

## *CNC Machinist Certificate*

(Manufacturing Technology – Associate Degree path)

This certificate program prepares students with the foundational skills needed for setup, operation, and programming of CNC (computer numerical control) machines. Advanced manufacturing methods are taught by employing state-of-the-art technology, including 2-axis programming, CNC probing, high speed machining, and plunge and wire EDM (electrical discharge machining).

This certificate program is designed to prepare students for success in careers in advanced manufacturing across many industries, including automotive die/mold, medical, aerospace, defense, renewable energy, “green” technologies, and consumer products. This program is a good fit for those who enjoy working with their hands and computers, with an emphasis on the shop floor. Graduates of this certificate program are well-rounded in shop floor machining principles, CNC operation, and two dimensional G&M code programming.

A certificate will be awarded to students who successfully complete the following courses:

### Career Preparation and Related Courses

|           |   | SUGGESTED SEQUENCE | CREDIT HOURS | CONTACT HOURS |
|-----------|---|--------------------|--------------|---------------|
| ATAM 1150 | Shop Arithmetic                                   | ■ □ □ □            | 2            | 32            |
| ATDD 1900 | Machine Tool Blueprint Reading                    | ■ □ □ □            | 2            | 32            |
| ATMT 1150 | Machine Tool Laboratory 1                         | ■ □ □ □            | 3            | 48            |
| ATAP 1050 | CNC Essentials                                    | ■ □ □ □            | 3            | 64            |
| ATAM 1160 | Algebra   | □ ■ □ □            | 2            | 32            |
| ATDD 1950 | Drafting Essentials                               | □ ■ □ □            | 2            | 32            |
| ATAP 1030 | Feeds, Speeds and Advanced Tools                  | □ ■ □ □            | 2            | 32            |
| ATAP 2010 | Drafting—2D CAD with MasterCAM                    | □ ■ □ □            | 2            | 32            |
| ATDD 1960 | Conventions & Symbols                             | □ □ ■ □            | 2            | 32            |
| ATAP 2310 | CNC Mill G&M Programming & CNC Machining          | □ □ ■ □            | 2            | 32            |
| ATAP 2330 | EDM RAM—G&M Programming & Machining               | □ □ ■ □            | 2            | 32            |
| ATMT 1160 | Machine Tool Laboratory 2                         | □ □ ■ □            | 3            | 48            |
| ATDD 1920 | Geometric Dimensioning & Tolerancing Fundamentals | □ □ □ ■            | 2            | 32            |
| ATAP 2320 | CNC Lathe G&M Programming & CNC Machining         | □ □ □ ■            | 2            | 32            |
| ATAP 2340 | EDM WIRE—G&M Programming & Machining              | □ □ □ ■            | 2            | 32            |
| Total     |   |                    | 33           | 544           |

In cases where prior training or education is documented, specific courses may be substituted for one or more of the above courses as conditions warrant. Suggested alternate courses, which may also be used as electives toward an associate degree, are listed below for consideration. Contact the Applied Technology and Apprenticeship department for details.

