

**Common Course Outline**  
**CAMM 112**  
**MACHINE TOOL PROCESSES 2**  
**4 Semester Hours**

**The Community College of Baltimore County**

**Description**

**Machine Tool Process 2**

Provides instruction and practice in the theory and operation of engine lathes, vertical milling machines, surface grinders, selected other machine tools, as well as the function and use of precision measuring devices; discusses intermediate processes and procedures of metal machining.

Prerequisite: CAMM 111

**Overall Course Objectives**

Upon completion of this course the student will be able to:

1. Set-up and operate engine lathes, vertical milling machines, and surface grinders
2. Create and use their own edge tools for engine lathes
3. Construct simple and complex set-ups for projects
4. Choose the process that is the most efficient and will achieve the required finishes
5. Calculate feeds and speeds for various work materials and cutting tools
6. Select proper machine for job
7. Create precision machined parts to specifications
8. Demonstrate accurate use of precision measuring devices
9. Evaluate finished lab projects as per specifications and list deficiencies

**Major Topics**

- I. Precision Measuring Tools
  - A. Using the machinist scale
  - B. Using the micrometer
  - C. Using the vernier caliper
  - D. Using the vernier height gage
  
- II. The Engine Lathe
  - A. Safety
  - B. Setting up the 4 jaw chuck
  - C. Advanced cutting tools
  - D. Speeds and feeds
  - E. Work support

- F. Tool holding devices
- III. The Vertical Mill
- A. Safety
  - B. Head alignment
  - C. Work holding
  - D. Work alignment
  - E. Speeds and feeds
  - F. Cutting tools
  - G. The rotary table
  - H. The dividing head
- IV. The Surface Grinder
- A. Safety
  - B. Wheel selection
  - C. Dressing and truing
  - D. Squaring the work piece
  - E. Precision grinding

### **Course Requirements**

Grading: The faculty member will determine grading procedures, and a student can expect a minimum of eight grades from at least four of the following categories:

1. Quizzes
2. Lab projects
3. Written paper
4. Homework assignments
5. Midterm exam
6. Class participation
7. Comprehensive final.

### **Other Course Information**

This course is taught in a laboratory environment.

Date Revised: 6/1/00