CAM Technologist Certificate
(Manufacturing Technology – Associate Degree path)

This certificate program prepares students with the skills needed for 3D CAD/CAM (computer aided design/computer aided manufacturing) programming, setup, and operation of CNC (computer numerical control) machines and related technologies. Advanced manufacturing methods are taught by employing state-of-the-art technology, including two and three-axis programming, CNC probing, high speed machining, and plunge and wire EDM (electrical discharge machining), rapid prototyping and reverse engineering, with emphasis on 3D CAD/CAM.

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 three dimensional CAD/CAM programming.

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

Career Preparation and Related Courses

Course	Title	SUGGESTED SEQUENCE				CREDIT HOURS	CONTACT HOURS
ATAM 1000	Mathematics for the Trades	■	☐	☐	☐	4	64
ATAP 2010	Drafting—2D CAD with MasterCAM	■	☐	☐	☐	2	32
ATAP 2030	2D MasterCAM—Mill Programming & Machining	■	☐	☐	☐	2	32
ATAP 1050	CNC Essentials	■	☐	☐	☐	3	64
ATQT 1000	Quality Inspection Fundamentals	■	☐	☐	☐	2	32
ATAM 2000	Mathematics for the Trades II	☐	■	☐	☐	4	64
ATAP 2310	CNC Mill G&M Programming & CNC Machining	☐	■	☐	☐	2	32
ATAP 2350	3D MasterCAM—Die/Mold CNC Machining	☐	■	☐	☐	2	32
ATAP 2020	Art-To-Part—Digital Art to 3D CNC Machining	☐	■	☐	☐	2	32
ATAP 2320	CNC Lathe G&M Programming & CNC Machining	☐	☐	■	☐	2	32
ATAP 2330	EDM RAM—G&M Programming & Machining	☐	☐	■	☐	2	32
ATAP 2360	3D Cimatron CAD/CAM—Die/Mold Machining	☐	☐	■	☐	2	32
ATQT 1060	Coordinate Measuring Machine (CMM) Introduction	☐	☐	■	☐	3	48
ATAP 2370	3D Computer Aided Mold/Electrode Design	☐	☐	☐	■	2	32
ATAP 2340	EDM WIRE—G&M Programming & Machining	☐	☐	☐	■	2	32
ATAP 2380	Rapid Prototyping & Reverse Engineering	☐	☐	☐	■	2	32
ATAP 2390	Advanced CNC Mill G&M Programming & Machining	☐	☐	☐	■	3	64
					Total	41	688

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:

