Program Requirements Guide 2019 - 2020

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.

Transfer Opportunities
Saint Paul College has a transfer articulation agreement between the following program and post-secondary institution for the baccalaureate degree program listed below.

For more information please go to saintpaul.edu/Transfer.

CNC Toolmaking Diploma
BS Operations Management
Minnesota State University, Moorhead

Program Faculty
Garrett Byrne  garrett.byrne@saintpaul.edu
Ben Johnson  ben.johnson@saintpaul.edu
Scott Nordahl  scott.nordahl@saintpaul.edu

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
☐ 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 1710 Shop Calculations 2
☐ CNCT 1720 Geometric Dimensioning 2
☐ CNCT 1730 CNC 1 4
☐ CNCT 1731 CNC 2 4
☐ CNCT 1744 Metrology 4
☐ CNCT 2412 Tool Design 4
☐ CNCT 2421 Mechanical Systems/EDM 4
☐ CNCT 2431 Mold/Plastic Technology 4
☐ CNCT 2441 CNC Applications 4
☐ CNCT 2520 CAD 4
☐ CNCT 2530 CNC Lathe 4
☐ CNCT 2540 Computer Aided Manufacturing 4

Subtotal 60

General Education/MnTC Requirements  Cr
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

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
Total Semester Credits 20

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
Total Semester Credits 20

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
Total Semester Credits 20

Total Program Credits 63

Minimum Program Entry Requirements
Students entering this program must meet the following minimum program entry requirements:

Reading: Score of 60+ or grade of “C” or better in READ 0721

Writing: Score of 38+

Arithmetic: Score of 31+

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.

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