

# CAD/CAM TECHNOLOGY (MACHINING OPTION)

Associate in Applied Science (AAS) Degree

Minimum Credits: 61.5

Contact Hours: 84.0

**INTRODUCTION:** This associate degree program familiarizes the student with machine tools and manufacturing processes, develops skills in the operation of computer-aided drafting software, and provides hands-on experience setting up, programming, and operating Computer Numerical Control (CNC) machines and advanced inspection equipment. Computer-aided manufacturing (CAM) and statistical process control (SPC) are skills integrated within the curriculum to prepare the student for employment as CNC programmers, machinists, toolmakers, and quality assurance technicians, or move on to complete a four-year degree in Manufacturing Engineering. The Associate in Applied Science (AAS) degree in CAD/CAM Technology (Machining Option) requires completing the certificate programs and the following courses marked with an \*\*.

## GENERAL EDUCATION COURSES

| COURSE  | TITLE  | CREDITS    | CONTACT HOURS |
|---|--|------------|---------------|
| ENG 111 or ENG 120                              | English Composition I or Applied Communications            | 3.0        | 3.0           |
| ENG 112 or ENG 123                              | English Composition II or Technical Communication          | 3.0        | 3.0           |
| PLS 221 or PLS 222                              | American Government & Politics or State & Local Government | 3.0        | 3.0           |
| PHY 111   | Applied Physics **   | <u>3.0</u> | <u>4.0</u>    |
| <b>GENERAL EDUCATION CREDITS/CONTACT HOURS:</b> |  | 12.0       | 13.0          |

## CORE PROGRAM COURSES

(MEET WITH ACADEMIC ADVISOR TO DETERMINE CORE PROGRAM COURSES FOR CONCENTRATION AND TRANSFER)

| COURSE                                     | TITLE   | CREDITS    | CONTACT HOURS  |
|--|---|------------|----------------|
| CAD 150                                    | 3D Modeling <sup>A</sup>                        | 3.0        | 4.0            |
| CAD 220                                    | Machine Design <sup>A</sup>                     | 3.5        | 5.0            |
| MET 200                                    | Material Science <sup>A</sup>                   | 3.0        | 4.0            |
| MFG 101                                    | Machining Processes I <sup>A</sup>              | 4.0        | 6.0            |
| MFG 102                                    | Machining Processes II <sup>A</sup>             | 6.0        | 10.0           |
| MFG 120                                    | Print Interpretation & Processes <sup>A</sup>   | 3.0        | 4.0            |
| MFG 201                                    | Introduction to CNC <sup>A</sup>                | 6.0        | 10.0           |
| MFG 202                                    | Advanced CNC <sup>A</sup>                       | 6.0        | 10.0           |
| MFG 204                                    | Computer-Aided Manufacturing (CAM) <sup>A</sup> | 3.0        | 4.0            |
| MFG 220                                    | Jigs and Fixture Design <sup>A</sup>            | 3.0        | 4.0            |
| MTH 110 or MTH 113                         | Technical Math I or Intermediate Algebra *      | 3.0-4.0    | 4.0            |
| MTH 112 or MTH 122                         | Technical Math II or Plane Trigonometry *       | <u>3.0</u> | <u>3.0-4.0</u> |
| <b>CORE PROGRAM CREDITS/CONTACT HOURS:</b> |   | 46.5-47.5  | 68.0-69.0      |

## SUGGESTED ELECTIVES

(MEET WITH ACADEMIC ADVISOR TO DETERMINE ELECTIVES FOR CONCENTRATION AND TRANSFER)

|          |     |     |
|----------|-----|-----|
| Elective | 3.0 | 3.0 |
|----------|-----|-----|

**TOTAL MINIMUM PROGRAM CREDITS/CONTACT HOURS:** 61.5 84.0

## SUGGESTED SEQUENCING OF COURSES:

| YEAR 1 (FALL SEMESTER) <b>16.0-17.0</b> CREDITS           |            | CREDITS    | CONTACT HRS  | YEAR 1 (SPRING SEMESTER) <b>15.0</b> CREDITS |            | CREDITS | CONTACT HRS |
|---|------------|------------|--|--|------------|---------|-------------|
| MFG 101 Machining Processes I                             | 4.0        | 6.0        | MFG 102 Machining Processes II                           | 6.0  | 10.0       |         |             |
| MFG 120 Print Interpretation & Processes                  | 3.0        | 4.0        | MTH 112 or MTH 122 Tech Math II or<br>Plane Trigonometry | 3.0  | 3.0-4.0    |         |             |
| MTH 110 or MTH 113 Tech Math I or<br>Intermediate Algebra | 3.0-4.0    | 4.0        | ENG123 or ENG112 Tech Comm or<br>English Comp II         | 3.0  | 3.0        |         |             |
| ENG120 or ENG111 Appl Comm or<br>English Comp I           | 3.0        | 3.0        | CAD 150 3D Modeling                                      | <u>3.0</u>                                   | <u>4.0</u> |         |             |
| MET 200 Material Science                                  | <u>3.0</u> | <u>4.0</u> | TOTAL  | 15.0   | 20.0-21.0  |         |             |
| TOTAL   | 16.0-17.0  | 21.0       |  |  |            |         |             |
| YEAR 2 (FALL SEMESTER) <b>15.5</b> CREDITS                |            | CREDITS    | CONTACT HRS  | YEAR 2 (SPRING SEMESTER) <b>15.0</b> CREDITS |            | CREDITS | CONTACT HRS |
| CAD 220 Machine Design                                    | 3.5        | 5.0        | MFG 220 Jigs & Fixture Design                            | 3.0  | 4.0        |         |             |
| MFG 201 Introduction to CNC                               | 6.0        | 10.0       | MFG 202 Advanced CNC                                     | 6.0  | 10.0       |         |             |
| PLS 221 American Government & Politics                    | 3.0        | 3.0        | PHY 111 Applied Physics                                  | 3.0  | 4.0        |         |             |
| MFG 204 Computer-Aided Mfg (CAM)                          | <u>3.0</u> | <u>4.0</u> | Elective   | <u>3.0</u>                                   | <u>3.0</u> |         |             |
| TOTAL   | 15.5       | 22.0       | TOTAL  | 15.0   | 21.0       |         |             |

## NOTES:

<sup>A</sup>Included in occupational specialty – GPA of 2.0 or higher must be maintained in the area of occupational specialty.

\*Students transferring in manufacturing or industrial engineering should take MTH 113/Intermediate Algebra & MTH 122/ Plane Trigonometry.