ToolingU Classes for NIMS Program: Measurement, Materials, & Safety I

Overview of Engine Lathe Setup 205 This class describes the proper setup for a typical lathe operation and explains how to align, adjust, and select the components on the lathe.	150115	20	Intermediate	
Benchwork and Layout Operations 210 This class describes common benchwork operations performed on the mill before and after machining a part and describes common layout tools and procedures.	150110 150115	15	Intermediate	
Manual Mill Operation 220 This class guides you through the machining of a common part on the mill as well as explains common milling operations performed on the mill.	150205	18	Intermediate	
Holemaking on the Mill 230 This class describes how to perform common holemaking operations on the manual mill and explains common principles about each holemaking process.	150200 150220	15	Intermediate	
Safety for Metal Cutting 115 This class identifies the safety hazards associated with cutting operations and the precautions you must take to avoid injury.	None	15	Beginner	
Cutting Variables 200 This class describes some of the variables that impact common machining operations. ***Includes an Interactive Lab.***	200140	17	Intermediate	
Cutting Fluids 210 This class identifies the major cutting fluids and their common uses.	200120 200140	19	Intermediate	
Drill Geometry 247 This class identifies the major drill components and angles that impact drilling operations. ***Includes an Interactive Lab.***	200120 200140	17	Intermediate	
What Is Grinding? 110 This class describes the grinding action, explains how chips are formed, and covers wheel maintenance and safety.	None	15	Beginner	
Grinding Processes 120 This class identifies the major types of grinding operations and explains how they are performed on the machine. ***Includes an Interactive Lab.***	None	13	Beginner	
Basic Measurement 110 This class introduces the basic measuring devices used in the shop to ensure part quality. ***Includes an Interactive Lab.***	None	18	Beginner	
Surface Measurement 140 This class identifies the different types of surface texture and describes how the surface texture of a part affects its use.	None	18	Beginner	
Hole Inspection 240 This class explains different hole characteristics and describes how specific gages are used for different hole inspection applications. ***Includes an Interactive Lab.***	350110 350115	20	Intermediate	
Thread Inspection 250 This class provides suggestions and how-to information for inspecting threads with a range of common instruments and gages. ***Includes an Interactive Lab.***	350110 350150	19	Intermediate	

Lubricant Fundamentals 130 This class describes different types of industrial lubricants and explains the importance of proper lubrication procedure. ***Includes an Interactive Lab.***	None	18	Beginner	
Math: Fractions and Decimals 105 This class explains how to add, subtract, multiply, and divide fractions and decimals, as well as how to convert these numbers to percentages.	**800100**	22	Beginner	
Basics of Tolerance 120 This class explains the purpose of tolerances in manufacturing and describes how these tolerances are specified. ***Includes an Interactive Lab.***	None	12	Beginner	
Blueprint Reading 130 This class identifies the information communicated on a blueprint with emphasis on interpreting the part drawing. ***Includes an Interactive Lab.***	None	18	Beginner	
Trig: Sine Bar Applications 225 This class explains how to use the sine bar for machining and inspection purposes and explains step-by-step examples for using trig ratios and the sine bar to find missing information.	**800215**	14	Intermediate	
Interpreting Blueprints 230 This class provides an overview of common features found in prints and describes how to properly inspect them. ***Includes an Interactive Lab.***	**800120** **800130**	16	Intermediate	