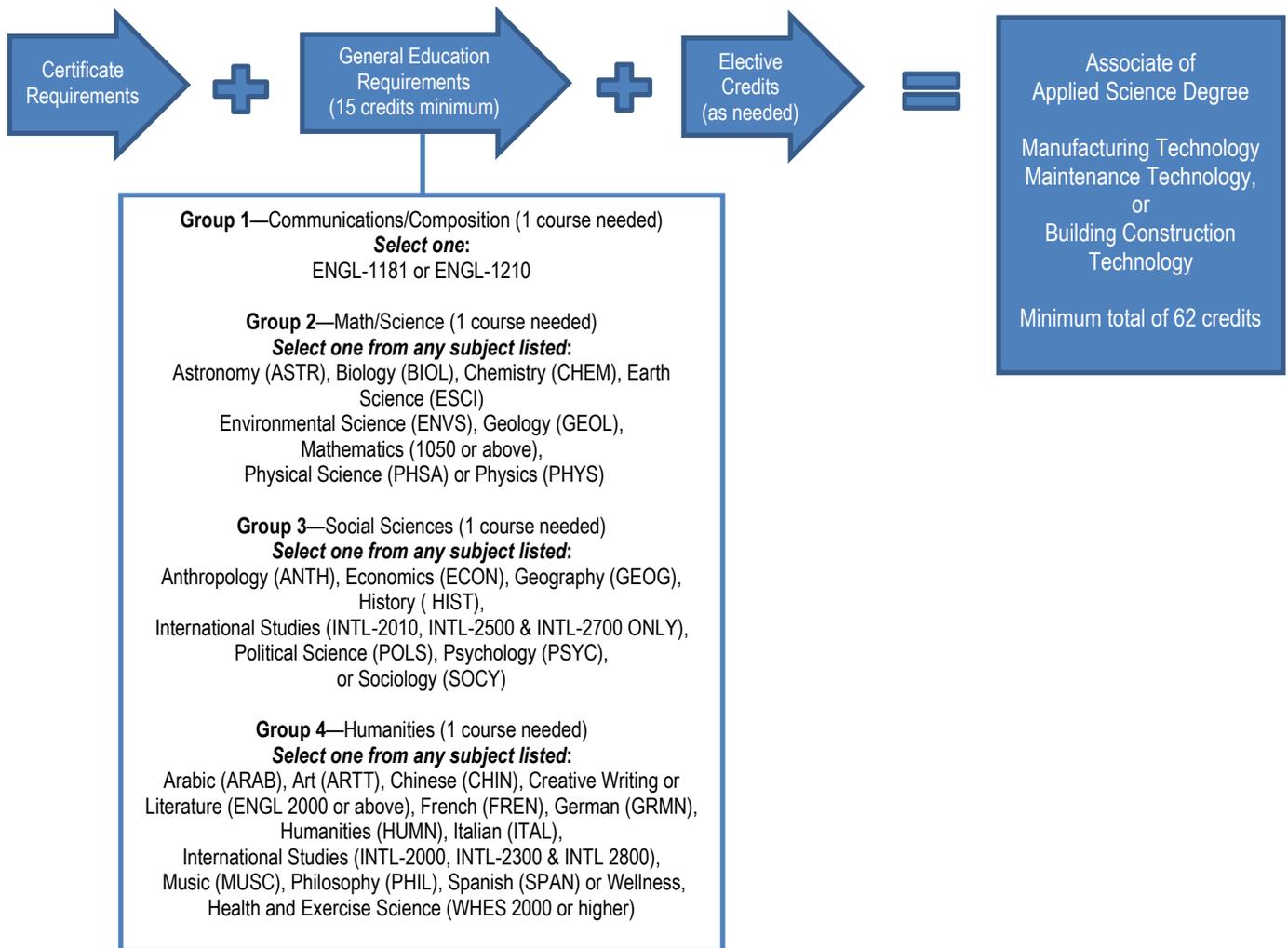|			
ATTR 1600	Industrial Safety—Skilled Trades	ATMT 1300	Metallurgy—Characteristics of Ferrous Metals
ATTR 1150	Technical Report Writing	ATMT 1310	Metallurgy—Characteristics of Non-Ferrous Metals
ATWD 1110	Fundamentals of Gas & Arc Welding	ATQT 1010	Quality Inspection – Advanced Techniques

<u>SEE SECOND PAGE/REVERSE SIDE FOR ASSOCIATE DEGREE REQUIREMENTS</u>

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.

Certificate Requirements **+** General Education Requirements (15 credits minimum) **+** Elective Credits (as needed) **=** Associate of Applied Science Degree

Manufacturing Technology Maintenance Technology, or Building Construction Technology

Minimum total of 62 credits

Group 1—Communications/Composition (1 course needed)
***Select one*:**
ENGL-1181 or ENGL-1210

Group 2—Math/Science (1 course needed)
***Select one from any subject listed*:**
Astronomy (ASTR), Biology (BIOL), Chemistry (CHEM), Earth Science (ESCI)
Environmental Science (ENVS), Geology (GEOL),
Mathematics (1050 or above),
Physical Science (PHSA) or Physics (PHYS)

Group 3—Social Sciences (1 course needed)
***Select one from any subject listed*:**
Anthropology (ANTH), Economics (ECON), Geography (GEOG), History (HIST),
International Studies (INTL-2010, INTL-2500 & INTL-2700 ONLY),
Political Science (POLS), Psychology (PSYC),
or Sociology (SOCY)

Group 4—Humanities (1 course needed)
***Select one from any subject listed*:**
Arabic (ARAB), Art (ARTT), Chinese (CHIN), Creative Writing or Literature (ENGL 2000 or above), French (FREN), German (GRMN),
Humanities (HUMN), Italian (ITAL),
International Studies (INTL-2000, INTL-2300 & INTL 2800),
Music (MUSC), Philosophy (PHIL), Spanish (SPAN) or Wellness,
Health and Exercise Science (WHES 2000 or higher)

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

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