### Suggested Alternative/Elective Courses:

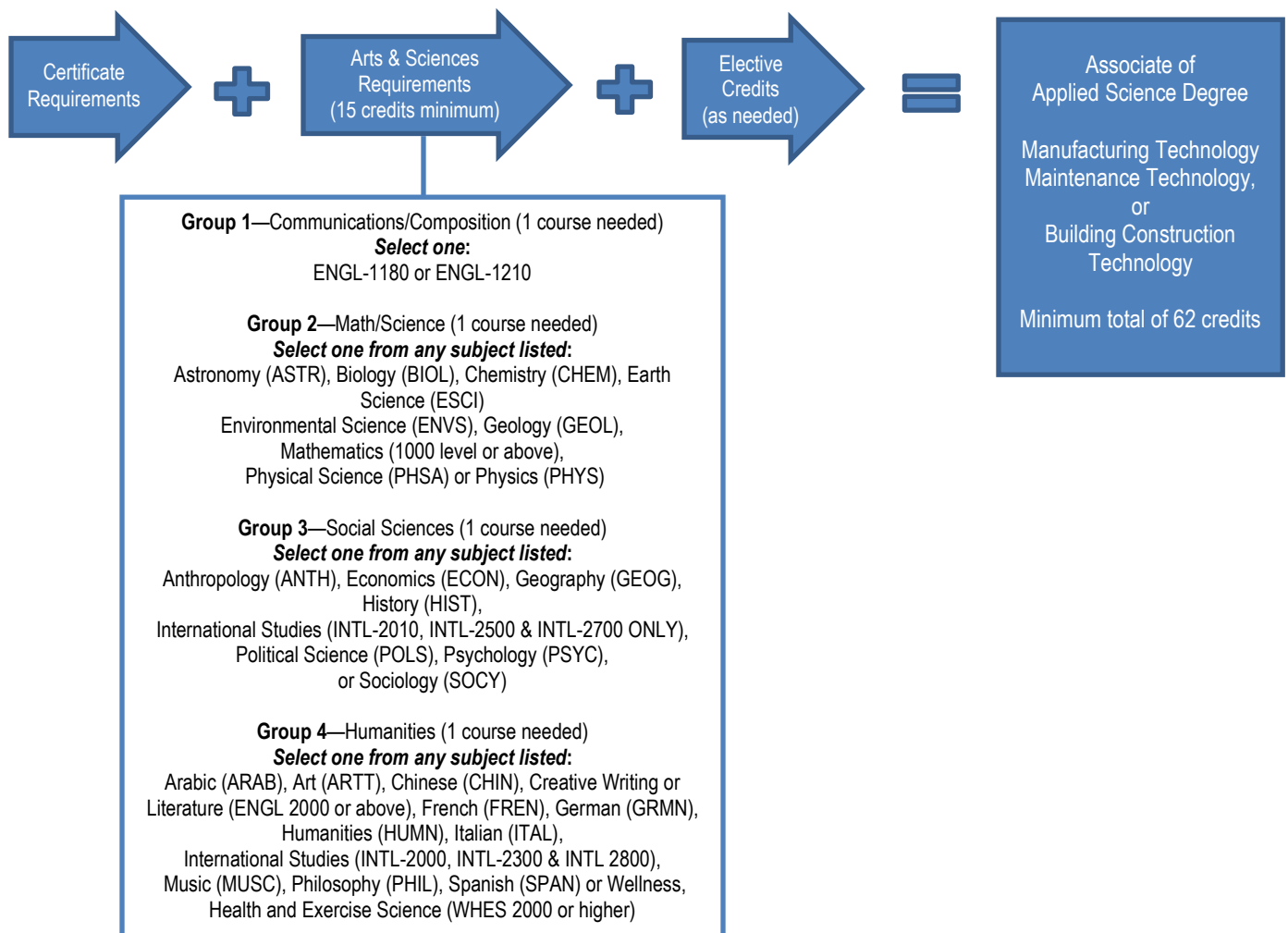
|           |   |           |  |
|-----------|---|-----------|--|
| ATTR 1600 | Industrial Safety—Skilled Trades            | ATMT 1300 | Metallurgy—Characteristics of Ferrous Metals     |
| ATTR 1150 | Technical Report Writing                    | ATMT 1310 | Metallurgy—Characteristics of Non-Ferrous Metals |
| ATAM 1170 | Geometry                                    | ITML 1000 | Microcomputer Literacy                           |
| ATAM 2150 | Trigonometry                                | ATWD 1110 | Fundamentals of Gas & Arc Welding                |
| ATAP 2030 | 2D MasterCAM—Mill Programming & Machining   | ATWD 1140 | Gas Metal Arc Welding (MIG)                      |
| ATAP 2915 | Adv. CNC Mill – G&M Programming & Machining | ATQT 1030 | Applied Statistical Process Control              |
| ATQT 1000 | Quality Inspection Fundamentals             | ATQT 1050 | Quality Standards and Core Tools                 |
| ATQT 1010 | Quality Inspection – Advanced Techniques    | ATQT 2911 | Coordinate Measuring Machine Introduction        |

## SEE SECOND PAGE/REVERSE SIDE FOR ASSOCIATE DEGREE REQUIREMENTS

## Associate of Applied Science Degree Requirements (Minimum 62 credit hours)

An Associate of Applied Science Degree is offered for those enrolled in or completing an Apprenticeship, Employee-In-Training, or General Certificate Program. Other College requirements apply, including the completion of the arts and sciences (general education) requirements, as well as attaining a minimum overall total of 62 credit hours. See Apprentice Coordinator or Advisor for details.

Students may graduate with an Associate of Applied Science Degree in Manufacturing Technology, Maintenance Technology or Building Construction Technology, depending on the Apprenticeship, Employee-In-Training or General Certificate Program area of specialty.



\*\*Information is subject to change. Please visit [www.macomb.edu](http://www.macomb.edu) for the most current information.\*\*

For more information on the CNC Machinist Certificate Program at Macomb, contact the Applied Technology and Apprenticeship Department at 586.445.7438 or [apprenticeship@macomb.edu](mailto:apprenticeship@macomb.edu).

Gainful Employment Disclosure: For information about program cost, on-time completion rates, typical student debt, and other important information, visit: Computer Numerical Control (CNC) Machinist, Certificate:  
<http://www.macomb.edu/ge/STCNCMACCT/>