



Lakeshore Technical College

## 31-420-386 Machine Tool Print Reading 2

### Course Outcome Summary

#### Course Information

<b>Description</b>	...prepares the learner to read prints; make isometric sketches; interpret orthographic projection drawings to include sections, auxiliary views, threads, fasteners, surface finishes, geometric dimensions, tolerancing, and assembly prints. The course when delivered in the evening is self-paced, open-entry/exit, and designed for individualized student needs.
<b>Total Credits</b>	1
<b>Total Hours</b>	36

#### Pre/Corequisites

Corequisite 31-420-385 Machine Tool Print Reading 1

#### Course Competencies

- 1. Interpret manufacturing drawings paying close attention to these details: bosses, pads, castings dimensions, tapers, limit dimensions, steel processing, and steel markings.**

##### Linked Core Abilities

Apply learning  
Communicate effectively  
Demonstrate responsible and professional workplace behaviors

##### Linked Program Outcomes

Interpret industrial/engineering drawings  
Perform basic machine tool equipment set-up and operation

##### Assessment Strategies

- 1.1. Skillbuilder Exercise
- 1.2. Written Assignment

##### Criteria

*Performance will be satisfactory when:*

- 1.1. learner will interpret drawings for bosses, pads, slotted holes, necks and casting requirements.
- 1.2. learner submits the assignment.

##### Learning Objectives

- 1.a. Determine working dimensions of bosses on castings and machined parts.
- 1.b. Determine working dimensions of pads on castings and machined parts.
- 1.c. Determine taper per foot and taper per inch of tapered parts.
- 1.d. Determine large and small diameters of a tapered part.
- 1.e. Use charts to determine steel composition characteristics.

1.f. Determine machining information from enlarged views.

**2. Interpret manufacturing drawings paying close attention to common section views.**

**Linked Core Abilities**

Apply learning  
Communicate effectively  
Demonstrate responsible and professional workplace behaviors

**Linked Program Outcomes**

Interpret industrial/engineering drawings

**Assessment Strategies**

- 2.1. Skillbuilder Exercise
- 2.2. Written Assignment
- 2.3. Written Test

**Criteria**

*Performance will meet expectations when:*

- 2.1. learner will interpret section views in manufacturing drawings.
- 2.2. learner submits the assignment.
- 2.3. learner completes written test.

**Learning Objectives**

- 2.a. Determine cutting plane line location on drawings.
- 2.b. Determine how location of cutting plane line affects section view.
- 2.c. Identify section views on a manufacturing drawing according to their source on principle views.
- 2.d. Draw section views.

**3. Interpret manufacturing prints to extract detailed information about threads and threaded fasteners.**

**Linked Core Abilities**

Apply learning  
Communicate effectively  
Demonstrate responsible and professional workplace behaviors  
Use mathematics effectively

**Linked Program Outcomes**

Interpret industrial/engineering drawings

**Assessment Strategies**

- 3.1. Skillbuilder Exercise
- 3.2. Written Assignment

**Criteria**

*Performance will be satisfactory when:*

- 3.1. learner will interpret information about threads from manufacturing drawings.
- 3.2. learner submits the assignment.

**Learning Objectives**

- 3.a. Recognize different methods of displaying threads on part drawings.
- 3.b. Differentiate types and forms of threads used on mechanical parts.
- 3.c. Recognize and explain the use of non-threaded fasteners.
- 3.d. Recognize and explain the use of special purpose fasteners.
- 3.e. Identify typical threaded fasteners.

**4. Interpret manufacturing prints to extract detailed information about repetitive features, drawing revisions, and rockwell hardness testing.**

**Linked Core Abilities**

Apply learning  
Communicate effectively  
Demonstrate responsible and professional workplace behaviors

Use mathematics effectively

**Linked Program Outcomes**

Interpret industrial/engineering drawings

**Assessment Strategies**

- 4.1. Skillbuilder Exercise
- 4.2. Written Assignment
- 4.3. Written Test

**Criteria**

*Performance will be satisfactory when:*

- 4.1. learner will interpret repetitive details, typical dimensions and rockwell hardness information from part drawings.
- 4.2. learner submits the assignment.
- 4.3. learner completes written test.

**Learning Objectives**

- 4.a. Recognize shop notes on machine drawings.
- 4.b. Explain typical machine terms used on machine drawings.

**5. Interpret manufacturing prints to extract detailed information on metric drawings.**

**Linked Core Abilities**

Apply learning  
Communicate effectively  
Demonstrate critical thinking  
Demonstrate responsible and professional workplace behaviors  
Use mathematics effectively

**Linked Program Outcomes**

Interpret industrial/engineering drawings

**Assessment Strategies**

- 5.1. Skillbuilder Exercise
- 5.2. Written Assignment

**Criteria**

*Performance will be satisfactory when:*

- 5.1. learner will interpret metric part drawings.
- 5.2. learner submits the assignment.

**Learning Objectives**

- 5.a. Identify and apply common symbols used on machine drawings.
- 5.b. Interpret metric thread table.
- 5.c. Convert inch units to metric units.
- 5.d. Convert metric units to inch units.

**6. Interpret Auxiliary views found on manufacturing drawings.**

**Linked Core Abilities**

Apply learning  
Communicate effectively  
Demonstrate critical thinking  
Demonstrate responsible and professional workplace behaviors  
Use mathematics effectively

**Linked Program Outcomes**

Interpret industrial/engineering drawings

**Assessment Strategies**

- 6.1. Skillbuilder Exercise
- 6.2. Written Assignment
- 6.3. Written Test

## Criteria

*Performance will be satisfactory when:*

- 6.1. learner will interpret auxiliary views of part drawings.
- 6.2. learner submits the assignment.
- 6.3. learner completes written test.

## Learning Objectives

- 6.a. Identify inclined planes on part drawings.
- 6.b. Identify oblique planes on part drawings.
- 6.c. Determine bend allowance for bending of plate.

## 7. Interpret manufacturing drawings for Geometric Form Dimension and Tolerances.

### Linked Core Abilities

Apply learning  
Communicate effectively  
Demonstrate critical thinking  
Demonstrate responsible and professional workplace behaviors  
Respect and appreciate diversity  
Use mathematics effectively

### Linked Program Outcomes

Interpret industrial/engineering drawings  
Perform basic machine tool equipment set-up and operation

### Assessment Strategies

- 7.1. Skillbuilder Exercise
- 7.2. Written Assignment

## Criteria

*Performance will meet expectations when:*

- 7.1. learner will interpret drawings for geometric form control tolerances.
- 7.2. learner submits the assignment.

## Learning Objectives

- 7.a. Identify and apply Geometric characteristic symbols used on machine drawings.
- 7.b. Explain condition modifiers and how tolerance is affected by feature size variation.
- 7.c. Identify Datums on machine drawings.
- 7.d. Interpret the use of Basic Dimensions on part drawings.
- 7.e. Identify and use datum reference system on part drawings.
- 7.f. Interpret geometric tolerances of orientation.