ToolingU Classes for NIMS Program: Job Planning, Benchwork, & Layout I

Overview of Manual Mill Setup 200 This class describes the proper setup for a typical mill operation and explains how to determine mill settings, align mill components, and select proper tooling.	150110	16	Intermediate	
Benchwork and Layout Operations 210 This class describes common benchwork operations performed on the mill before and after machining a part and describes common layout tools and procedures.	150110 150115	15	Intermediate	
Manual Mill Operation 220 This class guides you through the machining of a common part on the mill as well as explains common milling operations performed on the mill.	150205	18	Intermediate	
Holemaking on the Mill 230 This class describes how to perform common holemaking operations on the manual mill and explains common principles about each holemaking process.	150200 150220	15	Intermediate	
Cutting Processes 140 This class provides a comprehensive overview of the most common metal cutting operations performed in the shop. ***Includes an Interactive Lab.***	None	13	Beginner	
Cutting Variables 200 This class describes some of the variables that impact common machining operations. ***Includes an Interactive Lab.***	200140	17	Intermediate	
Cutting Tool Materials 220 This class describes common cutting tool materials and their common applications.	200120 200140	18	Intermediate	
Drill Geometry 247 This class identifies the major drill components and angles that impact drilling operations. ***Includes an Interactive Lab.***	200120 200140	17	Intermediate	
Speed and Feed Selection 300 This class identifies the various speed and feed values used with the lathe and mill and describes how to convert these variables. ***Includes an Interactive Lab.***	200200 800200	14	Advanced	
Grinding Processes 120 This class identifies the major types of grinding operations and explains how they are performed on the machine. ***Includes an Interactive Lab.***	None	13	Beginner	
Basic Measurement 110 This class introduces the basic measuring devices used in the shop to ensure part quality. ***Includes an Interactive Lab.***	None	18	Beginner	
Surface Measurement 140 This class identifies the different types of surface texture and describes how the surface texture of a part affects its use.	None	18	Beginner	
Overview of Threads 150 This class describes the various parts of a screw thread, common thread standards and tolerances, and the various tools used to inspect them.	None	18	Beginner	
Intro to GD&T 200 (1994) This class introduces the fundamental concepts of geometric dimensioning and tolerancing (GD&T) and describes the main types of tolerances included in the standard. This class references the 1994 standard.	350110 800130	20	Intermediate	

Includes an Interactive Lab.

Metal Classification 150 This class introduces the AISI-SAE classification for steels.	None	13	Beginner	
Math: Units of Measurement 115 This class addresses common units of measurement used in manufacturing and explains how to convert from one unit of measurement to another.	None	18	Beginner	
Blueprint Reading 130 This class identifies the information communicated on a blueprint with emphasis on interpreting the part drawing. ***Includes an Interactive Lab.***	None	18	Beginner	
Shop Geometry Overview 170 This class presents a general overview and refresher for the the most common rules of geometry.	None	20	Beginner	
Geometry: Circles and Polygons 185 This class explains basic circle and polygon geometry and how their features are used to find dimensions in sample shop drawings.	**800165**	16	Beginner	
Shop Trig Overview 210 This class presents a general overview and refresher for the rules of trigonometry.	**800100** **800105** **800170**	13	Intermediate	
Trig: Sine, Cosine, and Tangent 215 This class explains how to use sine, cosine, and tangent to find information about the sides and angles of right triangles in sample shop prints.	**800205**	17	Intermediate	
Interpreting Blueprints 230 This class provides an overview of common features found in prints and describes how to properly inspect them. ***Includes an Interactive Lab.***	**800120** **800130**	16	Intermediate	

ToolingU Classes for NIMS Program: CNC Lathe Operations

Intro to Workholding 104 This class introduces the role of a workholding device during the manufacturing process and identifies common groups of these devices.	None	18	Beginner	
Supporting and Locating Principles 106 This class describes the fundamental theory to properly supporting, locating, and clamping a workpiece. ***Includes an Interactive Lab.***	None	15	Beginner	
Locating Devices 107 This class identifies the most common types of locating components used in custom workholding devices and fixtures.	None	14	Beginner	
Clamping Basics 108 This class covers the most common types of clamping components and explains their relative advantages and applications.	None	14	Beginner	
Chucks, Collets, and Vises 110 This class identifies the standard workholding devices used for both the mill and the lathe.	None	14	Beginner	
Fixture Body Construction 200 This class discusses common tool body forms and the material and cost considerations associated with their construction.	None	12	Intermediate	
Fixture Design Basics 210 This class identifies the major factors to consider when beginning the design of a customized fixture. ***Includes an Interactive Lab.***	100200 100106	15	Intermediate	
Metal Removal Processes 110 This class describes traditional machining processes such as metal cutting and grinding, as well as various nontraditional methods of machining.	None	17	Beginner	
Safety for Metal Cutting 115 This class identifies the safety hazards associated with cutting operations and the precautions you must take to avoid injury.	None	15	Beginner	
What Is Cutting? 120 This class addresses the theory of proper chip formation during the machining process. ***Includes an Interactive Lab.***	None	14	Beginner	
Machines for Metal Cutting 130 This class identifies and describes the common machines used in metal cutting.	None	16	Beginner	
Cutting Processes 140 This class provides a comprehensive overview of the most common metal cutting operations performed in the shop. ***Includes an Interactive Lab.***	None	13	Beginner	
Cutting Variables 200 This class describes some of the variables that impact common machining operations. ***Includes an Interactive Lab.***	200140	17	Intermediate	
Cutting Fluids 210 This class identifies the major cutting fluids and their common uses.	200120 200140	19	Intermediate	
Cutting Tool Materials 220 This class describes common cutting tool materials and their common applications.	200120 200140	18	Intermediate	
Carbide Grade Selection 230 This class describes the common forms of carbide available in cutting tools.	200220	14	Intermediate	
Tool Geometry 240 This class identifies the major tool angles that impact the turning operation. ***Includes an Interactive Lab.***	200120 200140	16	Intermediate	
Drill Geometry 247 This class identifies the major drill components and angles that impact drilling operations. ***Includes an Interactive Lab***	200120 200140	17	Intermediate	

