# Computer Aided Machining (CAM) I Course No. 13204 Credit: 1.0

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| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes:Business Management & Entrepreneurship (52.0799); **Manufacturing (48.0000) - Production Strand**

Course Description: A **technical level** course that introduces students to the basics of computer aided software and machining techniques. This includes 3D modeling, G code generation, and 2D machining.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Introduction to Design

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Create 2-D and 3-D drawings using CAD/CAM software. |  |
| 1.2 | Demonstrate knowledge of Cartesian coordinate system in generating Code |  |
| 1.3 | Generate pictorial drawings. |  |
| 1.4 | Identify and demonstrate the use of CAD/CAM commands. |  |
| 1.5 | Demonstrate the ability to dimension drawings using CAD/CAM software.  |  |
| 1.6 | Demonstrate proficiency in setting limits and scale using CAD/CAM software. |  |
| 1.7 | Use symbols and notes using CAD/CAM software. |  |

## Benchmark 2: CAM Concepts

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Interpret drawings to create G code. |  |
| 2.2 | Create tool paths using CAM software. |  |
| 2.3 | Demonstrate knowledge of machining fundamentals. |  |
| 2.4 | Demonstrate communication with machine tools. |  |
| 2.5 | Investigate careers utilizing CAM. |  |

## Benchmark 3: CAM Processes

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Knowledge of various industry specific software. |  |
| 3.2 | Create multiple tool paths using CAM software. |  |
| 3.3 | Import tooling into CAM software. |  |
| 3.4 | Import models into CAM software. |  |
| 3.5 | Select tooling and create tool paths using CAM software. |  |
| 3.6 | Verify machining process for clearance and machine tool collision using CAM software. |  |
| 3.7 | Demonstrate editing CNC code with CAM. |  |

## Benchmark 4: CAM Practices

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Demonstrate machine facing, drilling, and reaming using CAM. |  |
| 4.2 | Create pocket and contour machine practices using CAM software. |  |
| 4.3 | Merge tooling and geometry within part model and machine object. |  |
| 4.4 | Program multi-axis code. |  |
| 4.5 | Evaluate prototyping techniques and choose the appropriate method for a product.  |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

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