



**COWLEY COLLEGE
& Area Vocational Technical School**

COURSE PROCEDURE FOR

**MASTERCAM ART TOOLPATHS
MTT3559 3 Credit Hours**

Student Level:

This course is open to students on the college level in either the freshman or sophomore year and to area high school vocational students.

Catalog Description:

MTT 3559 - MASTERCAM ART TOOLPATHS (3 hrs)

An advanced class using Mastercam Art and an introduction to the techniques as used in the machining industry of today which includes job planning, and tooling for production.

Prerequisites:

MTT3547 Advanced Computer Aided Manufacturing (CAM) or instructor approval.

Controlling Purpose:

This course is designed to help the student increase their knowledge concerning the use of Mastercam to program complicated parts for machining and to make the most of the machining time.

Learner Outcomes:

Upon completion of the course, the student will be able to create programs using Mastercam Art, which will run efficiently on CNC Mills and Routers.

The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

Units Outcomes and Criterion Based Evaluation Key for Core Content:

The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:

A = All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.

- B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.
- C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.
- D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.
- F = Failing, will be computed in GPA and hours attempted.
- N = No instruction or training in this area.

UNIT 1: Mastercam Art Operations
 Outcomes: Upon completion of this unit, the student will be able to successfully perform operations in Mastercam Art using different photo formats and geometry.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Import an image from Raster to Vector.
						Create a 3D image using the organic process.
						Import an image file.
						Edit Raster to Vector image.

UNIT 2: Create Geometry and Letters

Outcomes: Upon completion of this unit, the student will be able to successfully create geometry and letters utilizing proper art functions to create a 3D image.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Create geometry and letters.
						Create an art surface.
						Select the correct art function for “puffing up” the geometry.
						Edit the art surface size using the art manager.
						Edit the art functions, radius, height, and other dimensions with the art manager.

UNIT 3: Art Toolpaths Roughing

Outcomes: Upon completion of this unit, the student will be able to successfully create an art toolpath using roughing, by selecting the proper tool and feeds and speeds.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Select the proper machine for the toolpath.
						Create a roughing toolpath utilizing the proper tool and step over for the most efficient time.
						Calculate feeds and speeds.
						Set up a boundary for the toolpath.
						Demonstrate verifying roughing toolpath.

UNIT 4: Art Toolpaths Finishing

Outcomes: Upon completion of this unit, the student will be able to successfully create an art toolpath using finishing, by selecting the proper tool and feeds and speeds.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Select the proper machine for the toolpath.
						Create a finishing toolpath utilizing the proper tool and step over for the most efficient time.
						Calculate feeds and speeds.
						Set up a boundary for the toolpath.
						Demonstrate verifying finishing toolpath.

Projects Required:

As assigned by instructor.

Textbook:

Contact Bookstore for current textbook.

Materials/Equipment Required:

None

Attendance Policy:

Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:

The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:

Based on classroom occupancy

Course Timeframe:

The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit

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DISCLAIMER: THIS INFORMATION IS SUBJECT TO CHANGE. FOR THE OFFICIAL COURSE PROCEDURE CONTACT ACADEMIC AFFAIRS.

allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

[402.00 Academic Code of Conduct](#)

[263.00 Student Appeal of Course Grades](#)

[403.00 Student Code of Conduct](#)

Disability Services Program:

Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability, which may impact work in this class which requires accommodations, contact the Disability Services Coordinator.