CNC Control (MXCN102)	CNC Machining, CNC Mill Operation, CNC Program Operation, CNC Turning Operation
Principles of Turning (MXPE101)	Lathe Components, Axis Movements, Classifications, Variations, Operations & Applications
Principles of Machining Centers (MXPE102)	Advanced Manufacturing Organization, Manufacturing Materials, CNC Turning Center Operations, CNC Machining Center Operations, CNC Programming with Circular Interpolation
Principles of Grinding (MXPE203)	Grinding Machine Components & Systems, Types of Grinding Machines
Principles of Workholding (MXPT201)	Workholding Basics, Chucks, Between Centers, Vises & Fixtures
Principles of Coolants and Oils (MXPT202)	Coolants & Oils, Oil-Based Cutting Fluids, Chemical-Based Cutting Fluids, Gases as Cutting Fluids, Machine Lubricants & Oils
Principles of Gear Manufacturing (MXPT404)	Gear Technology & Terminology, Shaping, Hobbing, Grinding, Honing, Gear Inspection, Reading a Gear Chart
Principles of Tooling (MXTL101)	Tooling Basics, Tool Materials, Tool Selection & Tool Life
Tooling for Turning (MXTL202)	Turning Tools & Tool Holders, Tool Identification & Selection, Proper Care, Equipment Assembly
Tooling for Machining Centers (MXTL203)	Machining Center Tools, Machining Center Tool Identification, Machining Center Tool Care, Tool Replacement Procedures
Tooling for Grinding (MXTL204)	Grinding Wheels & the Grinding Process, Proper Care, Dressing & Dressing Tools
Tooling for Tapping (MXTL307)	Tapping Tools, Tapping Tool Features, Tapping Operations
HIGH SCHOOL OPTIONS	
CNC Machines 1 (96-CNC1D)	The curriculum for CNC Machines 1 & 2 is the same curriculum used for CNC Machine Tools (95-CNC1D) listed above.
CNC Machines 2 (96-CNC2D)	
CNC Machines 3 (96-CNC3D)	CNC Lathe Programming, Lathe Circular Interpolation
Machine Tools 1-3 (96-MP1-3)	The curriculum for Machine Tools 1-3 contains the same content as the curriculum used for Machine Tools 1 (95-MP-1) listed above.

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MACHINING

MANUAL MACHINING TO CNC OPERATIONS

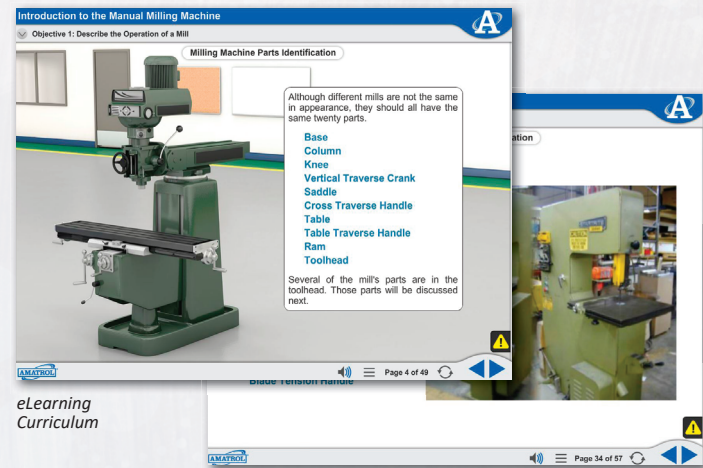
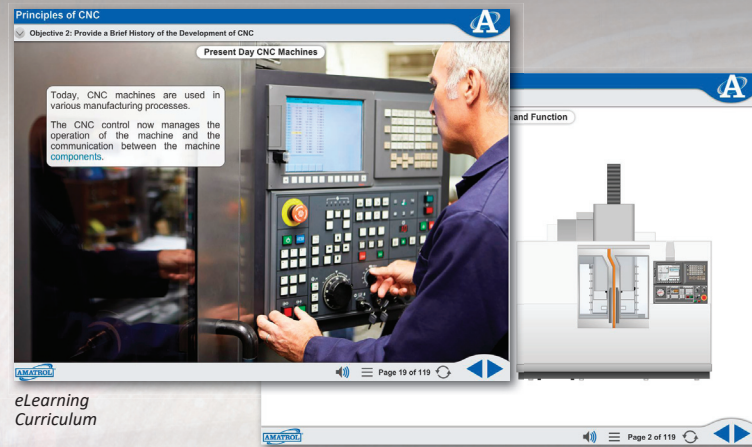
PROVEN MANUAL & CNC MACHINING TRAINING



