

# MACHINING LEVEL 1-CNC TURNING, SC

|                    |                                |           |
|--------------------|--------------------------------|-----------|
| MTT 292            | Computer-Aided Manufacturing I | 4         |
| <b>Total Units</b> |                                | <b>14</b> |

## Program Description

The Skills Certificate, Machining Level 1 - CNC Turning: Operations and Programming, will introduce students to computer numerical control (CNC) lathe operations, program formats, and machine setups. G and M codes, control functions, the letter address system, and math issues related to CNC lathes are included. Students will program, set-up and produce a variety of CNC lathe projects. This skills certificate will prepare students to take four credentialing exams: 1) Materials, Measurement, and Safety, 2) Job Planning, Benchwork, and Layout, 3) CNC Turning-Operations, and 4) CNC Turning Programming, Setup, and Operations through the National Institute for Metalworking (NIMS) machining level 1, an 11-part series of tests for entry-level positions. Students must pass all coursework with a score of 70% or higher.

This program is not eligible for financial aid. However, it may be eligible for scholarship funding if the student is awarded scholarships.

Machining Career Map (<https://sites.tmcc.edu/flipbook/career-maps/>)

## Recommended Course Schedule

| 1st semester          |                                | Units     |
|-----------------------|--------------------------------|-----------|
| MTT 101               | Introduction to Machine Shop   | 3         |
| or                    | or Machine Projects            |           |
| MTT 261               |                                |           |
| MTT 105               | Machine Shop I                 | 3         |
| MTT 230               | Computer Numerical Control I   | 4         |
| MTT 292               | Computer-Aided Manufacturing I | 4         |
| <b>Semester Total</b> |                                | <b>14</b> |
| <b>Total Units</b>    |                                | <b>14</b> |

## Program Requirements

Skills Certificates can consist of a single course or a short set of courses that provide training for entry-level positions or career advancement. These short-term certificates may also prepare students to take state, national and/or industry-recognized certifications or licensing exams.

Skills certificates are awarded upon completion of coursework and marked on a student's transcripts at the end of the semester. Students cannot declare a skills certificate as one's major. Skills Certificates are not eligible for Financial Aid.

To earn a skills certificate, students must:

1. Maintain a minimum cumulative GPA of 2.0.
2. Have no financial or library obligation to the college.

| Code                            | Title                        | Units |
|---------------------------------|------------------------------|-------|
| <b>Certificate Requirements</b> |                              |       |
| MTT 101                         | Introduction to Machine Shop | 3     |
| or MTT 261                      | Machine Projects             |       |
| MTT 105                         | Machine Shop I               | 3     |
| MTT 230                         | Computer Numerical Control I | 4     |

## Program Outcomes

Students completing the certificate will:

- PSLO1: Write ISO standard G-Code programs for CNC turning operations.
- PSLO2: Set-up, operate, and produce a finished product using CNC lathe equipment.
- PSLO3: Employ appropriate workplace skills, including the application of personal and mechanical safety measures for CNC lathe equipment.