ABOUT THE PROGRAM

Computer numerical control (CNC) machining is used to perform a wide range of manufacturing tasks including milling, drilling, and turning. Technicians work with CNC equipment from setup through operation, producing parts and tools from metal, plastic, or other materials. CNC technicians program the equipment to control speed, feed, and path of the cut. They inspect the finished product to ensure it is a quality part and ready for the next step in production. If you like to create things with your hands, are fascinated with technology, and want above-average earning power, the CNC Technician program is for you.

PROGRAM OUTCOMES

• Apply basic safety practices in the machine shop.
• Interpret industrial/engineering drawings.
• Apply precision measuring methods to part inspection.
• Perform basic machine tool equipment setup and operation.
• Perform programming, setup, and operation of CNC machine tools.
• Perform advanced CNC Machinist operations.

CAREER AND EDUCATION ADVANCEMENT OPPORTUNITIES

LTC credits transfer to over 30 universities. For more information visit gotoltc.edu/future-students/transfer.

PROGRAM ADMISSIONS STEPS

• Work with Career Coach to:
 - Submit application and $30 fee.
 - Submit official transcripts (high school and other colleges).

ENROLLMENT PROCESS

After you are admitted to your program you will meet with your Advisor to plan your first semester schedule, review your entire plan of study, and complete any additional enrollment requirements. Enrollment requirements for this program's courses include:
 - Complete Functional Abilities Statement of Understanding form.
 - Meet to plan your first semester schedule, review your entire plan of study, and complete any additional enrollment requirements.

APPROXIMATE COSTS

• $132.20 per credit tuition (WI resident) plus $7.27 per credit student activity fee. $10 per credit online fee. Material fee varies depending on course. Other fees vary by program. Visit gotoltc.edu/financial-aid/tuition-and-fees for details.

FINANCIAL AID

This program is eligible for financial aid. Visit gotoltc.edu/Financial-Aid or talk with your Career Coach about how to apply for aid.

RELATED PROGRAMS

• Machinist Apprenticeship
• Tool and Die Apprenticeship

CONTACT

LTC Career Coach
920.693.1162 • CareerCoach@gotoltc.edu

Catalog No.	Class Title	Credit(s)
Term 1		
31420310	Machine Tool Hand Tools	1
31420330	Machine Tool Measuring	1
31420336	Machine Tool Drills	1
31420334	Machine Tool Saws/Material Selection	1
31420340	Machine Tool Lathes 1A	1
31420341	Machine Tool Lathes 1B	1
31420350	Machine Tool Mills 1A	1
31420351	Machine Tool Mills 1B	1
31420311	Machine Tool Programming Basic	1
31420325	Machine Tool Math Basic	1
31420326	Machine Tool Math Intermediate	1
31420385	Machine Tool Print Reading 1	1
31420386	Machine Tool Print Reading 2	1
31809362	Psychology for Life	1
		14
Term 2		
31420313	Machine Tool Programming	1
31420315	CAM for Milling Machines	1
31420342	Machine Tool Lathes 2	1
31420352	Machine Tool Mills 2	2
31420308	Intro to CNC Turning Center	1
31420307	Intro to CNC Machining Center	1
31420380	Machine Tool CNC Turning Center	2
31420382	Machine Tool CNC Machining Center	2
31420398	Machine Tool Technical Skills Portfolio	1
31801359	Communication Skills for the Workplace	2
		14
Term 3		
32444372	Metallurgy	1
32444301	Machine Tool Math Advanced	1
32444389	Print Reading Advanced	1
32444305	Advanced Measuring GD&T	2
32444304	Advanced Mills (Proto Traks)	2
32444360	Grinders 1	1
32444302	Advanced Machining Centers 1A	2
32444307	Advanced Turning Centers 1A	2
32444311	CNC Programming Advanced	1
32444310	CAM for Turning Machines	1
		14
Term 4		
32444303	Advanced Machining Centers 1B	2
32444308	Advanced Turning Centers 1B	2
32444306	Advanced Technical Skills Portfolio	1
32444343	CNC Technician Program Internship OR	2
	32444342 EDM Wire (2cr) OR	
	32444340 EDM Sinker (2cr)	
32444341	Advanced Machining Centers 1C	2
32444344	Advanced Turning Centers 1C	2
32444345	HSM for SolidWorks	1
32444309	Grinders 2	1
		13
		TOTAL 55

Please see Machine Tool Operation for Term 1 and 2 course descriptions.

ADVANCED MACHINING CENTERS 1A...prepares the learner to set up and operate a CNC machining center, perform probing on the CNC machining center, set up and operate using various workholding techniques, editing a program on the CNC control. PREREQUISITE: 31420382 Machine Tool CNC Machining Centers

ADVANCED MACHINING CENTERS 1B...addresses how it is very important to create and edit G&M code for CNC machining centers. Advanced Machining Centers 1B prepares the learner to create G&M code programs, load program into control, set up and prove out program, and operate your program on CNC machining center. You will be creating programs for face milling, end milling, and hole producing. PREREQUISITE: 32444302 Advanced Machining Centers 1A

ADVANCED MACHINING CENTERS 1C...covers how the ability to create G&M code programs to create complex parts is made possible using CAM software. Mastercam is a CAM software that is often used in industry. Advanced Machining Centers 1C prepares the learner to create G&M code programs using Mastercam software, post process, and down load into control; set up and prove out; and operate on the CNC machining center. You will be creating programs for face milling, end milling, hole producing, and thread milling. COREQUISITE: 32444308 Advanced Machining Centers 1B

