

# Tool & Die Apprentice (50-439-3)

## Effective 2026/2027

### Program Description

Tool and die makers analyze specifications, lay out metal stock, set up and operate machine tools, and fit and assemble parts to make and repair dies, gauges, jigs, fixtures (devices that hold metal while it is shaped, stamped or drilled), gauges, and machinist's hand tools. Die makers construct metal forms (dies) to shape metal in stamping and forging operations. A tool and die maker operate various machine tools to make and repair molds, special machinery, tools, dies, jigs, fixtures and die cast dies. In this apprenticeship, learn basic theory in machining, blueprint reading and metallurgy, in addition to knowledge in stamping, mold making blanking, jigs and fixtures, plastics and die casting. Computer-assisted CNC machining and die and mold design are also covered.

### Program Learning Outcomes

Graduates will be able to:

- 1 Inspect parts and material.
- 2 Apply knowledge of milling machine operations, including manual and/or CNC controlled.
- 3 Compare turning machine operations, including manual and/or CNC controlled.
- 4 Explore precision grinding machine operations including manual and/or CNC controlled.
- 5 Compare cut-off machine operations, including manual and/or CNC controlled.
- 6 Apply metallurgical principles to materials and work processes.
- 7 Compare practices for assembling parts per specifications.
- 8 Design jigs and fixtures.
- 9 Summarize practices to produce dies for a variety of machining and manufacturing operations.
- 10 Local optional work processes may be used as additional college program outcomes.

### Essential Career Competencies

Gateway's six essential career competencies are the general attitudes and skills promoted and assessed by all programs. All Gateway graduates will develop skills in:

- 1 Communication Competence
- 2 Critical Thinking and Problem Solving
- 3 Professionalism and Career Management
- 4 Teamwork and Collaboration
- 5 Cultural Competence
- 6 Technology Competence

### Get Started as an Apprentice

- 1 You should apply directly to employers, and entry requirement vary by employer.
- 2 If you need assistance finding an employer who will take you on as an apprentice, don't hesitate to get in touch with the local WI DWD-BAS Apprenticeship Training Representative at 414.216.8417 to find an employer who has been approved to train apprentices. You can also find apprenticeship employers at <https://dwd.wisconsin.gov/apprenticeship/ra/applicants.htm>
- 3 Once your contract is in place with your employer and WI DWD-BAS, Gateway's Apprenticeship department will communicate with you regarding registration, classes and books.
- 4 You can contact Gateway's Apprenticeship department at [apprenticeship@gtc.edu](mailto:apprenticeship@gtc.edu) or 262.564.2954.

### Graduation Requirements

- \*Minimum of 2.0 ("C") or above for all required courses.
- Meet minimum hourly paid related instruction requirements per WI Registered Apprenticeship Contract.

### Notes

- 1 Students must be physically able to perform the job.
- 2 Students must be 18 years of age and submit official high school, GED, or HSED transcript including a graduation or passing date.
- 3 Students must complete all courses with a grade of "C" or better.

Gateway Technical College reserves the right to modify curriculum requirements for students who interrupt enrollment for one year or take over seven years to complete. Tuition and material fees are determined by the board of the Wisconsin Technical College System. Consult My Gateway for exact fee amounts. The District reserves the right to modify, cancel, or relocate course offerings in response to factors such as low enrollment, resource availability, or other relevant considerations to ensure high-quality educational experiences. Students will be notified in writing and are encouraged to meet with their Academic Advisor to adjust their academic plan.

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The course sequence shown on this sheet is the recommended path to completion. Courses will be scheduled in the terms indicated here.  
 All courses should be taken in the order shown to help you stay on track and graduate according to your academic plan.  
 Courses in this program may be offered in a variety or combination of formats (for example: in-person, video conferencing, online, etc.).  
 More detailed scheduling information for this program can be found at <https://www.gtc.edu/tool-and-die-apprentice>.  
 Please see your academic advisor for additional information.

Term	Course Number	Course Name	Credits	Hours
1	*420-740	Mathematics for the Machine Trades	1.25	45
1	*420-741	Metallurgy & Materials for Machine Trades Apprentices	.50	18
1	*420-720	Cut-Off Machines for Machine Trades Apprentices	.25	9
2	*420-714	Engineering Drawings for Machine Trades Apprentices	1	36
2	*420-713	Precision Measurement for Machine Tool Trade Apprentices	1	36
3	*420-742	Turning Machines for Machine Trades Apprentices	1	36
3	*420-743	Milling Machines for Machine Trades Apprentices	1	36
4	*420-719	Grinding Machines for Machine Trades Apprentices	.50	18
4	*420-744	CAD/CAM for Machine Trades Apprentices	1.5	54
5	*420-726	Tooling and Workholding for Machine Trades Apprentices	.50	10
5	*420-727	Geometric Dimensioning and Tolerancing for Machine Trades Apprentices	.50	10
5	*420-745	CNC Programming and Operations 1 for Machine Trades Apprentices	1	36
6	*420-746	CNC Programming and Operations 2 for Machine Tool Trades Apprentices	2	72
7	*420-728	Stamping Diemaking for Machine Trades Apprentices	1	36
7	*420-729	Mold Making for Machine Trades Apprentices	1	36
8	*420-723	Electrical Discharge Machining for Tool and Die Apprentices	.50	18
8	*420-730	Stamping Die Design Applications for Machine Trades Apprentices	1	36
8	*455-455	Transition to Trainer: Your Role as a Skilled Worker Trainer	.20	8

(\*) Students must achieve a minimum of 2.0 ("C") or above for this major course to meet graduation requirements.

### Training at a Glance

- Time to complete – Approximately 4 years
- On the job time – 10,400 Hours
- Related Instruction Time – 576 Hours
- Additional training – First Aid and CPR Certifications; Transition to Trainer  
 Consult the Wisconsin Bureau of Apprenticeship Standards website for more information at <https://dwd.wisconsin.gov/apprenticeship/occupations/tool-n-die-maker.htm>

If you need assistance getting started,  
 Gateway's Apprenticeship Department is happy to help.

QUESTIONS?

PLEASE CONTACT:

Gateway Technical College  
 Apprenticeship Department  
 262-564-2954

[apprenticeship@gtc.edu](mailto:apprenticeship@gtc.edu)