

# MACHINE TOOLS OPERATION, CERTIFICATE OF PROFICIENCY



This program provides a certificate of proficiency to students who wish to acquire skills in manual machine tools operations and programming of computer controlled machine tools for entry-level employment in the metal working industry.

**Program contact:** Learn more

**This certificate will be automatically awarded when the certificate requirements are completed. If you do not want to receive the certificate, please notify the Office of the Registrar at RegistrarOffice@tri-c.edu.**

Learn more about how certificate credits apply to the related degree.

## Program Admission Requirements

- High School Diploma/GED
- Complete ENG-1010 College Composition I or ENG-101H Honors College Composition I
- MATH-0965 Intermediate Algebra with grade of "C" or higher; or qualified Math placement.
- Complete MET-1100 Technology Orientation

## Program Learning Outcomes

This program is designed to prepare students to demonstrate the following learning outcomes:

1. Communicate effectively and efficiently with diverse individuals and teams, all levels of employees, customers, and suppliers by means of verbal, written (memos, reports, emails, etc.), graphics, symbols, and effective listening skills and using appropriate technology.
2. Complete tasks and projects on schedule through the effective use of time management, appropriate math skills, and teamwork that fosters inclusion, synergized efforts in problem identification, and troubleshooting for successful resolution of problems towards the achievement of set goals and objectives.
3. Apply quality systems, principles, and concepts, and utilize appropriate math, measurement and statistical tools and technology to improve processes and product quality, and to enhance productivity.
4. Incorporate safety awareness, principles and practices in every aspect of work and as a way of life, including machine safety, environmental safety, chemical safety, and personal/employee protection.
5. Apply the knowledge of material science, machining tolerances, the use of basic blueprint/schematics, hands on skills and machine operation for the manufacturing of parts.

6. Apply the knowledge of materials science, quality control concepts, blueprints/schematics reading and interpretation, and skills in machine tools operation and basic machine maintenance to accomplish the manufacture of engineering parts.

## Suggested Semester Sequence

First Semester		Credit Hours
MATH-1530	College Algebra	4
MET-1100	Technology Orientation	2
MET-1120	Computer Applications and Programming	2
MET-1230	Drawing & AutoCAD <sup>1</sup>	3
MET-1240	Machine Tools and Manufacturing Processes	3
<b>Credit Hours</b>		<b>14</b>
Second Semester		Credit Hours
MET-1300	Engineering Materials and Metallurgy	3
MET-1410	Computer Aided Manufacturing Processes	3
MET-2422	Fundamentals of Engineering Economics	3
MET-xxxx	Elective	1-3
MET-XXXX	Elective	3
Select one of the following:		3
ENG-1010	College Composition I	
ENG-101H	Honors College Composition I	
<b>Credit Hours</b>		<b>16-18</b>
<b>Total Credit Hours</b>		<b>30-32</b>

<sup>1</sup> MET-1200 & MET-1220 together will be accepted in place of MET-1230 Drawing & AutoCAD.

MATH-1140, MATH-1141, MATH-1200, MATH-1270, and MATH-1280 can no longer count towards fulfilling the college-level mathematics requirement. These courses were re-classified as developmental mathematics by the state of Ohio in 2016. Tri-C established a 5-year transitioning window for students who had completed these courses prior to 2016 to apply them towards meeting graduation requirements, which expired in Summer 2021. It is highly recommended to see a counselor to determine the appropriate math required for your current major.