ADVANCED MEASURING GD&T...prepares the learner to inspect using the following: precision measuring tools, surface plate measuring tools, GD&T form tolerances, GD&T orientation tolerances, GD&T profile and runout tolerances, and GD&T location tolerances, and examine basic CMM programming principles. PREREQUISITE: 31420330 Machine Tool Measuring

ADVANCED MILLS (PROTO TRAKS)...prepares the learner to: setup and operate vertical mills, create and use soft jaws, use advanced subroutine functions, create programs using the A.G.E. function, create programs using the DXF converter. PREREQUISITE: 31420352 Machine Tool Mills 2

ADVANCED TECHNICAL SKILLS PORTFOLIO...prepares the learner to complete a final project using multiple machines, processes, and the advanced skills and techniques acquired throughout the Machine Tool program. Learners will also create a portfolio for this final project that will includea work process plan, and photographs of their project. COREQUISITE: 32444303 Advanced Machining Centers 1B and 32444308 Advanced Turning Centers 1B

ADVANCED TURNING CENTERS 1A...prepares the learner to set up and operate a CNC turning center, create programs for the turning center, execute programs, edit existing G&M code programs on the control, create G&M code programs using conversational programming. PREREQUISITE: 31420380 Machine Tool CNC Turning Centers and 10420184 Machine Tool Programming and 10420120 Machine Tool CAM and 31420315 CAM for Milling Machines

ADVANCED TURNING CENTERS 1B...prepares the learner to set up and operate a Computer Numerical Control (CNC) turning center, create programs for the turning center, execute programs, edit existing G&M code programs on the control, create G&M code programs using conversational programming, and create programs using MasterCam software. PREREQUISITE: 32444307 Advanced Turning Centers 1A

ADVANCED TURNING CENTERS 1C...prepares the learner in advanced set up and operation of a Computer Numerical Control (CNC) turning center, create G&M code programs for student designed parts, execute programs, edit G&M code programs on the control. The learner will create G&M code programs by writing them longhand, by using conversational programming, or by using MasterCam software. COREQUISITE: 32444308 Advanced Machining Centers 1B

CAM FOR TURNING MACHINES...covers how creating G&M code programs quickly is how companies compete in the competitive environment of machine shops. Mastercam is a CAM software that is common in industry. In this course you will explore Mastercam computer software environment;construct 2-D turning geometry; and create rough turning operations, finish turning operations, rough and finish boring operations, threading operations, grooving and cutoff operations, and hole-producing operations for CNC turning machines.

CNC PROGRAMMING ADVANCED...covers how the ability to write CNC programs with advanced features can speed up cutting processes and create operations to better hold size and quality of work pieces. In this course you will be learning how to create G&M code programs to create helical and ramping cutting tool entry, and the use of roughing and finishing tool paths for CNC machining centers. You will also create additional CNC turning center G&M code program options to further enhance process speed and quality. PREREQUISITES: 31420315 CAM for Milling Machines and 10420120 Machine Tool CAM

CNC TECHNICIAN PROGRAM INTERNSHIP...provides a broad variety of specific occupational experiences in the manufacturing machine tool/CNC machining industry. Students work with faculty to develop an internship plan and identify, coordinate, and evaluate learning experiences appropriate to the field of study and major career focus of the student. COREQUISITES: 32444303 Advanced Machining Centers 1B and 32444308 Advanced Turning Centers 1B and 32444306 Advanced Technician Skills Portfolio and CONDITION: 324441 CNC Technician program requirements met

GRINDERS 1...prepares the learner to follow grinding machine tool safety rules, identify grinding machine tool components, grinding wheels, and operate horizontal spindle reciprocating table surface grinders. PREREQUISITES: 31420310 MT Hand Tools, 31420330 MT Measuring and 31420352 MT Mills 2

GRINDERS 2...prepares the learner to identify grinding-wheel characteristics suitable for various applications, perform the basic process of mounting and dressing contour surface grinding wheels, demonstrate the use of common workholding devices, and apply methods for side grinding and grinding angles. COREQUISITE: 31420360 Machine Tool Grinders 1 or 32444360 Grinders 1

HSM FOR SOLIDWORKS...is a CAD software that is often used for mechanical design. HSM for Solidworks is an add-on to Solidworks for CAM processes, creating G&M code programs from the solid model. In this course you will explore the Solidworks interface and create face milling, end milling, and hole-producing tool paths for CNC machining centers. You will also be creating turning, boring, threading, and hole-producing tool paths for CNC turning centers.

MACHINE TOOL MATH ADVANCED...prepares the learner to solve spur gear dimensions using formulas, solve for chord, circumference, and radius by using geometric principles, solve complex practical machine application problems, and solve oblique triangles. PREREQUISITE: 31420320 Machine Tool Math and 31420320MI Machine Tool Math Intermediate

METALLURGY...prepares the learner to interpret the properties of ferrous materials, heat treat ferrous material, test the hardness of ferrous materials, and interpret the properties of non-ferrous materials

PRINT READING ADVANCED...enhances the learner's ability to interpret complex part drawings answering questions specifically related to: projection type and violations of true projection, positional dimensioning, geometric dimensioning and tolerancing, screw thread types and threaded fasteners, workpiece material types and structural shapes, pin fasteners, springs, and worm gears. The course is self-paced and designed for individualized student needs. PREREQUISITES: 31420385 Machine Tool Print Reading 1 and 31420386 Machine Tool Print Reading 2