

# ADVANCED MANUFACTURING, ASSOCIATE IN SCIENCE

The Advanced Manufacturing Department offers the opportunity for students to excel by providing the latest information and technology in both the lecture and laboratory settings. The Advanced Manufacturing program has included the most modern software and hardware to provide a good environment for learning. The inclusion of additive manufacturing, laser technology, 3-5 axis CNC milling, CNC Turning, CMM inspection, CAD/CAM fundamentals, and continued use of general manufacturing processes gives the students access to industrial tools and technologies found in industry. A comprehensive set of undergraduate courses are offered for students interested in working toward the completion of a COA in CNC Machine Operation, COA in CNC Machinist, as well as the A.S. in Advanced Manufacturing, transfer classes for university credit and general interest courses for the returning student looking for skill improvement and employment in local industry.

The Advanced Manufacturing program has two stackable certificates and a degree (this proposal) to provide students with multiple career pathway opportunities. Students can earn the CNC Machine Operator COA in one semester. Students can complete the next stackable certificate, the CNC Machinist COA, in one additional semester following completion of the CNC Machine Operator.

Course ID	Title	Units/Hours
<b>Required Courses (28 units)</b>		
DRFT V02A/WEL V02	Blueprint Reading: Manufacturing	3
DRFT V50	Flexible Manufacturing Applications: Computer Assisted Drafting CAD/Computer Assisted Machining CAM	3
MT/DRFT V04	Measurements and Computations	3
MT V05	CNC Machining I	2
MT V06	CNC Machining II	2
MT V07	CNC Machining III	2
MT V08	Computer Numerical Control (CNC) Programming	3
MT V10	Quality Control and Mechanical Inspection	2
MT V15	Manufacturing Processes	3
MT V18	Manufacturing Projects and Applications	2
MT V35	Production Machining and Tooling Design Techniques	3

**Total Units 28**

Year 1		Units/Hours
Fall Semester		
DRFT V02A/WEL V02	Blueprint Reading: Manufacturing	3
MT V05	CNC Machining I	2
MT V08	Computer Numerical Control (CNC) Programming	3
MT V10	Quality Control and Mechanical Inspection	2
ENGL V01A	English Composition (GE Area D1/writing competency course)	4
<b>Units/Hours</b>		<b>14</b>

Spring Semester		Units/Hours
DRFT V50	Flexible Manufacturing Applications: Computer Assisted Drafting CAD/Computer Assisted Machining CAM	3
MT V35	Production Machining and Tooling Design Techniques	3
HIST V56	United States History since 1877 (or other GE Area B1 course)	3
KIN V10	Aerobic and Strength Training (or other GE Area E2 course)	1
MATH V03	Intermediate Algebra (or other GE Area D2/math competency course)	5
<b>Units/Hours</b>		<b>15</b>
Summer Semester		Units/Hours
BUS V30	Introduction to Business (or other GE Area B2 course)	3
<b>Units/Hours</b>		<b>3</b>
Year 2		Units/Hours
Fall Semester		Units/Hours
MT/DRFT V04	Measurements and Computations	3
MT V06	CNC Machining II	2
MT V15	Manufacturing Processes	3
AST V01	Elementary Astronomy (or other GE Area A2 course)	3
HED V01	Health and Wellness (or other GE Area E1 course)	3
<b>Units/Hours</b>		<b>14</b>
Spring Semester		Units/Hours
MT V07	CNC Machining III	2
MT V18	Manufacturing Projects and Applications	2
ANTH V01	Biological Anthropology (or other GE Area A1 course)	3
ART V51A	Beginning Ceramics I (or other GE Area C1 course)	3
SPAN V01	Elementary Spanish I (or other GE Area C2 course)	5
<b>Units/Hours</b>		<b>15</b>
<b>Total Units/Hours</b>		<b>61</b>

Upon successful completion of this program, students will be able to:

- Apply safe work practices in a manufacturing environment.
- Analyze engineering documentation and apply the information to the manufacturing process.
- Perform CNC machine setup, operation, and part inspection per industry (National Institute for Metalworking Skills (NIMS)) standards.