Tooling U Classes for NIMS Program: CNC Lathe Operations

Speed and Feed Selection 300 This class identifies the various speed and feed values used with the lathe and mill and describes how to convert these variables. ***Includes an Interactive Lab.***	200200 800200	14	Advanced	
Optimizing Insert Life 305 This class describes common forms of insert wear that lead to insert failure and identifies the appropriate control methods for each type. ***Includes an Interactive Lab.***	200200 200220 200240	15	Advanced	
High-Speed Machining 310 This class compares high-speed machining to traditional machining and explains the key factors that impact its successful application.	200200 200220	20	Advanced	
History and Definition of CNC 100 This class outlines the origin of today's CNC machines and explains how modern CNC evolved from its original designs.	None	13	Beginner	
Mechanics of CNC 110 This class describes the mechanical systems involved in CNC axis movement, as well as how feedback is used for tool location.	None	17	Beginner	
Basics of the CNC Turning Center 120 This class describes the basic components of the turning center as well as the devices used on this machine. ***Includes an Interactive Lab.***	None	15	Beginner	
Basics of the CNC Swiss-Type Lathe 135 This class describes the basic components of the Swiss-type lathe, as well as common tooling and machining operations.	None	19	Beginner	
CNC Coordinates 140 This class explains the arrangement and orientation of the basic axes on a common CNC lathe and both a vertical and horizontal CNC mill. ***Includes an Interactive Lab.***	None	16	Beginner	
Part Program 150 This class introduces the major code groups used in a CNC part program. ***Includes an Interactive Lab.***	None	14	Beginner	
CAD/CAM Overview 160 This class describes the general process of using computers to design and manufacture parts and identifies common features available in CAD/CAM software.	None	20	Beginner	
CNC Manual Operations 200 This class describes the control features that allow a CNC operator to execute tasks manually. ***Includes an Interactive Lab.***	300110 300140	15	Intermediate	
CNC Offsets 210 This class identifies the various offsets used on both the lathe and the mill to properly reference each cutting tool in relationship to the workpiece. ***Includes an Interactive Lab.***	300120 300130 300200	18	Intermediate	
CNC Specs for the Lathe 225 This class identifies common specifications of CNC lathes and describes the various features and options available on different machines.	300110 300120 300140	18	Intermediate	
Creating a Turning Program 280 This class explains the key components in the creation and execution of a simple turning program. ***Includes an Interactive Lab.***	300150 300210	17	Intermediate	

Turning Calculations 285 This class explains the common calculations necessary to plot the toolpaths for a basic turning program.	800210 300120 300140	19	Intermediate	
Canned Cycles 310 This class describes the operation of common canned cycles that appear on machining and turning centers. ***Includes an Interactive Lab.***	200140 300280	17	Advanced	
Haas Lathe: Control Panel Overview 255 This class describes the various sections of the Haas lathe control panel as well as the steps for powering up, powering down, and homing the machine. ***Includes Haas CNC Simulators.***	300120 300150 300200 300210	21	Intermediate	
Haas Lathe: Entering Offsets 265 This class provides step-by-step instructions for adjusting offsets on the Haas lathe during a production run. ***Includes Haas CNC Simulators.***	310255	18	Intermediate	
Haas Lathe: Locating Program Zero 275 This class describes how to determine work offsets and tool geometry offsets on the Haas lathe during setup. ***Includes Haas CNC Simulators.***	310265	14	Intermediate	
Haas Lathe: Program Execution 285 This class describes the steps necessary to activate, execute, and restart programs on the Haas lathe. ***Includes Haas CNC Simulators.***	310255	13	Intermediate	

