CNC/TOOL AND DIE TECHNOLOGIES

Program Number: 32-444-2
Technical Diploma (2 year)
Campus: West Bend, **Note:** This program starts in Fall semester only. This program is eligible for financial aid (http://www.morainepark.edu/financial-aid/)

The use of computer numerically controlled (CNC) machine tools is increasing throughout the manufacturing industry. Moraine Park's CNC Tool and Die Technologies diploma prepares students for an in-demand and highly-skilled career in manufacturing with the opportunity to advance quickly.

About the Program

The CNC/Tool and Die Technologies program prepares students to build and run mold dies and stamping dies; and perform advanced milling, drilling and lathe work. Students also practice precision surface grinding, precision measurement, and heat treating.

Courses in the CNC/Tool and Die Technologies program focus on programming and operation of CNC machine tools, including; coordinate measuring machines (CMM), vertical and horizontal machining centers, turning centers, electrical discharge machines (EDM), tooling and work holding, as well as, three-dimensional computer-aided machining.

Upon completion of the program, students will have completed all of their related training for the State of Wisconsin Tool and Die Technologies apprenticeship program.

Skilled machinists and tool and die makers are in great demand across the manufacturing industry. Workers in this field have the opportunity to quickly advance their careers as they gain experience and skill.

What You'll Learn

Through hands-on training, students in the CNC/Tool and Die Technologies program learn entry-level CNC machine programming, blueprint reading, two and three-dimensional computer-aided machining, computer aided design (CAD), set up and operate molding and stamping presses and use of high precision measuring equipment.

CNC/Tool and Die Technologies students gain hands-on experience by being involved in every phase of the manufacturing process. Students work from blueprints and CAD data to program equipment and inspect machined parts to exact tolerances.

Graduates of the CNC/Tool and Die Technologies program will have gained the necessary skills and knowledge to interpret part and material specifications, set up and operate various machine tools, use CAD/CAM software, and program CNC machine tools at the machine as well as use offline computer systems relating to a job shop or tool and die environment.

Transfer Opportunities

Your academic journey can continue at a four-year college or university. Earn your associate degree at Moraine Park and then apply those credits toward a bachelor's degree. Starting at MPTC makes completing a bachelor's degree **affordable**, **accessible** and **convenient**. You can go anywhere as MPTC has transfer agreements with colleges and universities both in Wisconsin and throughout the country.

Visit the Transfer to a Four-Year College (https://www.morainepark.edu/transfer-to-a-four-year-college/) page for more information on credit transfer agreements between Moraine Park and four-year colleges, both public and private.

Additional Information

Students must purchase tool kits for this program.

Admission Process

Standard Admissions (http://www.morainepark.edu/admissions/new-student/how-to-apply-for-admissions/) steps details

Credit for Prior Learning

Transform the skills and abilities developed through previous experience into college credit through MPTC's Credit for Prior Learning process.

- Transfer credit from other colleges/universities
- Earn college credit for your military training and experience
- Earn college credit via Advance Placement, CLEP, DANTES/DSST or MPTC Challenge Exams
- Earn college credit from previous/current work and life experiences

Visit MPTC's Credit for Prior Learning (https://www.morainepark.edu/academics/credit-for-prior-learning/) page for more information.

Approximate Costs

Tuition

Occupational

- $149.50 per credit (resident)
- $224.25 per credit (out-of-state resident)

Associate of Arts/Associate of Science

- $188.90 per credit (resident)
- $283.35 per credit (out-of-state resident)

Online students are not charged out-of-state fees.

Student Fees

- $5.00 minimum per course Material Fee
- $12.50 per-credit Supplemental Fee for Undergraduate courses
- $4.50 per term mandatory Student Accident Insurance Fee

Please refer to Tuition & Fee Information (https://catalog.morainepark.edu/admissions-registration/tuition-fee-information/) for additional enrollment fee information.

Financial Aid

Financial Aid is available for associate degree and technical diploma programs (those that are 2 semesters in length and typically with 28 credits or more). Processing can take 4-5 weeks after a student's completed Free Application for Federal Student Aid (FAFSA (https://studentaid.gov/h/apply-for-aid/fafsa/)) is received. Visit the Financial Aid

(https://www.morainepark.edu/pay-for-college/financial-aid/) page to learn more.

While attending Moraine Park during the 2024-25 school year, your estimated cost of attendance for one full year includes tuition of $4,462 (15 credits for fall and spring semester), fees of $338, food and housing of $3,008 (if living with parents, $9,147 if living on your own), books and supplies of $1,465, personal expenses of $3,608, and transportation of $4,017 for a total of $17,002. Your direct costs (those costs paid directly to the college) include tuition & fees. The indirect costs (costs not paid to the college) can vary from individual to individual and your own personal needs.

Course Requirements

Course	Title	Credits
Semester 1		
103-159	Computer Literacy - Microsoft Office	1
439-307	Basic Machining	3
439-308	Manual Manufacturing	3
439-399	2D CAD Mold and Die Print Reading	2
444-302	CNC Controls	2
444-350	Basic Programming	3
804-360	Occupational Mathematics 1	2
890-101	College 101	2
	Credits	**18**
Semester 2		
439-306	Basic Machining - Turning	2
439-314	EDM Control Operations	1
444-311	Tooling and Workholding	2
444-340	Beginning CAM - Mastercam	2
444-342	Advanced CAM 2D	2
444-346	Design for 3D Machining	2
444-355	CNC Machining Center Programming	2
444-365	CNC Machining Center Operation	2
804-361	Occupational Mathematics 2	2
	Credits	**17**
Semester 3		
439-324	Pierce and Die Making	3
439-329	Industrial Die Making	3
444-312	Product Engineering - Lean Manufacturing	1
444-343	Beginning CAM 3D	2
444-344	Advanced CAM 3D	2
444-375	Turning Center Operation	2
444-385	Turning Center Programming	2
	Credits	**15**
Semester 4		
439-334	Single Cavity Mold Making	3
439-339	Industrial Mold Making	3
444-313	Product Manufacturing	2
444-386	Advanced Machining Center	2
444-391	Coordinate Measuring Machine	3
444-394	Advanced Turning Center	2
801-310	Occupational Communication	1
	Credits	**16**
	Total Credits	**66**

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 set-up and operation
- Perform programming, set-up and operation of CNC Machine Tools
- Perform advanced tool, die, and mold operations

Pathways

- CNC/Tool and Die Technologies Technical Diploma (p. 1)
  - CNC Set-up/Operator Certificate (https://catalog.morainepark.edu/programs/cnc-setup-operator-certificate/)

Earn a certificate and a technical diploma along this pathway. Start with some courses for entry-level employment, and continue with additional courses for higher wages and job advancement.

Career Opportunities

- CNC Operator
- CNC Programmer
- CNC Toolmaker
- CNC Setup
- CNC Machinist
- Stamping Die Maker
- Mold Maker
- Metrologist
- Jig and Fixture Maker
- CMM Operator/Programmer
- Graduates have advancement opportunities with additional work experience or education

Statewide Median Salary for Recent Graduates

$50,100

Moraine Park Technical College is an equal opportunity and affirmative action College. Women, minorities, those with different abilities and veterans are encouraged to apply. For more information, visit http://www.morainepark.edu/nondiscrimination.