

COURSE OUTLINE

**Machine Technology 108  
Machine Practice II**

**I. Catalog Statement**

Machine Technology 108 provides practice on machine shop equipment. Students work on individual projects which they will retain for their use. Training received in this course develops an ability to visualize and perform various functions necessary in the machine trade.

Total Lecture Units: 1.0

Total Laboratory Units: 3.0

**Total Course Units: 2.0**

Total Lecture Hours: 16.0

Total Laboratory Hours: 48.0

**Total Faculty Contact Hours: 64**

Prerequisite: Machine Technology 107

**II. Course Entry Expectations**

Skills Level Ranges: Reading 5; Writing 5; Listening/ Speaking 5; Math 5.

Prior to enrolling in the course, the student should be able to:

1. perform a series of machining exercises on the lathe, mill, and surface grinding machines;
2. complete an individual project designed by themselves and approved by the instructor;
3. successfully completing interpretation of shop drawings;
4. demonstrate critical thinking skills by attaining satisfactory scores on a written quizzes and examinations.

**III. Course Exit Standards**

Upon successful completion of required coursework the student will be able to:

1. perform a series of exercises on shop equipment including grinding and heat treatment;
2. successfully complete an individual project designed by themselves and approved by the instructor;
3. demonstrate critical thinking skills by attaining satisfactory scores on a written quizzes and examinations.

**IV. Course Content**

**Total Faculty Contact Hours = 64**

- |  |          |
|--|----------|
| A. Shaper  | 16 hours |
| 1. Use of special tools and attachments                          |          |
| 2. Principles, grinding and use of tool bits                     |          |
| 3. Related math as required                                      |          |
| 4. Safety  |          |
| <br>   |          |
| B. Grinding  | 16 hours |
| 1. Principles of grinding  |          |
| 2. Manufacturing process of grinding wheels                      |          |
| 3. Grinding machines   |          |
| 4. The use and maintenance of grinding machines and attachments  |          |
| 5. Principles of proper wheel selection                          |          |
| 6. The effects of coolants in grinding operations                |          |
| 7. Finishes and value to industry                                |          |
| 8. Types of precision tools, instruments and measuring tools     |          |
| 9. Safety  |          |
| <br>   |          |
| C. Heat-treating   | 16 hours |
| 1. Equipment and materials                                       |          |
| 2. Methods of heat-treating                                      |          |
| 3. Methods of hardening, case hardening, annealing and tempering |          |
| 4. Testing: hardness, strain, and stress                         |          |
| 5. Furnace care and safety                                       |          |
| <br>   |          |
| D. Power Saws  | 16 hours |
| 1. The power saw: attachments and equipment                      |          |
| 2. Principles of band saw and cutoff saw operation               |          |
| 3. Blade selection principles                                    |          |
| 4. Cutting speeds and feeds                                      |          |
| 5. Safety procedures   |          |

**V. Methods of Instruction**

The following instructional methodologies may be used in the course:

1. lecture/discussion;
2. demonstrations;
3. films;
4. peer learning.

**VI. Out of Class Assignments**

The following out of class assignments may be used in this course:

1. write an essay describing how you completed your final project;
2. final project;
3. reading homework.

**VII. Methods of Evaluation**

The following methods of evaluation may be used in this course:

1. midterm examinations;
2. individual projects;
3. reading assignments;
4. final examination.

**VIII. Textbooks**

Handouts will be provided to the students.

**IX. Student Learning Outcomes:**

1. Student will know how to read and draw blueprints and specifications applicable to projects.
2. Student will operate all machines with accuracy and know their safety precautions.
3. Student will design their own project and execute it from start to finish.
4. Student will measure with accuracy and cut precisely.