

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

### ABOUT THE PROGRAM

Learn CNC and Machining at your own pace, through hands-on learning, and with your instructor and success coach to guide you. 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](http://gotoltc.edu/future-students/transfer).

### ADMISSION AND PROGRAM ENROLLMENT STEPS

- Submit online application.
- Submit transcripts (high school & other colleges). NOTE: Official transcripts required for acceptance of transfer credits; Financial Aid may require.
- Complete the online Student Success Questionnaire.
- Schedule a Program Advising Session with your assigned advisor to plan your first semester schedule, review your entire plan of study, discuss the results of the Student Success Questionnaire.

### APPROXIMATE COSTS

- \$138.90 per credit tuition (WI resident) plus \$8.33 per credit student activity fee. \$10 per credit online, iFlex or hybrid fee. Material fee varies depending on course. Other fees vary by program. Visit [gotoltc.edu/financial-aid/tuition-and-fees](http://gotoltc.edu/financial-aid/tuition-and-fees) for details.

### FINANCIAL AID

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

### SPECIAL NOTE

This program is Competency-Based. Competency-Based Education (CBE) is learning at your own pace by mastering competencies through demonstration. Once all competencies for a program have been assessed and mastered, students will earn a certificate, diploma, or degree.

### RELATED PROGRAMS

- Machinist Apprenticeship
- Tool and Die Apprenticeship

### CONTACT

LTC Career Coach  
920.693.1162 • [CareerCoach@gotoltc.edu](mailto:CareerCoach@gotoltc.edu)

Catalog No.	Class Title	Credit(s)
<b>Term 1</b>		
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	Lathe-Facing and Turning	1
31420350	Mill-Squaring	1
31420386	GD&T Intro	1
31420326	Machining Geometry and Basic Trigonometry	1
31420342	Lathe-Hole Producing and Threading	1
31420351	Mill-Slots and Holes	1
31444301	Mill-G&M Code	1
31444303	CNC Machining Operation	1
31444309	CNC Turning Operation	1
31420359	Safe Heat Treating Operations	1
		<b>15</b>
<b>Term 2</b>		
31801361	Interpersonal Skills	1
31801360	Workplace Fundamentals	1
31444305	Turning-G&M Code	1
31444307	Mill-2D Using CAM	1
31420353	ProtoTrak Mill-Squaring Programming	1
31420354	ProtoTrak Mill-Slot and Hole Programming	1
31420356	Surface Grinder Operations	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-Toolpaths Using CAM	1
31420361	Complex Print Drawings	1
31420362	Advanced Precision Measuring	1
31420363	GD&T-Inspection	1
		<b>15</b>
<b>Term 3</b>		
31444319	CNC Milling-Adv G&M Code Programming	1
31444323	CNC Machining-Probing/Editing/G&M Code	1
31444325	CNC Machining-Work Holding	1
31444327	CNC Turning-Program Editing	1
31444329	CNC Turning-G&M Code Programming	1
31444331	CNC Machining-G&M Code Programming	1
31444333	CNC Machining-Setup/Operation w/G&M Code	1
31444335	CNC Turning-Adv G&M Code Programming	1
31444357	CNC Turning-Setup and Operation	1
31420364	ProtoTrak-Adv Conversational Programming	1
31420365	ProtoTrak-Adv Programming with A.G.E./DXF	1
31444347	HSM for SolidWorks	1
		<b>12</b>
<b>Term 4</b>		
32444306	CNC Skills Portfolio	1
32444343	CNC Technician Internship	2
31444339	CNC Machining-G&M Programming Using CAM	1
31444341	CNC Machining-Setup/Operation Using CAM	1
31444343	CNC Turning-G&M Programming Using CAM	1
31444345	CNC Turning-Setup & 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-G&M Programming	1
10620167	Robotics-Teach Pendant/Controls	1
10620179	Robotics-Editing Programs	1
		<b>12</b>
		<b>TOTAL 54</b>

Curriculum and Program Acceptance requirements are subject to change. Program start dates vary; check with your advisor for details. The tuition and fees are approximate based on 2020-2021 rates and are subject to change prior to the start of the academic year.



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

**CNC MACHINING-G&M CODE PROGRAMMING**...prepares the learner to create G&M code programs to produce parts on a CNC machining center. COREQUISITES: 31444325 CNC Machining-Work Holding or PREREQUISITES: 32444302 Advanced Machining Centers 1A and 31420315 CAM for Milling Machines

**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: 31444331 CNC Machining - G&M Code Programming

**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 MILLING-ADVANCED G&M CODE PROGRAMMING**...prepares the learner to create advanced milling G&M code programs. COREQUISITE: 31444305 Turning G&M Code or PREREQUISITES: 31420313 or 10420184 MT Programming

**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 Machining-Setup/Operate with G&M Code and 31444357 CNC Turing-Setup and Operation

**CNC TURNING WITH LIVE TOOLING-G&M PROGRAMMING**...prepares the learner to operate CNC turning center with live tooling using student developed G&M code programs. COREQUISITE: 31444351 CNC Turning with 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-ADVANCED G&M CODE PROGRAMMING**...prepares the learner to create advanced G&M code programs for CNC turning center. COREQUISITE: 31444329 CNC Turning-G&M Code Programming or PREREQUISITES: 32444307 Advanced Turning Centers 1A and 32444310 CAM for Turning Machines

**CNC TURNING-G&M CODE PROGRAMMING**...prepares the learner to create G&M code programs to produce parts on a CNC turning center. COREQUISITE: 31444327 CNC Turning-Program Editing

**CNC TURNING-G&M CODE PROGRAMMING USING CAM**...prepares the learner to create G&M code programs using CAM for CNC turning center. COREQUISITE: 31444329 CNC Turning - G&M Code Programming or 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 MT 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: 31444335 CNC Turning-Advanced G&M Code Programming

**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.

**PROTOTRAK-ADV CONVERSATIONAL PROGRAMMING**...prepares the learner to perform advanced sub routine functions using conversational programming on ProtoTrak vertical milling machine. COREQUISITE: 31420354 ProtoTrak Mill-Slot and Hole Programming or PREREQUISITE: 31420352 Machine Tool Mills 2

**PROTOTRAK-ADV PROGRAMMING WITH A.G.E./DXF**...prepares the learner to create conversational programs using A.G.E. (Auto Geometry Engine) and DXF functions on ProtoTrak vertical milling machine. COREQUISITE: 31420364 ProtoTrak-Advanced Conversational 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