Macomb Community College
Education • Enrichment • Economic Development
Discover. Connect. Advance.℠

Applied Technology & Apprenticeship

Tool and Die Certificate

(Manufacturing Technology – Associate Degree path)

This certificate program is designed to equip students with the foundational skills and knowledge necessary to enter the tool and die field. Through a blend of classroom lecture and hands-on experience, students will learn metalworking processes, how to use a variety of welding and cutting tools, and the function and operation of fundamental machines, including CNC machines. Foundational areas, including applied mathematics, blueprint reading, and drafting, will also be covered.

This program is designed to prepare students for success in the tool and die profession. As manufacturing and related industries continue to expand and evolve, qualified tool and die makers will be in demand to set up, operate, and disassemble conventional, manual, and CNC machine tools. This program is a good fit for individuals who enjoy being active and working with their hands, with an emphasis on mechanical reasoning and problem solving. Those who graduate with this certificate will have a foundational knowledge of a variety of mechanically-controlled and computer-controlled machine tools used to produce precision metal parts and tools.

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 1000	Mathematics for the Trades I	■ ☐ ☐ ☐	4	64
ATDD 1900	Machine Tool Blueprint Reading	■ ☐ ☐ ☐	2	32
ATTR 1600	Industrial Safety—Skilled Trades	■ ☐ ☐ ☐	2	32
ATQT 1000	Quality Inspection Fundamentals	■ ☐ ☐ ☐	2	32
ATAM 2000	Mathematics for the Trades II	☐ ■ ☐ ☐	4	64
ATDD 1000	Drafting and Design for the Trades I	☐ ■ ☐ ☐	4	64
ATMT 1150	Machine Tool Laboratory 1	☐ ■ ☐ ☐	3	48
ATMT 1260	Die Theory 1	☐ ■ ☐ ☐	2	32
ATMT 1300	Metallurgy—Characteristics of Ferrous Metals	☐ ☐ ■ ☐	2	32
ATMT 1270	Die Theory 2	☐ ☐ ■ ☐	2	32
ATAP 1050	CNC Essentials	☐ ☐ ■ ☐	3	64
ATMT 1160	Machine Tool Laboratory 2	☐ ☐ ■ ☐	3	48
ATDD 2000	Drafting and Desigin for the Trades II	☐ ☐ ■ ☐	2	32
ATDD 1920	Geometric Dimensioning & Tolerancing Fundamentals	☐ ☐ ☐ ■	2	32
ATDD 2100	3-Dimensional Shape Interpretation for the Trades	☐ ☐ ☐ ■	2	32
ATWD 1110	Fundamentals of Gas & Arc Welding	☐ ☐ ☐ ■	2	32
ATMT 1310	Metallurgy—Characteristics of Non-Ferrous Metals	☐ ☐ ☐ ■	2	32
ATMT 2350	Metallurgy—Heat Treatment of Ferrous Alloys	☐ ☐ ☐ ■	2	32
		Total	45	736

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 with consent of the apprentice coordinator. Suggested alternate courses, which may also be used as electives toward an associate degree, are listed below for consideration.

Suggested Alternative/Elective Courses:

