



Tool & Die Apprenticeship (50-439-3) Effective 2022/2023

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. Operate milling machines, including manual and/or CNC controlled.
3. Operate drilling machines, including manual and/or CNC controlled.
4. Operate turning machines, including manual and/or CNC controlled.
5. Operate precision grinding machines including manual and/or CNC controlled.
6. Operate cut-off machines, including manual and/or CNC controlled.
7. Apply metallurgical principles to materials and work processes.
8. Assemble parts according to specifications.
9. Design jigs and fixtures.
10. Produce dies for a variety of machining and manufacturing operations.
11. 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:

- Communication Competence
- Professionalism and Career Management
- Cultural Competence
- Critical Thinking and Problem Solving
- Teamwork and Collaboration
- Technology Competence

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. Occasionally, the District may offer a particular course out of published sequence. By doing so, the District does not obligate itself to offer succeeding courses out of published sequence.

Get Started as an Apprentice

1. To begin identifying or planning your apprenticeship, contact the local Apprenticeship Training Representative at 262.564.3210
2. If an employer wishes to hire you, they will submit an [apprenticeship application](#) to the Wisconsin Department of Workforce Development (DWD). If the DWD determines that you meet the Bureau of Apprentices Standards qualifications, you will be given a credential notice.
3. Once your permit is in place, Gateway's Apprenticeship department will communicate with you regarding registration, classes and books.

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.



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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.
Taking courses in the order shown will 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.).

Pathway to Success

| Course | Course Name | Credits | Hours |
|----------|---------------------------------------|---------|-------|
| *420-560 | Machine Trades/Mathematics 3 | 1.00 | 36 |
| *801-500 | Apprentice Communications | 1.00 | 36 |
| *421-515 | Blueprint Reading I/Metal Trades | 1.00 | 36 |
| *420-516 | Precision Measurement | 1.00 | 36 |
| *420-505 | Machine Technology I | 1.00 | 36 |
| *420-561 | Machine Trades/Mathematics 4 | 1.00 | 36 |
| *421-516 | Blueprint Reading 2/Machine Trades | 1.00 | 36 |
| *420-517 | Cutting Tools | .50 | 18 |
| *420-518 | Machinery Handbook | .25 | 9 |
| *420-519 | Geometric Dimensioning & Tolerancing | .25 | 9 |
| *439-535 | Jig and Fixture Design | .75 | 27 |
| *423-716 | Metallurgy | 1.00 | 36 |
| *420-592 | Numerical Control | 1.00 | 36 |
| *420-495 | Grinding, Drilling, & Cut-Off Machine | 1.00 | 36 |
| *420-494 | Cost Estimating | .25 | 9 |
| *439-505 | Stamping and Die Design Applications | 1.00 | 36 |
| *439-506 | Mold Die Design Applications | 1.00 | 36 |
| *420-569 | Electrical Discharge Machining | 1.00 | 36 |
| *439-507 | Milling/Turning 1 | 1.00 | 36 |

Training at a Glance

- Time to complete – Approximately 5 years
- On the job time – 9888 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

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

Notes associated with courses (identified by a superscript number at the end of the course title) are located on the front of the sheet.
(*) indicates students must achieve a minimum of 2.0 ("C") or above for these major courses to meet graduation requirements.