

Program Information

The Anoka Technical College Advanced CNC Machine Technology diploma is a 64-credit program that includes technical and general education components. The career major prepares students to write and edit CNC programs, perform complex setups, basic troubleshooting of machine problems, cycle time reduction practices, fixture design and building, recognize areas for process improvements and operate the following equipment: manual lathes, drills, mills, grinders, CNC mills, CNC lathes, CNC wire EDM and CNC sinker EDM, coordinate measuring machine, CAD/CAM and 4&5 axis CNC mills.

Program graduates are skilled in the areas of CNC programming, parametric programming, basic troubleshooting of machine problems, cycle time reduction practices, fixture design and building, blueprint reading, GD&T, statistical process control, lean manufacturing, math, inspection and the correct sequence of operation required.

Those employed in this position are expected to write and edit CNC programs, perform complex setups, basic troubleshoot of machine problems, cycle time reduction practices, fixture design and building and recognize areas for process improvements on manual lathes, drills, mills, grinders, CNC mills, CNC lathes, CNC wire EDM and CNC sinker EDM, coordinate measuring machine and CAD/CAM. Employees are also expected to invoke lean manufacturing process and practices.

The CNC Manufacturing Technology program provides the skills for trade entry plus the possibility to pursue a Bachelor of Arts (BA) degree with cooperating colleges and universities.

Program Learning Outcomes

- Write and edit CNC programs
- Perform complex setups
- Basic troubleshooting of machine problems
- Cycle time reduction practices
- Fixture design and building
- Recognize areas for process improvements

Industry and Career Outlook

The machinist is a skilled metal worker who produces metal parts by using machine tools and hand tools. Training and experience enable the machinist to plan and carry through all the operations needed to turn out a finished machine product and to switch readily from one kind of product to another. The machinist’s background and knowledge enables him/her to turn a block of metal into an intricate, precise part.

All options are an art as well as a skill, and are considered to be demanding occupations. There is a great variety in the construction of dies and molds, depending on the design of a part, the type of materials used, the ingenuity of the designer, and the knowledge and skill of the die and mold maker, who must machine intricate components of various tooling to tolerances expressed in fractions of one-thousandths of an inch.

Wage information is available from the [Minnesota Department of Employment and Economic Development](http://www.dhs.gov/minnesota-department-of-employment-and-economic-development).

Program Start Dates

Fall Semester.....August
Spring SemesterJanuary

Course Prerequisites

Some courses in this program may require a prerequisite. Please see [course descriptions](#) for more details.

Program Sequence

First Semester	16
<input type="checkbox"/> MACH 1101 Milling	4
<input type="checkbox"/> MACH 1106 Lathe	3
<input type="checkbox"/> MACH 1121 Metrology.	2
<input type="checkbox"/> MACH 1132 Blueprint Reading	3
<input type="checkbox"/> MACH 1140 CAD I	1
<input type="checkbox"/> MACH 1171 Math for Machinist	3
OR	
<input type="checkbox"/> MATH 1650 College Trigonometry (Goal 4).....	3
Second Semester	16
<input type="checkbox"/> MACH 1200 Advanced Machining.....	3
<input type="checkbox"/> MACH 1220 Grinding.....	2
<input type="checkbox"/> MACH 1231 Blueprint Design/ CAD II	1
<input type="checkbox"/> MACH 1240 Geometric Dimensioning & Tolerancing	3
<input type="checkbox"/> MACH 1251 CNC Machining.....	3
<input type="checkbox"/> MACH 1261 CNC Programming I.....	3
<input type="checkbox"/> MACH 1275 Quality Standard.....	1
Third Semester	16
<input type="checkbox"/> MACH 2310 CNC Milling.....	3
<input type="checkbox"/> MACH 2320 CNC Turning	3
<input type="checkbox"/> MACH 2331 CAM	1
<input type="checkbox"/> MACH 2340 CNC Programming II	2
<input type="checkbox"/> MACH 2351 Mold/Die making Theory	3
<input type="checkbox"/> MACH 2360 Fixture and Tooling	4
Fourth Semester	16
<input type="checkbox"/> MACH 2411 Tool and Cutter Grinding	2
<input type="checkbox"/> MACH 2420 EDM Machining.....	2
<input type="checkbox"/> MACH 2435 Swiss Machining.	2
<input type="checkbox"/> MACH 2440 CNC Programming III	1
<input type="checkbox"/> MACH 2451 CNC Design and Manufacture.	3
<input type="checkbox"/> MACH 2462 Multi-Axis Milling	3
<input type="checkbox"/> MACH 2472 Multi-Axis Turning.....	3

Graduation Requirements

Students must earn a cumulative 2.0 GPA or higher to be eligible for graduation from this program.

Faculty Contact

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For information on how to apply, to schedule a tour, or for service during summer hours, contact Enrollment Services at 763-576-7710 or EnrollmentServices@anokatech.edu

Also see: CNC Design & Manufacturing Technology AAS and Machine Technology 1, 2, and 3 certificates

