

# COMPUTER-INTEGRATED MANUFACTURING (CIM), CERTIFICATE OF PROFICIENCY



This program is for students who wish to acquire skills in the 2D/3D modeling of engineering designs and graphics based programming and production of engineering parts, and operation of computer integrated manufacturing systems. Graduates of this program qualify for entry-level employment in traditional and computer integrated modern manufacturing industries.

**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 problem towards the achievement of set goals and objectives.
3. Apply quality systems, principles, and concepts and utilize appropriate math, measurement, data collection, 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 knowledge of math, machine principles, tools and materials to operate and monitor CNC machines, modify CNC code that ensures quality outcomes.
6. Interpret geometrical dimensioning and tolerancing (GD&T) concepts: symbols, instructions used in establishing form, locations, and orientation tolerances of part features to ensure that quality engineering parts are machined and assembled to achieve desired functionality.
7. Apply operational principles, software, concepts, tools equipment, and machines of Computer Integrated Manufacturing Systems (CIMS), including: programming CIMS to implement production scheduling, materials movement, parts production and quality control; and setting up and operating machine and interface equipment in a computer-integrated environment to produce quality parts at low and competitive costs.

## 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	3
MET-1240	Machine Tools and Manufacturing Processes	3
<b>Credit Hours</b>		<b>14</b>
Second Semester		
MET-2140	Manufacturing Automation and Control	3
MET-1410	Computer Aided Manufacturing Processes	3
MET-XXXX	Elective	3
MET-2422	Fundamentals of Engineering Economics	3
MET-xxxx	Elective	1-3
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>

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.