COWLEY COLLEGE
& Area Vocational Technical School

COURSE PROCEDURE FOR

COMPUTER AIDED MANUFACTURING (CAM)
MTT 3544 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 3544 - COMPUTER AIDED MANUFACTURING (CAM) (3 hrs)
This is a basic introductory course in computer aided manufacturing (CAM). Instruction will cover graphic construction and basic parts program for the CNC Milling Machine.

Prerequisites:
None

Controlling Purpose:
This course is designed to help the student increase their knowledge and skill in the area of milling machine, drill press, bench work, and safety in the machine shop field.

Learner Outcomes:
Upon completion of the course, the student will be able to demonstrate safety of and use of the milling machine, drill press, and perform bench work in the machine shop field.

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 Mill Operations

Outcomes: Upon completion of this unit, the student will be able to successfully draw 2D and 3D in the Mastercam Programming System.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Explain what the function keys do.
						Discuss the accessing of the Mastercam System.
						Explain how to get into Mastercam.
						Demonstrate the accessing of the Mastercam Mill.
						Explain the utilities function and identify the origin.
						Set program zero.
						Demonstrate how to create 2D geometry.
						Explain how to run a mill tool path for a contour.
						Discuss the method of creating a finish pass.
						Demonstrate the drawing of a 3D geometry.

UNIT 2: Mastercam Tool Paths Outcomes: Upon completion of this unit, the student will be able to successfully run the tool paths on 2D or 3D tool paths. The student will have an understanding of how to run the Mastercam post and the purpose of it.						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Demonstrate the tool path for 2D contours.
						Explain the tool path for a ruled and loft area.
						Create a tool path for a fillet using ruled and loft surfs.
						Demonstrate the tool path for 2D swept tool path.
						Demonstrate the tool path for a 3D surface requiring a changing contour.

Projects Required:
The student will complete the tutorial exercise for Mastercam Mill and all the parts required in that manual. The student will save the parts program, tools, and geometry for the tutorial exercises and produce a printed copy of the documentation for the parts program and geometry.

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 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.