Tooling U Classes for NIMS Program: CNC Lathe Operations

Speed and Feed Selection 300 This class identifies the various speed and feed values used with the lathe and mill and describes how to convert these variables. ***Includes an Interactive Lab.***	200200 800200	14	Advanced	
Optimizing Insert Life 305 This class describes common forms of insert wear that lead to insert failure and identifies the appropriate control methods for each type. ***Includes an Interactive Lab.***	200200 200220 200240	15	Advanced	
High-Speed Machining 310 This class compares high-speed machining to traditional machining and explains the key factors that impact its successful application.	200200 200220	20	Advanced	
History and Definition of CNC 100 This class outlines the origin of today's CNC machines and explains how modern CNC evolved from its original designs.	None	13	Beginner	
Mechanics of CNC 110 This class describes the mechanical systems involved in CNC axis movement, as well as how feedback is used for tool location.	None	17	Beginner	
Basics of the CNC Turning Center 120 This class describes the basic components of the turning center as well as the devices used on this machine. ***Includes an Interactive Lab.***	None	15	Beginner	
Basics of the CNC Swiss-Type Lathe 135 This class describes the basic components of the Swiss-type lathe, as well as common tooling and machining operations.	None	19	Beginner	
CNC Coordinates 140 This class explains the arrangement and orientation of the basic axes on a common CNC lathe and both a vertical and horizontal CNC mill. ***Includes an Interactive Lab.***	None	16	Beginner	
Part Program 150 This class introduces the major code groups used in a CNC part program. ***Includes an Interactive Lab.***	None	14	Beginner	
CAD/CAM Overview 160 This class describes the general process of using computers to design and manufacture parts and identifies common features available in CAD/CAM software.	None	20	Beginner	
CNC Manual Operations 200 This class describes the control features that allow a CNC operator to execute tasks manually. ***Includes an Interactive Lab.***	300110 300140	15	Intermediate	
CNC Offsets 210 This class identifies the various offsets used on both the lathe and the mill to properly reference each cutting tool in relationship to the workpiece. ***Includes an Interactive Lab.***	300120 300130 300200	18	Intermediate	
CNC Specs for the Lathe 225 This class identifies common specifications of CNC lathes and describes the various features and options available on different machines.	300110 300120 300140	18	Intermediate	
Creating a Turning Program 280 This class explains the key components in the creation and execution of a simple turning program. ***Includes an Interactive Lab.***	300150 300210	17	Intermediate	

Turning Calculations 285 This class explains the common calculations necessary to plot the toolpaths for a basic turning program.	800210 300120 300140	19	Intermediate	
Canned Cycles 310 This class describes the operation of common canned cycles that appear on machining and turning centers. ***Includes an Interactive Lab.***	200140 300280	17	Advanced	
Haas Lathe: Control Panel Overview 255 This class describes the various sections of the Haas lathe control panel as well as the steps for powering up, powering down, and homing the machine. ***Includes Haas CNC Simulators.***	300120 300150 300200 300210	21	Intermediate	
Haas Lathe: Entering Offsets 265 This class provides step-by-step instructions for adjusting offsets on the Haas lathe during a production run. ***Includes Haas CNC Simulators.***	310255	18	Intermediate	
Haas Lathe: Locating Program Zero 275 This class describes how to determine work offsets and tool geometry offsets on the Haas lathe during setup. ***Includes Haas CNC Simulators.***	310265	14	Intermediate	
Haas Lathe: Program Execution 285 This class describes the steps necessary to activate, execute, and restart programs on the Haas lathe. ***Includes Haas CNC Simulators.***	310255	13	Intermediate	

