

**Program Information**

The Anoka Technical College Mechanical CAD Drafter diploma is a 58-credit program that consists of technical courses designed to develop skills in mechanical drafting, design, and related fields.

All manufactured goods are created following a design process and this process needs to be documented. This documentation includes three-dimensional computer models, detailed two-dimensional drawings, bill of materials, engineering and manufacturing changes, physical prototypes, and more. The ability to follow strict industry standards while utilizing creativity to solve and document complex problems is the job of a mechanical designer.

In addition to drafting and detailing skills, the students receive training in related areas such as industrial materials, manufacturing methods, machining, and professional communication.

Students also receive hands-on training in Anoka Technical College's computer aided drafting lab. (AutoCAD, Inventor, ProE/Creo, and Solidworks)

The primary goal of the Mechanical Drafting and Design program is to provide all graduates with the solid technical foundation necessary to ensure their success in a wide variety of employment opportunities. To accomplish this goal, program learning outcomes and program objectives are defined and assessed for continuous improvement.

Program Objectives. Graduates two to three years into their careers should have the foundation to:

1. Identify, create and evaluate solutions to complex engineering-related problems in a timely and professional manner utilizing the skills developed in the areas of design, manufacturing and mechanics.
2. Solve technical problems while considering the local, national, and global requirements and impact of the solution.
3. Successfully function as a team member and leader.

**Program Learning Outcomes**

By completing this program, students will achieve the following learning outcomes.

1. Apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities.
2. Apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge.
3. Conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
4. Function effectively as a member of a technical team.
5. Identify, analyze, and solve narrowly defined engineering technology problems.
6. Apply written, oral, and graphical communication in both technical and non-technical environments; and identify and use appropriate technical literature.
7. Understand the need for and an ability to engage in self-directed continuing professional development.
8. Understand and commit to addressing professional and ethical responsibilities, including a respect for diversity.

9. Commit to quality, timeliness, and continuous improvement.
10. Demonstrate knowledge and technical competency appropriate to the objectives of the program in engineering materials, applied mechanics, and manufacturing methods.
11. Demonstrate knowledge and technical competency appropriate to the objectives of the program in applied drafting practice emphasizing mechanical components and systems, as well as fundamentals of descriptive geometry, orthographic projection, sectioning, tolerancing and dimensioning, and basic computer aided drafting and design with technical depth in at least one of these areas.
12. Demonstrate knowledge and technical competency appropriate to the objectives of the program in the application of physics and engineering materials having an emphasis in applied mechanics, or in-depth application of physics having emphasis in mechanical components and design.

**Course Prerequisites**

Some courses may require appropriate test score or completion of basic math, basic English and/or reading courses with a "C" or better.

**Graduation Requirements**

All Anoka Technical College students seeking an Associate in Applied Science (AAS), diploma, or certificate must meet the cumulative grade point average (GPA) of 2.0 or higher.

**Transfer Opportunities**

To see how credits from this program may transfer into other Anoka Technical College programs or into a program at another college, visit:

- [Minnesota Transfer](http://www.mntransfer.org/students/plan/s_agreements.php?numResults=25&archive=false&from_inst=70&from_prog=&to_inst=&Search=Search): (www.mntransfer.org/students/plan/s\_agreements.php?numResults=25&archive=false&from\_inst=70&from\_prog=&to\_inst=&Search=Search)
- [Anoka Technical College transfer student](http://www.anokatech.edu/BecomeStudent/Transfers.aspx) (www.anokatech.edu/BecomeStudent/Transfers.aspx)

**Industry Information**

Anoka Technical College Mechanical Drafting and Design Technology program graduates find employment with manufacturing companies, engineering firms, electro-mechanical companies, and contract firms. Mechanical Drafting and Design Technology graduates have the necessary knowledge and an excellent foundation to begin their careers as mechanical drafters in engineering departments that design and manufacture hard goods products of every description. Most mechanical drafters begin as detail drafters, making the drawings required for the manufacture of products. Mechanical drafters can advance to supervisory positions within the department or may advance to assistant engineers as they gain experience. Other areas of advancement include purchasing and sales.

**Wages/Outlook/Advancement**

Wage information is available from the [Minnesota Department of Employment and Economic Development](http://www.mn.gov/deed/job-seekers/job-outlook/) (https://mn.gov/deed/job-seekers/job-outlook/).



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# Mechanical CAD Drafter

Diploma

### Gainful Employment

Follow this link for a [Gainful Employment Report](#).

### Technical Education: 54 Credits

- MATH 1070 Technical Mathematics I..... 3
- MATH 1080 Technical Mathematics II ..... 2
- MACH 1090 Machining Fundamentals ..... 2
- MECH 1200 Mechanical CAD I ..... 4
- MECH 1216 Drafting Standards ..... 5
- MECH 1229 Materials and Processes ..... 3
- MECH 1235 Statics and Strengths of Materials ..... 4
- MECH 1245 Sheet Metal Concepts and Applications ..... 3
- MECH 2035 Process Design Drafting ..... 3
- MECH 2045 Design Projects ..... 4
- MECH 2055 Geometric Dimensioning and Tolerancing ..... 3
- MECH 2064 Introduction to Inventor ..... 4
- MECH 2074 Solidworks ..... 4
- MECH 2080 Special Projects ..... 3
- MECH 2084 Introduction to ProE/Creo..... 4

### General Education/MnTC Requirements: 4 Credits

Four (4) general education credits of Minnesota Transfer Curriculum (MnTC) are required. Student is required to take:

- ENGL 2105 Business and Technical Writing..... 4

*Also see: Mechanical CAD Drafting & Design AAS, Advanced CAD Drafting certificate, and Mechanical CAD Operator*

### Start Dates

Fall Semester.....August

\*Spring Semester .....January

### Faculty Contact

[Paul Klevann](#)..... 763-576-4188

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](mailto:EnrollmentServices@anokatech.edu)

### Sample Program Sequence\*

Full Time

	Fall Semester	Spring Semester
<b>1st YEAR</b>	MATH 1070 ..... 3	MACH 1090..... 2
	MATH 1080 ..... 2	MECH 1229 ..... 3
	MECH 1200 ..... 4	MECH 2055 ..... 3
	MECH 1216 ..... 5	MECH 2074 ..... 4
	MECH 2064 ..... 4	<b>TOTAL ..... 12</b>
	<b>TOTAL ..... 18</b>	
<b>2nd YEAR</b>	<b>Fall Semester</b>	<b>Spring Semester</b>
	ENGL 2105 ..... 4	MECH 1245 ..... 3
	MECH 1235 ..... 4	MECH 2045 ..... 4
	MECH 2035 ..... 3	MECH 2080 ..... 3
	MECH 2084 ..... 4	MECH 2090 ..... 3
	<b>TOTAL ..... 15</b>	<b>TOTAL ..... 13</b>

\*Students who start in the spring will need more time to complete this program. Limited first semester technical courses are offered in the Spring semester.



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