

MANUFACTURING TECHNOLOGIES, CERTIFICATE OF ACHIEVEMENT

Computer Numeric Controlled (CNC) Machining

The Certificate of Achievement, Computer Numeric Controlled Machining provides students with the skills and knowledge required for an entry-level position as a computer numerical control (CNC) machine tool operator. This certificate stresses the skill sets required to set up, program, and operate CNC mills and lathes in order to produce high quality, precision machined components required by today's competitive and diverse manufacturing industries. The certificate incorporates the general education skills that are strongly requested by commercial and industrial employers. The TMCC CNC machining certificate of achievement curriculum aligns with the standards set forth by the National Institute for Metalworking Skills (NIMS) and prepares students to earn a variety of NIMS credentials.

Outcomes

Students completing the certificate will:

- Read and interpret technical prints for the production and inspection of manufactured work pieces.
- Produce precision machined work pieces within print specifications on computer numerical controlled (CNC) machine tools.

Gainful Employment

While all of the educational programs at Truckee Meadows Community College are designed to lead to either employment or transfer, the Department of Education requires that we provide information on specific certificate programs. More information on Gainful Employment (<http://www.tmcc.edu/financial-aid/consumer-information/gainful-employment>) is available on the TMCC website. We hope this information is helpful to you as you make your career and educational choices.

Certificates of Achievement are a set of courses that can serve as a stepping stone to an associate degree or allow students to enter the workforce. Certificates of Achievement have a general education component.

To earn a Certificate of Achievement, students must:

1. Maintain a minimum cumulative GPA of 2.0 (see requirements for graduation.)
2. Complete a minimum of 15 semester credit hours within the college.
3. Satisfy General Education requirements for the AAS (<http://catalog.tmcc.edu/degrees-certificates/general-education/aas>).
4. Have no financial or library obligation to the college.

| Code | Title | Units |
|---------------------------------------|----------------------------|-------|
| General Education Requirements | | |
| <i>Communications</i> | | 3 |
| Recommended: | | |
| ENG 107 | Technical Communications I | |

Human Relations [3]

Requirement is satisfied through embedded curriculum in the following courses: MPT 140, MTT 230, MTT 232, OSH 222.

Mathematics [3]

Requirement is satisfied through embedded curriculum in the following courses: DFT 110, MPT 140, MTT 230, MTT 232.

Certificate Requirements

| | | |
|---------|--------------------------------|---|
| DFT 110 | Print Reading for Industry | 3 |
| MPT 140 | Quality Control | 3 |
| MTT 230 | Computer Numerical Control I | 4 |
| MTT 232 | Computer Numerical Control II | 4 |
| MTT 292 | Computer-Aided Manufacturing I | 4 |
| OSH 222 | General Industry Safety | 1 |

Elective Requirements

Select at least 8 units from the following: 8

| | | |
|--|---------------------------------|--|
| CE 290 | Work Experience | |
| MTT 101 | Introduction to Machine Shop | |
| MTT 140 | Inspection Techniques | |
| MTT 145 | Lean Manufacturing Systems | |
| MTT 150 | Metallurgy I | |
| MTT 234 | Computer Numerical Control III | |
| MTT 291 | CNC Practice | |
| MTT 293 | Computer-Aided Manufacturing II | |
| Any other MTT course not listed above or WELD course | | |

Total Units 30

1st semester

| | Units | |
|-----------------------|--------------------------------|----|
| Elective ² | 3 | |
| DFT 110 | Print Reading for Industry | 3 |
| MTT 230 | Computer Numerical Control I | 4 |
| MTT 292 | Computer-Aided Manufacturing I | 4 |
| OSH 222 | General Industry Safety | 1 |
| Semester Total | | 15 |

2nd semester

| | | |
|-----------------------------|-------------------------------|----|
| Communications ¹ | 3 | |
| Elective ² | 5 | |
| MPT 140 | Quality Control | 3 |
| MTT 232 | Computer Numerical Control II | 4 |
| Semester Total | | 15 |
| Total Units | | 30 |

¹ See approved General Education list for the AAS Degree. (<http://catalog.tmcc.edu/degrees-certificates/general-education/aas>)

² See program recommendations or requirements.