Classes for NIMS Program: CNC Lathe Operations

Haas Lathe: Program Storage 315 This class describes common methods for transferring and storing part programs on the Haas lathe. ***Includes Haas CNC Simulators.***	310285	13	Advanced	
Haas Lathe: First Part Runs 325 This class describes how to verify the accuracy of a program and make minor editing changes on the Haas lathe. ***Includes Haas CNC Simulators.***	310285 310275	12	Advanced	
Fanuc Lathe: Control Panel Overview 255 This class describes the various sections of the Fanuc 0-C lathe control panel as well as the steps for powering up, powering down, and homing the machine. ***Includes Fanuc CNC Simulators.***	300120 300150 300200 300210	17	Intermediate	
Fanuc Lathe: Entering Offsets 265 This class provides step-by-step instructions for adjusting offsets on the Fanuc 0-C lathe control during a production run. ***Includes Fanuc CNC Simulators.***	320255	17	Intermediate	
Fanuc Lathe: Locating Program Zero 275 This class describes how to determine work offsets and tool geometry offsets on the Fanuc 0-C lathe control during setup. ***Includes Fanuc CNC Simulators.***	320265	14	Intermediate	
Fanuc Lathe: Program Execution 285 This class describes the steps necessary to activate, execute, and restart programs using the Fanuc O-C control for the lathe. ***Includes Fanuc CNC Simulators.***	320255	14	Intermediate	
Fanuc Lathe: Program Storage 315 This class describes common methods for transferring and storing part programs on the Fanuc 0-C lathe control. ***Includes Fanuc CNC Simulators.***	320285	16	Advanced	

Fanuc Lathe: First Part Runs 325 This class describes how to verify the accuracy of a program and make minor editing changes on the Fanuc 0-C lathe control. ***Includes Fanuc CNC Simulators.***	320285 320275	13	Advanced	
Basic Measurement 110 This class introduces the basic measuring devices used in the shop to ensure part quality. ***Includes an Interactive Lab.***	None	18	Beginner	
Linear Instrument Characteristics 115 This class describes the various characteristics of linear measuring instruments and explains how variation affects the inspection process. ***Includes an Interactive Lab.***	None	15	Beginner	
Surface Measurement 140 This class identifies the different types of surface texture and describes how the surface texture of a part affects its use.	None	18	Beginner	
Intro to GD&T 200 (1994) This class introduces the fundamental concepts of geometric dimensioning and tolerancing (GD&T) and describes the main types of tolerances included in the standard. This class references the 1994 standard. ***Includes an Interactive Lab.***	350110 800130	20	Intermediate	
Calibration Fundamentals 210 This class describes the calibration process and explains how measuring instruments are traced back to national and international standards. ***Includes an Interactive Lab.***	350110 350115	20	Intermediate	
Hole Inspection 240 This class explains different hole characteristics and describes how specific gages are used for different hole inspection applications. ***Includes an Interactive Lab.***	350110 350115	20	Intermediate	
Thread Inspection 250 This class provides suggestions and how-to information for inspecting threads with a range of common instruments and gages. ***Includes an Interactive Lab.***	350110 350150	19	Intermediate	
Interpreting GD&T 310 (1994) This class explains important rules of GD&T and also describes how common features are specified in GD&T prints. This class references the 1994 standard. ***Includes an Interactive Lab.***	350200	20	Advanced	
Intro to Materials 100 This class identifies the major categories of materials used in manufacturing and compares their general properties.	None	19	Beginner	
Structure of Metals 110 This class describes the atomic structure of metals and explains how this structure affects each metal's properties.	None	15	Beginner	
Mechanical Properties of Metals 120 This class describes common mechanical properties of metals and explains the stress-strain curve. ***Includes an Interactive Lab.***	None	12	Beginner	
Physical Properties of Metals 130 This class introduces the physical properties of metals and explains how these properties determine potential applications.	None	11	Beginner	

