

# COMPUTER NUMERIC CONTROLLED (CNC) MACHINING, COA

## Program Code: Comp Numeric Ctrl Mchining-CoA

### Program Description

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.

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

### Recommended Course Schedule

1st semester		Units
Elective <sup>2</sup>		3
MTT 120	Technical Print Reading	3
MTT 230	Computer Numerical Control I	4
MTT 292	Computer-Aided Manufacturing I	4
OSH 222	General Industry Safety	1
<b>Semester Total</b>		<b>15</b>
2nd semester		
Communications <sup>1</sup>		3
Elective <sup>2</sup>		5
MPT 140	Quality Control	3
MTT 232	Computer Numerical Control II	4
<b>Semester Total</b>		<b>15</b>
<b>Total Units</b>		<b>30</b>

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

<sup>2</sup> See program recommendations or requirements.

### Program Requirements

Certificates of Achievement can be 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 Certificate of Achievement (<https://catalog.tmcc.edu/degrees-certificates/general-education/aas/>).
4. Have no financial or library obligation to the college.

Code	Title	Units
<b>General Education Requirements</b>		
<i>Communications</i>		3
Recommended:		
ENG 107	Technical Communications I	
<i>Human Relations</i>		[3]
Requirement is satisfied through embedded curriculum in the following courses: MPT 140, MTT 230, MTT 232, OSH 222.		
<i>Mathematics</i>		[3]
Requirement is satisfied through embedded curriculum in the following courses: MTT 120, MPT 140, MTT 230, MTT 232.		
<b>Certificate Requirements</b>		
MTT 120	Technical Print Reading	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
<b>Elective Requirements</b>		
Select at least 8 units from the following:		8
CE 290	Work Experience	
MTT 101	Introduction to Machine Shop	
MTT 140	Inspection Techniques	
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		
<b>Total Units</b>		<b>30</b>

### Program Outcomes

Students completing the certificate will:

PSLO1: Read and interpret technical prints for the production and inspection of manufactured work pieces.

PSLO2: Produce precision machined work pieces within print specifications on computer numerical controlled (CNC) machine tools.