



Western Technical College

31420314 Machining: Introduction to Machining

Course Outcome Summary

Course Information

Description	This course will provide instruction that will prepare the student for subsequent Machining Technologies Program courses.
Career Cluster	Manufacturing
Instructional Level	Technical Diploma Courses
Total Credits	1
Total Hours	36

Textbooks

No textbook required.

Learner Supplies

Safety glasses with side eye protection that meet Z87 OSHA guidelines. **Vendor:** Campus Shop. Required.

Proper footwear - \$35.00-75.00. **Vendor:** To be discussed in class. Required.

Scientific calculator (recommend T1-36x Solar). **Vendor:** Campus Shop. Required.

Three-ring binder. **Vendor:** Campus Shop. Required.

Clipboard. **Vendor:** Campus Shop. Required.

Pens/Pencils. **Vendor:** Campus Shop. Required.

Program Outcomes

1. Apply basic safety practices in the machine shop.
2. Interpret industrial/engineering drawings.
3. Apply precision measuring methods to part inspection.
4. Perform basic machine tool equipment set-up and operation.

Course Competencies

1. Follow regulations concerning personal protective equipment (PPE).

Assessment Strategies

- 1.1. Demonstration
- 1.2. Written assignments, quizzes, and tests.

Criteria

You will know you are successful when

- 1.1. you wear proper clothing and all PPE per industry regulations while in the machine shop.

Learning Objectives

- 1.a. Describe dress code for an industrial setting.
- 1.b. Identify proper personal protective equipment for a given situation/process.
- 1.c. Ascertain personal protective equipment requirements from SDS(MSDS) information.

2. Relate proper emergency response actions.

Assessment Strategies

- 2.1. Written assignments, quizzes, and tests.

Learning Objectives

- 2.a. Describe first aid actions for various common work related injuries.
- 2.b. Describe the dangers and precautions associated with bloodborne pathogens.
- 2.c. Explain emergency evacuation procedures.
- 2.d. Locate first aid information for chemicals.

3. Characterize metals based on properties as they relate to their use.

Assessment Strategies

- 3.1. Written assignments, quizzes, and tests

Learning Objectives

- 3.a. Identify the properties and uses of various types of iron and steel.
- 3.b. Identify the properties and uses of various non-ferrous metals.

4. Relate machining theory principles to machining applications.

Assessment Strategies

- 4.1. Written assignments, quizzes, and tests.
- 4.2. Shop project planning sheets

Learning Objectives

- 4.a. Recognize aspects of cutting tool geometry, its purpose, and its function.
- 4.b. Calculate correct speeds and feeds for various types of machining operations.
- 4.c. Compare the use of high-speed steel and carbide cutting tools in machining applications.
- 4.d. Utilize proper cutting fluid recommendations for various work piece materials and machining operations.

5. Apply machining reference markings to the workpiece.

Assessment Strategies

- 5.1. Written assignments, quizzes, and tests.
- 5.2. Demonstration

Learning Objectives

- 5.a. Describe the proper preparation procedures for laying out a workpiece.
- 5.b. Determine datums(edges) that reference markings must be associated with.
- 5.c. Determine layout tools needed for the situation.
- 5.d. Apply machining reference marks (layout) project work pieces with 75% accuracy, or better.

6. Operate drilling machines.

Assessment Strategies

- 6.1. Written assignments, quizzes, and tests.
- 6.2. Demonstration

Learning Objectives

- 6.a. Recognize potential safety hazards associated with drilling machines and processes.
- 6.b. Use proper tooling for various operations commonly performed on drilling machines.
- 6.c. Use proper cutting fluids for various operations commonly performed on drilling machines.
- 6.d. Demonstrate proper use of workholding devices commonly used on drilling machines.
- 6.e. Demonstrate proper hole location techniques.
- 6.f. Determine proper speeds and feeds for various operations commonly performed on drilling machines.

7. Demonstrate proper housekeeping practices.

Assessment Strategies

- 7.1. Skill demonstration

Learning Objectives

- 7.a. Perform actions that must be taken after completing work at/in any given work station/area.