Classes for NIMS Program: CNC Milling Operations

Intro to Workholding 104 This class introduces the role of a workholding device during the manufacturing process and identifies common groups of these devices.	None	18	Beginner	
Supporting and Locating Principles 106 This class describes the fundamental theory to properly supporting, locating, and clamping a workpiece. ***Includes an Interactive Lab.***	None	15	Beginner	
Locating Devices 107 This class identifies the most common types of locating components used in custom workholding devices and fixtures.	None	14	Beginner	
Clamping Basics 108 This class covers the most common types of clamping components and explains their relative advantages and applications.	None	14	Beginner	
Chucks, Collets, and Vises 110 This class identifies the standard workholding devices used for both the mill and the lathe.	None	14	Beginner	
Fixture Body Construction 200 This class discusses common tool body forms and the material and cost considerations associated with their construction.	None	12	Intermediate	
Fixture Design Basics 210 This class identifies the major factors to consider when beginning the design of a customized fixture. ***Includes an Interactive Lab.***	**100200** **100106**	15	Intermediate	
Metal Removal Processes 110 This class describes traditional machining processes such as metal cutting and grinding, as well as various nontraditional methods of machining.	None	17	Beginner	
Safety for Metal Cutting 115 This class identifies the safety hazards associated with cutting operations and the precautions you must take to avoid injury.	None	15	Beginner	
What Is Cutting? 120 This class addresses the theory of proper chip formation during the machining process. ***Includes an Interactive Lab.***	None	14	Beginner	
Machines for Metal Cutting 130 This class identifies and describes the common machines used in metal cutting.	None	16	Beginner	
Cutting Processes 140 This class provides a comprehensive overview of the most common metal cutting operations performed in the shop. ***Includes an Interactive Lab.***	None	13	Beginner	
Cutting Variables 200 This class describes some of the variables that impact common machining operations. ***Includes an Interactive Lab.***	**200140**	17	Intermediate	
Cutting Fluids 210 This class identifies the major cutting fluids and their common uses.	**200120** **200140**	19	Intermediate	
Cutting Tool Materials 220 This class describes common cutting tool materials and their common applications.	**200120** **200140**	18	Intermediate	

Carbide Grade Selection 230 This class describes the common forms of carbide available in cutting tools.	200220	14	Intermediate	
Milling Geometry 245 This class identifies and explains the face mill and end mill tool angles that impact a milling operation. ***Includes an Interactive Lab.***	200120 200140	15	Intermediate	
Drill Geometry 247 This class identifies the major drill components and angles that impact drilling operations. ***Includes an Interactive Lab.***	200120 200140	17	Intermediate	
ANSI Insert Selection 250 This class walks through the ANSI B212.4-1995 standard for insert identification.	200220 800130	20	Intermediate	
Speed and Feed Selection 300 This class identifies the various speed and feed values used with the lathe and mill and describes how to convert these variables. ***Includes an Interactive Lab.***	200200 800200	14	Advanced	

Classes for NIMS Program: CNC Milling Operations

Optimizing Insert Life 305 This class describes common forms of insert wear that lead to insert failure and identifies the appropriate control methods for each type. ***Includes an Interactive Lab.***	200200 200220 200240	15	Advanced	
High-Speed Machining 310 This class compares high-speed machining to traditional machining and explains the key factors that impact its successful application.	200200 200220	20	Advanced	
History and Definition of CNC 100 This class outlines the origin of today's CNC machines and explains how modern CNC evolved from its original designs.	None	13	Beginner	
Mechanics of CNC 110 This class describes the mechanical systems involved in CNC axis movement, as well as how feedback is used for tool location.	None	17	Beginner	
Basics of the CNC Machining Center 130 This class describes the basic components of the machining center as well as the devices used on this machine. ***Includes an Interactive Lab.***	None	16	Beginner	
CNC Coordinates 140 This class explains the arrangement and orientation of the basic axes on a common CNC lathe and both a vertical and horizontal CNC mill. ***Includes an Interactive Lab.***	None	16	Beginner	
Part Program 150 This class introduces the major code groups used in a CNC part program. ***Includes an Interactive Lab.***	None	14	Beginner	
CAD/CAM Overview 160 This class describes the general process of using computers to design and manufacture parts and identifies common features available in CAD/CAM software.	None	20	Beginner	
CNC Manual Operations 200 This class describes the control features that allow a CNC operator to execute tasks manually. ***Includes an Interactive Lab.***	300110 300140	15	Intermediate	

