

## CNC Toolmaking DIPLOMA

### Program Overview

This area produces skilled craftspeople who make precision metal parts that are highly specialized and not mass produced. Machinists produce parts from metal castings, forgings, stampings, or from solid metal stock. They make parts to exact specifications by removing excess metal with the aid of machine tools, numerically controlled machines, computer assisted machinery, and precise measuring and gauging equipment.

### Career Opportunities

As the economy expands, so will the demand for manufactured goods that need machine metal parts. CNC Toolmaking graduates are hired by industries that manufacture automobiles, industrial machinery, military equipment, and other metal products. At many places of employment, graduates can apply training received at the College towards the completion of apprenticeship requirements.

### Program Outcomes

1. Graduates will have the knowledge and skills to make precision-machined parts and tooling.
2. Graduates will have the knowledge and skills to program and operate CNC equipment using CAD and CAM.
3. Graduates will have the knowledge and skills to operate and set-up inspection and gauging equipment.
4. Graduates will have the knowledge and skills to meet national entry-level skills standards.
5. Graduates will have acquired shop communication skills such as blueprint reading, practical geometric dimensioning, and shop CAD/CAM skills.
6. Graduates will have successfully mastered the general education program requirements for work and life skills.
7. Graduates will use SolidWorks, design parts and collaborate with engineers.

### Program Faculty

- Garrett Byrne  
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- Ben Johnson  
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- Scott Nordahl  
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### Estimated Cost for Student Supplies

The estimated cost for student supplies is \$850.

### Program Requirements

Check off when completed

Certain classes must be taken concurrently and certain classes are prerequisites to other classes.

Course	Cr
<input type="checkbox"/> CNCT 1410 Introduction to Manufacturing Processes	4
<input type="checkbox"/> CNCT 1420 Engineering Drawings	4
<input type="checkbox"/> CNCT 1430 Materials Processes 1	4
<input type="checkbox"/> CNCT 1431 Materials Processes 2	4
<input type="checkbox"/> CNCT 1710 Shop Calculations	2
<input type="checkbox"/> CNCT 1720 Geometric Dimensioning	2
<input type="checkbox"/> CNCT 1730 CNC 1	4
<input type="checkbox"/> CNCT 1731 CNC 2	4
<input type="checkbox"/> CNCT 1744 Metrology	4
<input type="checkbox"/> CNCT 2412 Tool Design	4
<input type="checkbox"/> CNCT 2421 Mechanical Systems/EDM	4
<input type="checkbox"/> CNCT 2431 Mold/Plastic Technology	4
<input type="checkbox"/> CNCT 2441 CNC Applications	4
<input type="checkbox"/> CNCT 2520 CAD	4
<input type="checkbox"/> CNCT 2530 CNC Lathe	4
<input type="checkbox"/> CNCT 2540 Computer Aided Manufacturing	4
<b>Subtotal</b>	<b>60</b>

### General Education/MnTC Requirements

Refer to the Minnesota Transfer Curriculum Course List for each Goal Area

- Any college level general education course . . . . .3  
**General Education Requirements . . . . .3**

**Total Program Credits . . . . .63**

*Information is subject to change.  
This Program Requirements Guide is not a contract.*

### Program Start Dates

Fall, Spring

### Course Sequence

The following sequence is recommended for a full-time student; however, this sequence is not required.

#### First Semester

CNCT 1410 Introduction to Manufacturing Processes	4
CNCT 1420 Engineering Drawings	4
CNCT 1430 Materials Processes 1	4
CNCT 1431 Materials Processes 2	4
CNCT 2520 CAD	4
<b>Total Semester Credits</b>	<b>20</b>

#### Second Semester

CNCT 1710 Shop Calculations	2
CNCT 1720 Geometric Dimensioning	2
CNCT 1730 CNC 1	4
CNCT 1731 CNC 2	4
CNCT 1744 Metrology	4
CNCT 2540 Computer Aided Manufacturing	4
<b>Total Semester Credits</b>	<b>20</b>

#### Summer Term

**General Education Requirement (any)** . . . . .3

May be taken any semester, but Summer Term is recommended.

**Total Credits** . . . . .3

#### Third Semester

CNCT 2412 Tool Design	4
CNCT 2421 Mechanical Systems/EDM	4
CNCT 2431 Mold/Plastic Technology	4
CNCT 2441 CNC Applications	4
CNCT 2530 CNC Lathe	4
<b>Total Semester Credits</b>	<b>20</b>

**Total Program Credits . . . . .63**

### Minimum Program Entry Requirements

Students entering this program must meet the following minimum program entry requirements:

**Reading:** Score of 240+ or grade of "C" or better in READ 0721 or READ 0724 or EAPP 0860

**Writing:** Score of 225+

**Arithmetic:** Score of 237+

#### Assessment Results and Prerequisites:

Students admitted into Saint Paul College programs may need to complete additional courses based on assessment results and course prerequisite requirements. Certain MATH, READ, and ENGL courses have additional prerequisites.

249D