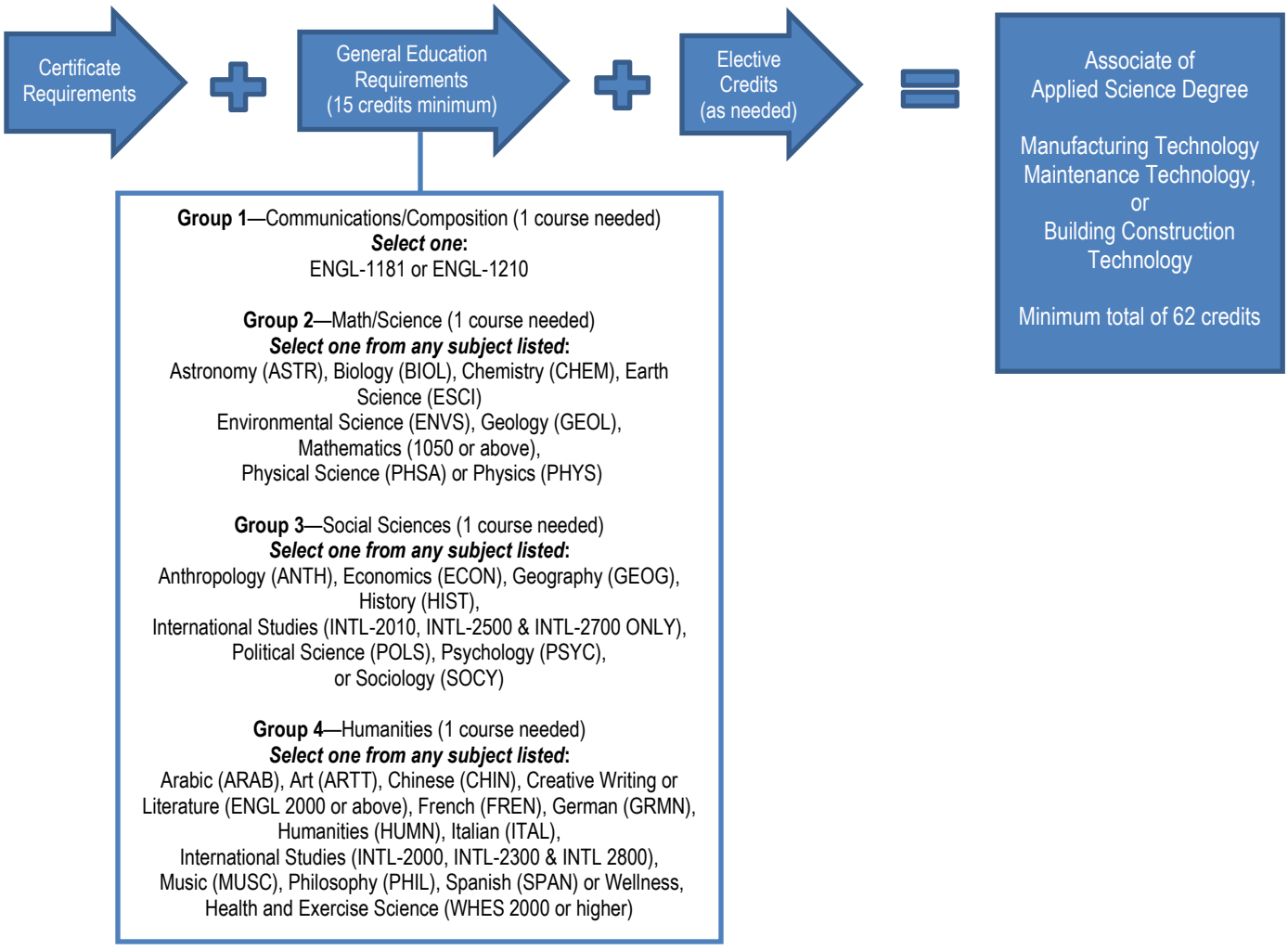
ATAP 2010	Drafting—2D CAD with MasterCAM	ATAP 2030	2D MasterCAM—Mill Programing & Machining
ATAP 2350	3D MasterCAM—Die/Mold CNC Machining	ATAP 2340	EDM WIRE—G&M Programming & Machining
ATAP 2330	EDM RAM—G&M Programming & Machining	ATAP 2310	CNC Mill G&M Programming & CNC Machining
ATQT 1010	Quality Inspection—Advanced Techniques	ATAP 2320	CNC Lathe G&M Programming & CNC Machining

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 Applied Technology General Certificate Program. Other College requirements apply, including the completion of the 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 Applied Technology General Certificate Program area of specialty.



Information is subject to change. Please visit www.macomb.edu for the most current information.

For more information on the Tool and Die Certificate Program at Macomb, contact the Applied Technology and Apprenticeship Department at 586.445.7414 or apprenticeship@macomb.edu .