

Program Number 32-444-1 Technical Diploma • Four Terms

ABOUT THE PROGRAM

Learn Computer Numerical Control (CNC) and Machining at your own pace, through hands-on learning. 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 Automation 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 advanced machine tool equipment set-up and operation.
- Perform advanced programming, set-up and operation of CNC Machine Tools.
- Perform advanced CNC Machining operations.

CAREER AND EDUCATION ADVANCEMENT OPPORTUNITIES

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

ADMISSIONS AND FIRST SEMESTER ENROLLMENT STEPS

- Submit online application.
- Complete the online Student Success Questionnaire.
- Complete Student Success Tutorial prior to meeting with your program counselor.
- Schedule your 1st Time Program Counseling/Registration Session with your assigned Program Counselor to plan your first semester schedule, review your entire plan of study and discuss the results of the Student Success Questionnaire.

**Submit transcripts and test scores (optional, highly recommended): College transcripts, along with high school transcripts and test scores from within the last five years, used for course registration. Official transcripts needed for transferring college credit(s) and for financial aid purposes.*

APPROXIMATE COSTS

\$149.50 per credit tuition (WI resident) plus \$8.97 per credit student activity 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 Admissions Advisor about how to apply for aid.

SPECIAL NOTE

- Learn when you want. Progress at your own pace. Receive personalized coaching and support. The full CBE definition may be found at gotoltc.edu/cbe.
- This program offers flexible start dates throughout the year.

RELATED PROGRAMS

- Machinist Apprenticeship
- Tool and Die Apprenticeship

CONTACT

Lakeshore Admissions Advisor
 920.693.1366 • Admissions@gotoltc.edu

Catalog No.	Class Title	Credit(s)
Term 1		
31420310	Shop Tools and Fasteners	1
31420330	Precision Measuring	1
31420385	Orthographic Projection Print	1
31420325	Machining Math Basic	1
31420338	Drills and Saws	1
31420340	Manual Lathe Operation	1
31420350	Manual Mill Operation	1
31420386	GD&T Intro	1
31420326	Machining Geometry and Basic Trigonometry	1
31444301	G&M Code Programming	1
31444303	CNC Machining Operation	1
31444309	CNC Turning Operation	1
31420359	Heat Treat and Precision Grinding	1
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Term 2		
31801361	Interpersonal Skills	1
31801360	Workplace Fundamentals	1
31420353	ProtoTrak Mill-Squaring Programming	1
31420354	ProtoTrak Mill-Slot and Hole Programming	1
31444307	Mill-2D Using CAM	1
31444311	CNC Turning-Turning and Cut Off Setup	1
31444313	CNC Turning-Hole Producing Setup/Threading	1
31444315	CNC Machining-Facing and End Milling Setup	1
31444317	CNC Machining-Hole/Slot/Engraving Setup	1
31444321	CNC Turning 2D Using CAM	1
31420361	Complex Print Drawings	1
31420362	Advanced Precision Measuring	1
31420363	GD&T-Inspection	1
		13
Term 3		
31444323	CNC Machining-Probing/Editing/G&M Code	1
31444325	CNC Machining-Work Holding	1
31444327	CNC Turning-Program Editing	1
31444333	CNC Machining-Setup/Operation w/ G&M Code	1
31444357	CNC Turning-Setup and Operation	1
31420364	ProtoTrak Mill Programming	1
31420365	ProtoTrak Lathe Programming	1
31444339	CNC Machining-G&M Programming Using CAM	1
31444341	CNC Machining-Setup/Operation Using CAM	1
10606108	SolidWorks 1-Parametric Modeling	2
10606102	Product Design & Rapid Prototyping	1
31444347	HSM for SolidWorks	1
		13
Term 4		
32444343	CNC Technician Internship	2
31444343	CNC Turning-G&M Code Programming Using CAM	1
31444345	CNC Turning-Setup and Operation Using CAM	1
31444349	CNC Turning with Live Tooling-Operation	1
31444351	CNC Turning with Live Tooling-Programming	1
31444353	CNC Turning w/ Live Tooling-Adv Programming	1
32444306	CNC Skills Portfolio	1
31444359	Wire EDM Operation	1
31444371	Wire EDM Program/Operate	1
10620167	Robotics-Teach Pendant/Controls	1
10620179	Robotics-Editing Programs	1
32444355	Multi Axis Mill-Set up and Operation	1
32444357	Multi Axis Mill-Programming	1
32444359	Multi Axis Mill-Advanced Programming	1
		15
		TOTAL 54

Curriculum and program acceptance requirements are subject to change. Program start dates vary; check with your program counselor for details. The tuition and fees are approximate based on 2024-2025 rates and are subject to change prior to the start of the academic year.

Please see *Precision Machining Technology* for Term 1 & 2 course descriptions.

