



**COWLEY COLLEGE  
& Area Vocational Technical School**

**COURSE PROCEDURE FOR**

**MACHINING IV  
MTT3567 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 3567 - MACHINING IV (3 hrs)**

Students will become familiar with the operation of milling machines, grinders, types of metals, and the heat-treatment of metals. Skill is developed in the use of attachments involved with all the basic machine tools.

**Prerequisites:**

MTT3566 Machining III

**Controlling Purpose:**

This course is designed to help the student increase their knowledge and skill in the area of lathes, horizontal milling machines, and safety in the machine shop field.

**Learner Outcomes:**

After completing this unit the student will be able to demonstrate safety of and use of the lathe, horizontal milling machine, and CNC Mill and Lathe.

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.

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

- 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.

<b>UNIT 1: Safety</b>						
Outcomes: Upon completion of this unit, the student will be able to successfully demonstrate proper housekeeping, and safety inspection.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Inspect work area and equipment for safe working environment.
						Report shop, environmental, and equipment safety violations.
						Correct safety hazards.
						Comply with safety requirements for working around automated systems.
						Dispose of scrap metal chips, shavings, trash, and waste.
						Clean and maintain work area and leave in safe condition.
						Clean and store hand tools, cutters, fixtures, jigs, and attachments.
						Make equipment failure reports.

## UNIT 2: Performing Precision Lathe Work

Outcomes: Upon completion of this unit, the student will be able to successfully use the engine lathe to machine projects.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Calculate and set lathe speeds, feeds, and depth of cut.
						Use and maintain coolant system on lathe.
						Face and turn parts in 3-jaw chuck.
						Machine parts using collet chucks.
						Perform forming operations.
						Center drill and drill parts.
						Cut off parts.
						Thread external diameters.
						Hold dimensions using feed, precision, and indicator stops on lathe.
						Machine parts using carbide tooling.
						Machine parts using quick change tooling system.
						Identify machining problems, determine the cause, and correct. problems.
						Perform basic lathe maintenance.
						Plan sequence of lathe operations.
						Set up engine lathe.
						Set up high speed lathe for secondary operations.

### UNIT 3: Performing Horizontal Milling Operations

Outcomes: Upon completion of this unit the student will be able to successfully indicate the mill vise in less than 7 minutes within an accuracy of .001, indicate the mill head in 15 minutes with an accuracy of .0005, mill a block square, and mill angles.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Calculate and set milling speeds, feeds, and depth of cut
						Align work piece, work holding devices, jigs, and fixtures
						Change arbors and cutters
						Machine parts using conventional and climb milling
						Mill angles
						Perform gear calculations
						Machine gears using dividing head
						Plan sequence of operations
						Set up machine for manual operations
						Inspect, mount, and dress surface grinding wheels
						Calculate and set surface grinding feeds and depth of cut
						Maintain grinding coolant system
						Grind parallel surfaces on surface grinder

**Projects Required:**

As assigned

**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.