CNC Offsets 210 This class identifies the various offsets used on both the lathe and the mill to properly reference each cutting tool in relationship to the workpiece. ***Includes an Interactive Lab.***	300120 300130 300200	18	Intermediate	
CNC Specs for the Mill 220 This class identifies common specifications of CNC mills and describes the various features and options available on different machines.	300110 300130 300140	17	Intermediate	
Creating a Milling Program 290 This class explains the key components in the creation and execution of a simple milling program. ***Includes an Interactive Lab.***	300150 300210	19	Intermediate	
Milling Calculations 295 This class explains the common calculations necessary to plot the toolpaths for a basic milling program.	300130 300140 800210	17	Intermediate	
Canned Cycles 310 This class describes the operation of common canned cycles that appear on machining and turning centers. ***Includes an Interactive Lab.***	200140 300280	17	Advanced	
Haas Mill: Control Panel Overview 250 This class describes the various sections of the Haas mill control panel as well as the steps for powering up, powering down, and homing the machine. ***Includes Haas CNC Simulators.***	300130 300150 300200 300210	21	Intermediate	
Haas Mill: Entering Offsets 260 This class provides step-by-step instructions for adjusting offsets on the Haas mill during a production run. ***Includes Haas CNC Simulators.***	310250	17	Intermediate	
Haas Mill: Locating Program Zero 270 This class describes how to determine work offsets and tool geometry offsets on the Haas mill during setup. ***Includes Haas CNC Simulators.***	310260	14	Intermediate	
Haas Mill: Program Execution 280 This class describes the steps necessary to activate, execute, and restart programs on the Haas mill. ***Includes Haas CNC Simulators.***	310250	14	Intermediate	
Haas Mill: Program Storage 310 This class describes common methods for transferring and storing part programs on the Haas mill. ***Includes Haas CNC Simulators.***	310280	13	Advanced	
Haas Mill: First Part Runs 320 This class describes how to verify the accuracy of a program and make minor editing changes on the Haas mill. ***Includes Haas CNC Simulators.***	310270 310280	12	Advanced	

Classes for NIMS Program: CNC Milling Operations

Fanuc Mill: Control Panel Overview 250 This class describes the various sections of the Fanuc 0-C mill control panel as well as the steps for powering up, powering down, and homing the machine. ***Includes Fanuc CNC Simulators.***	300130 300150 300200 300210<	17	Intermediate	
Fanuc Mill: Entering Offsets 260 This class provides step-by-step instructions for adjusting offsets on the Fanuc 0-C mill control during a production run. ***Includes Fanuc CNC Simulators.***	320250	13	Beginner	

Fanuc Mill: Locating Program Zero 270 This class describes how to determine work offsets and tool geometry offsets on the Fanuc 0-C mill control during setup. ***Includes Fanuc CNC Simulators.***	320260	13	Intermediate	
Fanuc Mill: Program Execution 280 This class describes the steps necessary to activate, execute, and restart programs using the Fanuc O-C control for the mill. ***Includes Fanuc CNC Simulators.***	320250	14	Intermediate	
Fanuc Mill: Program Storage 310 This class describes common methods for transferring and storing part programs on the Fanuc 0-C control for the mill. ***Includes Fanuc CNC Simulators.***	None	16	Advanced	
Fanuc Mill: First Part Runs 320 This class describes how to verify the accuracy of a program and make minor editing changes on the Fanuc 0-C mill control. ***Includes Fanuc CNC Simulators.***	None	13	Advanced	
Basic Measurement 110 This class introduces the basic measuring devices used in the shop to ensure part quality. ***Includes an Interactive Lab.***	None	18	Beginner	
Linear Instrument Characteristics 115 This class describes the various characteristics of linear measuring instruments and explains how variation affects the inspection process. ***Includes an Interactive Lab.***	None	15	Beginner	
Surface Measurement 140 This class identifies the different types of surface texture and describes how the surface texture of a part affects its use.	None	18	Beginner	
Intro to GD&T 200 (1994) This class introduces the fundamental concepts of geometric dimensioning and tolerancing (GD&T) and describes the main types of tolerances included in the standard. This class references the 1994 standard. ***Includes an Interactive Lab.***	350110 800130	20	Intermediate	
Calibration Fundamentals 210 This class describes the calibration process and explains how measuring instruments are traced back to national and international standards. ***Includes an Interactive Lab.***	350110 350115	20	Intermediate	
Hole Inspection 240 This class explains different hole characteristics and describes how specific gages are used for different hole inspection applications. ***Includes an Interactive Lab.***	350110 350115	20	Intermediate	
Thread Inspection 250 This class provides suggestions and how-to information for inspecting threads with a range of common instruments and gages. ***Includes an Interactive Lab.***	350110 350150	19	Intermediate	
Hardness Testing 260 This class provides an overview of the most common hardness testing methods and describes how to read hardness ratings.	500120	18	Intermediate	
Interpreting GD&T 310 (1994) This class explains important rules of GD&T and also describes how common features are specified in GD&T prints. This class references the 1994 standard. ***Includes an Interactive Lab.***	350200	20	Advanced	
Intro to Materials 100 This class identifies the major categories of materials used in manufacturing and compares their general properties.	None	19	Beginner	
Structure of Metals 110 This class describes the atomic structure of metals and explains how this structure affects each metal's properties.	None	15	Beginner	