Principles Of CNC Machining

13 highly-interactive multimedia courses covering a wide range of CNC machining topics, including:

- CNC
- CNC Control
- Turning
- Machining Centers
- Grinding
- Workholding
- Coolants and Oils
- Gear Manufacturing
- Tooling
- Tooling for Turning
- Tooling for Machining Centers
- Tooling for Grinding
- Tooling for Tapping



Manual Machine Tools

Teaches the safe operation of basic machine tools, such as:

- Band saw
- Drill press
- Manual milling and lathe machines

Wide variety of manual machining topics covered, including:

- Manufacturing hand tools
- Milling processes
- Turning operations



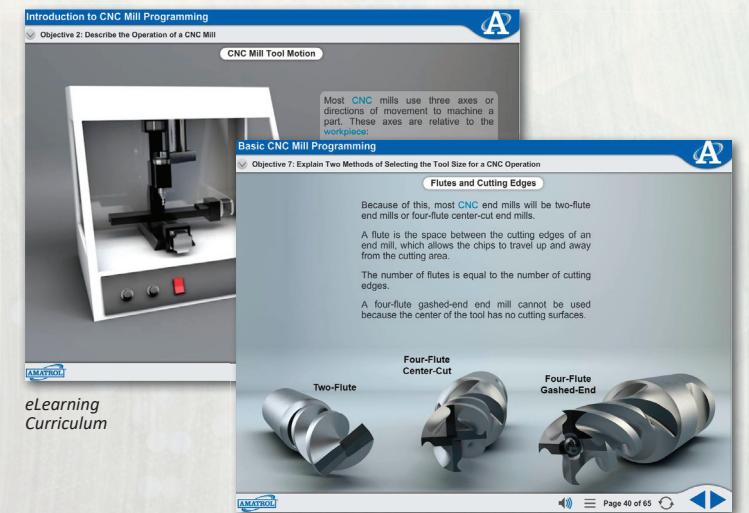
Denford Micromill CNC Machine (95-CNC1D)

CNC Machine Tools

Teaches basic CNC mill operation & programming fundamentals, as well as a broad range of essential CNC skills, including:

- The PLC Troubleshooting Workstation (890-PECB) teaches PLC programming, troubleshooting & applications
- Choice of Allen-Bradley or Siemens PLCs
- FaultPro teaches how to troubleshoot real-world PLC problems

Available with or without Denford Micromill CNC Machine

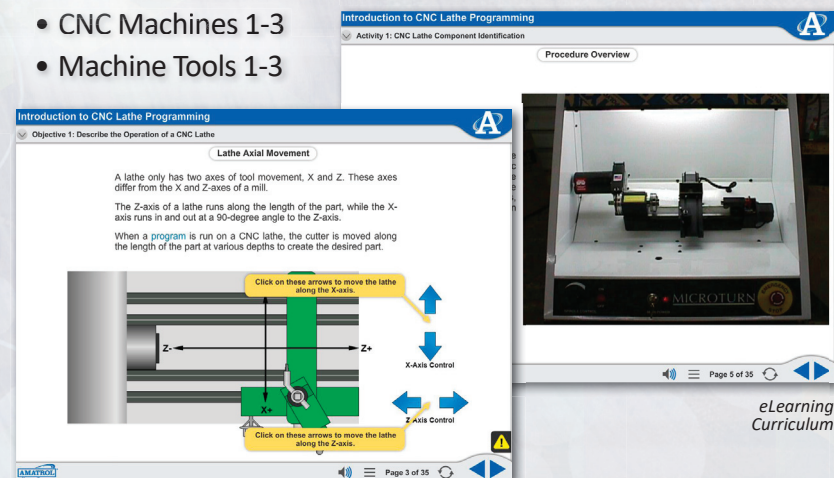


eLearning Curriculum

High School Options

To help train the next generation of skilled advanced manufacturing workers, available high school programs include:

- CNC Machines 1-3
- Machine Tools 1-3



eLearning Curriculum



eLearning Curriculum

CNC Machine Operator

Preferred eLearning curriculum to prepare for the popular National Institute for Metalworking Skills (NIMS) CNC Mill Operations & CNC Lathe Operations certifications, featuring:

- 130+ skills
- 80+ hours of learning
- 24 self-paced learning units
- Virtual CNC machine experience that allows learners to practice and develop the required skills for operating a CNC machine via computer
- FANUC and Haas interface versions



Each of These Systems Features In-Depth, Comprehensive eLearning Curriculum