CNC MACHINING-G&M PROGRAMMING USING CAM...prepares the learner to create G&M code programs using CAM for CNC machining center. COREQUISITE: 31444325 CNC Machining -Work Holding or PREREQUISITE: 32444308 Advanced Machining Centers 1B

CNC MACHINING-PROBING/EDITING/G&M CODE...prepares the learner to perform probing on CNC machining center for location and editing G&M code programs. COREQUISITE: 31444317 CNC Machining-Hole/Slot/Engraving Setup or PREREQUISITE: 31420382 Machine Tool CNC Machining Centers

CNC MACHINING-SETUP/OPERATION USING CAM...prepares the learner to operate CNC machining center using student developed CAM programs. COREQUISITE: 31444339 CNC Machining-G&M Programming using CAM

CNC MACHINING-SETUP/OPERATION WITH G&M CODE...prepares the learner to setup and operate CNC machining center using student developed G&M code programs. COREQUISITE: 31444327 CNC Turning-Program Editing

CNC MACHINING-WORK HOLDING...prepares the learner to create parts using various work holding techniques on the CNC machining center. COREQUISITE: 31444323 CNC Machining-Probing/Editing/G&M Code

CNC SKILLS PORTFOLIO...prepares learner to create a portfolio of program projects. COREQUISITES: 31444341 CNC Machining-Setup/Operation using CAM and 31444345 CNC Turning-Setup and Operation using CAM

CNC TECHNICIAN INTERNSHIP...prepares learner to apply technical skills as well as work productively, communicate effectively, and demonstrate ethics in a professional workplace. COREQUISITES: 31444333 CNC Mach-Setup/Operate w/ G&M Code and 31444357 CNC Turing-Setup and Operation and 32444306 CNC Skills Portfolio

CNC TURNING WITH LIVE TOOLING-ADV PROGRAMMING...prepares the learner to operate CNC turning center with live tooling using student developed G&M code programs. COREQUISITE: 31444351 CNC Turning w/ Live Tooling-Programming

CNC TURNING WITH LIVE TOOLING-OPERATION...prepares the learner to operate CNC turning center with live tooling safely. COREQUISITES: 31444341 CNC Machining-Setup/Operation using CAM and 31444345 CNC Turning-Setup and Operation using CAM

CNC TURNING WITH LIVE TOOLING-PROGRAMMING...prepares the learner to write G&M code programs for CNC turning center with live tooling. COREQUISITE: 31444349 CNC Turning with Live Tooling-Operation

CNC TURNING-G&M CODE PROGRAMMING USING CAM...prepares the learner to create G&M code programs using CAM for CNC turning center. PREREQUISITE: 32444308 Advanced Turning Centers 1B

CNC TURNING-PROGRAM EDITING...prepares the learner to edit programs to produce parts on CNC turning center. COREQUISITE: 31444313 CNC Turning-Hole Producing Setup/Threading or PREREQUISITE: 31420380 Machine Tool CNC Turning Centers and 10420184 or 31420313 Machine Tool Programming

CNC TURNING-SETUP AND OPERATION...prepares the learner to setup and operate CNC turning center using tailstock and lefthand tooling. COREQUISITE: 31444333 CNC Machining - Setup/Operation with G&M Code

CNC TURNING-SETUP AND OPERATION USING CAM...prepares the learner to operate CNC turning center using student developed CAM programs. COREQUISITE: 31444343 CNC Turning-G&M Programming Using CAM

HSM FOR SOLIDWORKS...prepares the learner to create G&M code programs using HSM for SolidWorks software.

MULTI AXIS MILL-ADVANCED PROGRAMMING...prepares the learner to create advanced programs using CAM.

MULTI AXIS MILL-PROGRAMMING...prepares the learner to operate a multi axis CNC mill using student-developed programs using CAM. COREQUISITE: 32444355 Multi Axis Mill-Set up and Operation

MULTI AXIS MILL-SET UP AND OPERATION...prepares the learner to operate a multi axis CNC mill safely.

PRODUCT DESIGN AND RAPID PROTOTYPING...introduces students to rapid prototyping methods and the operation of various types of rapid prototyping equipment available in the Mechanical Design and Engineering Technology program's Fab Lab. Research and the use 3D printers including FDM and related material usage, will be explored through hands-on lab activities to develop a working prototype. COREQUISITE: 10606108 SolidWorks 1 - Parametric Modeling

PROTOTRAK LATHE PROGRAMMING...prepares the learner to create conversational programs using A.G.E. (Auto Geometry Engine) and DXF functions on ProtoTrak vertical milling machine.

PROTOTRAK MILL PROGRAMMING...prepares the learner to perform advanced sub routine functions using conversational programming on ProtoTrak vertical milling machine. COREQUISITE: 31420353 ProtoTrak Mill-Squaring Programming

ROBOTICS-EDITING PROGRAMS...teaches troubleshooting and repairing issues in a robot program. COREQUISITE: 10620167 Robotics-Teach Pendant/Controls

ROBOTICS-TEACH PENDANT/CONTROL...instructs students on using a teach pendant to control a robot. COREQUISITE: 10620179 Robotics-Editing Programs

SOLIDWORKS 1-PARAMETRIC MODELING...introduces the students to the concepts and commands of parametric solid modeling. Students create sketches and add relationships to the sketch segments, extrude the sketches to create models, and add features such as fillets, cut extrude, chamfers, holes, draft, shell, lofts and sweeps. Emphasis is placed on the design intent of the parametric solid models.

WIRE EDM OPERATION...prepares the learner to analyze the wire EDM processes, identify components, set up and operate wire EDM safely. COREQUISITES: 31420310 Shop Tools and Fasteners and 31420330 Precision Measuring or 10462107 Tools and Measurement and 31444307 Mill-2D Using CAM

WIRE EDM PROGRAM/OPERATE...prepares the learner to program the wire EDM using CAM software, then set up and operate those programs on the wire EDM. COREQUISITE: 31444359 Wire EDM Operation