MANUFACTURING

Credentials

Advanced Manufacturing skills certificate .....18 cr.
Advanced Manufacturing certificate.....31 cr.
Advanced Manufacturing AAS degree..... 61–67 cr.

Major Description

Today's manufacturing professionals not only need to know the fundamentals of production, they must be able to think critically, solve problems and have a thorough understanding of the technology they can use to manufacture products efficiently and with the highest quality. Our program will expose you to manufacturing processes, materials, methods of production and quality systems and tools.

- Our associate degree will give you the know-how to program CNC machines, work as a production manager or quality technician, or further your education.
- Our instructors have years of experience in the field of manufacturing and know how to teach from the employer's perspective.
- Protective shop clothing and eye protection supplies are required to be purchased.

Job Titles & Median Salaries or Hourly Rates

- Production Manager: $57,096 (Michigan)
- Quality Assurance Specialist: $33,030 (national)
- CNC Programmer: $49,036 (Michigan)

Advanced Manufacturing AAS Degree

The advanced manufacturing program is designed to provide learners with growth and development in a variety of manufacturing processes, to expose them to materials and methods of production and make them aware of quality systems and tools. While this program offers an entry level certification for individuals pursuing a career in manufacturing, it has been designed to enable individuals the opportunity to continually expand and upgrade their applied skills as well as to maintain a thorough mastery of evolving manufacturing technologies.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

MFG 101	Geometric Dimensioning and Tolerance, with Inspection	3
MFG 102	Basic Machining Processes	3
ENGR 100	Introduction to Engineering and Technology	3
CAD 103	Engineering Graphics	3
ENG 100*	Communication Skills	3

Total Credits 15

First Year—Winter Semester

MFG 103	Basic Computer Numerical Control (CNC)	3
MFG 106	Basic Mastercam	3
QM 107	Quality Planning and Team Building	3
MFG 105	Manufacturing Processes	4

Total Credits 13

First Year—Spring Session

Elective	*Select from the list below*	3
Science	General Education Science course	3–5

Total Credits 6–8

Second Year—Fall Semester

MFG 203	Advanced Computer Numerical Control (CNC)	3
MFG 206	Advanced Mastercam	3
MET 102	Introduction to Materials Science	3
ENG 106*	Business English	3
Social Science	General Education Social Science course	3–4

Total Credits 15–16

Second Year—Winter Semester

MFG 211	3D Computer Numerical Control (CNC) Machining	3
MET 114	Engineering Materials	3
Mathematics	General Education Mathematics course	3–5
Humanities	General Education Humanities course	3–4

Total Credits 12–15

PROGRAM TOTAL 61–67 CREDITS

** Other courses meeting the college requirements may be substituted.*

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

Electives

WELD 110	Introduction to Welding—Fabrication Basics	3
WELD 115	Gas Metallic Arc Welding (G.M.A.W./M.I.G.)	3
WELD 119	Gas Tungsten Inert Arc Welding (G.T.A.W./T.I.G.)	3

Advanced Manufacturing Certificate

The advanced manufacturing certificate addresses basic competency in skills needed for employment in today's highly technical manufacturing environments. The certificate is designed to train those new to manufacturing, but also serves to update the skills of seasoned manufacturing workers with the most current technology and techniques. These classes all apply to the advanced manufacturing associate degree.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

MFG 101	Geometric Dimensioning and Tolerance, with Inspection	3
MFG 102	Basic Machining Processes	3
CAD 103	Engineering Graphics	3
ENGR 100	Introduction to Engineering and Technology	3

Total Credits 12

First Year—Winter Semester

MFG 103	Basic Computer Numerical Control (CNC)	3
MFG 106	Basic Mastercam	3
QM 107	Quality Planning and Team Building	3
MFG 105	Manufacturing Processes	4

Total Credits 13

First Year—Spring Session

MFG 203	Advanced Computer Numerical Control (CNC)	3
MFG 206	Advanced Mastercam	3

Total Credits 6

PROGRAM TOTAL 31 CREDITS

Advanced Manufacturing Skills Certificate

The advanced manufacturing skills certificate introduces learners to advanced skills and techniques in manufacturing. It provides the basic skills needed for employment in today's highly technical manufacturing environments. These classes all apply to the advanced manufacturing associate degree.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

MFG 101	Geometric Dimensioning and Tolerance, with Inspection	3
MFG 102	Basic Machining Processes	3
ENGR 100	Introduction to Engineering and Technology	3

Total Credits 9

First Year—Winter Semester

MFG 103	Basic Computer Numerical Control (CNC)	3
MFG 106	Basic Mastercam	3
QM 107	Quality Planning and Team Building	3

Total Credits 9

PROGRAM TOTAL 18 CREDITS