Mechanical Properties of Metals 120 This class describes common mechanical properties of metals and explains the stress-strain curve. ***Includes an Interactive Lab.***	None	12	Beginner	
Physical Properties of Metals 130 This class introduces the physical properties of metals and explains how these properties determine potential applications.	None	11	Beginner	
Forces of Machines 110 This class identifies the various types of mechanical forces and describes how these forces act on objects. ***Includes an Interactive Lab.***	None	17	Beginner	

Classes for NIMS Program: CNC Milling Operations

Lubricant Fundamentals 130 This class describes different types of industrial lubricants and explains the importance of proper lubrication procedure. ***Includes an Interactive Lab.***	None	18	Beginner	
Math: Fundamentals 100 This class explains how to add, subtract, multiply, and divide to solve a problem following the correct order of operations.	None	14	Beginner	
Math: Fractions and Decimals 105 This class explains how to add, subtract, multiply, and divide fractions and decimals, as well as how to convert these numbers to percentages.	800100	22	Beginner	
Math: Units of Measurement 115 This class addresses common units of measurement used in manufacturing and explains how to convert from one unit of measurement to another.	None	18	Beginner	
Basics of Tolerance 120 This class explains the purpose of tolerances in manufacturing and describes how these tolerances are specified. ***Includes an Interactive Lab.***	None	12	Beginner	
Blueprint Reading 130 This class identifies the information communicated on a blueprint with emphasis on interpreting the part drawing. ***Includes an Interactive Lab.***	None	18	Beginner	
Geometry: Lines and Angles 155 This class describes the properties of lines and angles and demonstrates how they are used to solve sample part drawings.	None	18	Beginner	
Geometry: Triangles 165 This class describes the properties of the various types of triangles and demonstrates how they are used to solve sample part drawings.	800155	16	Beginner	
Geometry: Circles and Polygons 185 This class explains basic circle and polygon geometry and how their features are used to find dimensions in sample shop drawings.	800165	16	Beginner	
Shop Algebra Overview 200 This class explains basic principles of algebra and demonstrates how to solve equations containing multiple operations.	800100 800105	19	Intermediate	
Trig: Pythagorean Theorem 205 This class introduces the Pythagorean theorem and explains how to apply this rule to find unknown information in sample part drawings.	800165	13	Intermediate	
Shop Trig Overview 210 This class presents a general overview and refresher for the rules of trigonometry.	800100 800105 800170	13	Intermediate	

Trig: Sine, Cosine, and Tangent 215
This class explains how to use sine, cosine, and tangent to find information about the sides and angles of right triangles in sample shop prints.
800205 17 Intermediate 

Statistics 220
This class covers the main concepts of statistics and relates these concepts to shop situations.
800100
800105 18 Intermediate 

Trig: Sine Bar Applications 225
This class explains how to use the sine bar for machining and inspection purposes and explains step-by-step examples for using trig ratios and the sine bar to find missing information.
800215 14 Intermediate 

Interpreting Blueprints 230
This class provides an overview of common features found in prints and describes how to properly inspect them. ***Includes an Interactive Lab.***
800120
800130 16 Intermediate 

Intro to OSHA 100
This class covers the goals and purposes of the Occupational Safety and Health Administration, including its standards, programs, and interactions with employers and employees.
None 18 Beginner 

Fire Safety and Prevention 110
This class addresses OSHA fire safety and prevention measures and describes emergency action plans, fire prevention plans, fire detectors and alarms, and fire extinguishing equipment. ***Includes an Interactive Lab.***
None 17 Beginner 

Personal Protective Equipment 120
This class addresses personal protective equipment requirements from OSHA and includes information about hazard assessments, PPE selection, and standards that govern PPE. ***Includes an Interactive Lab.***
None 19 Beginner 

Lockout/Tagout Procedures 130
This class covers lockout/tagout requirements and procedures and includes an explanation of employees' roles during lockout/tagout. ***Includes an Interactive Lab.***
None 17 Beginner