



Lakeshore Technical College

31-420-361 Complex Print Drawings - CBE

Course Outcome Summary

Course Information

Alternate Title	Interpret complex part drawings
Description	...prepares the learner to interpret complex part drawings.
Total Credits	1
Total Hours	32

Types of Instruction

Instruction Type	Credits/Hours
Lab	1/32

Pre/Corequisites

Corequisite 31-420-386 GD&T Intro

Textbooks

Blueprint Reading for Machine Trades, **Author:** Schultz/Smith, 7th edition **ISBN:** 0132172208 **Source:** Lakeshore Technical College Bookstore. (required)

Learner Supplies

LTC Math & Print Course Guidelines **Source:** Blackboard Course. (required)

Scientific Calculator fx-115MS Plus -SR. **Manufacturer:** Casio. **Source:** LTC Bookstore (optional)

Core Abilities

1. Apply learning

Criteria

- 1.1. Learner transfers academic knowledge and principles to life and work situations
- 1.2. Learner incorporates prior learning
- 1.3. Learner knows when to ask for help
- 1.4. Learner demonstrates appropriate safety precautions
- 1.5. Learner identifies the need for lifelong learning
- 1.6. Learner develops the ability to research beyond the required work
- 1.7. Learner demonstrates a curiosity for learning about cultures, norms, and practices

2. Communicate effectively

Criteria

- 2.1. Learner comprehends written materials
- 2.2. Learner writes clearly, concisely, and accurately
- 2.3. Learner adjusts communication style in order to meet the needs of others
- 2.4. Learner demonstrates active listening skills
- 2.5. Learner uses culturally appropriate verbal and non-verbal communication methods

3. Use mathematics effectively

Criteria

- 3.1. Learner solves real world problems using mathematics
- 3.2. Learner measures accurately
- 3.3. Learner analyzes graphical information
- 3.4. Learner demonstrates an understanding of world measurements and foreign currency exchange

Program Outcomes

1. Apply basic safety practices in the machine shop

Summative Assessment Strategies

- 1.1. WTCS TSA Scoring Guide

Criteria

- 1.1. Demonstrate safety procedures
- 1.2. Operate machine with all required guards in place
- 1.3. Maintain clean and organized work environment
- 1.4. Wear appropriate clothing and Personal Protective Equipment (PPE)
- 1.5. Demonstrate proper lock-out tag-out procedures

2. Interpret industrial/engineering drawings

Summative Assessment Strategies

- 2.1. WTCS TSA Scoring Guide

Criteria

- 2.1. Interpret orthographic projections
- 2.2. Interpret lines, symbols, conventions and notations
- 2.3. Distinguish between structural shapes
- 2.4. Interpret a Bill of Materials
- 2.5. Determine location of part features according to established specifications
- 2.6. Calculate tolerances according to established specifications
- 2.7. Drawings follow view projection standards
- 2.8. Interpret Geometric Dimensioning and Tolerancing

3. Apply precision measuring methods to part inspection

Summative Assessment Strategies

- 3.1. WTCS TSA Scoring Guide

Criteria

- 3.1. Select correct measuring tool for job requirements
- 3.2. Demonstrate care of precision measuring equipment according to established procedures
- 3.3. Convert English/metric measurements
- 3.4. Use standard industry measurement terminology
- 3.5. Perform precision measurement according to established procedures

Course Competencies

1. Interpret complex part drawings answering questions specifically related to: GD & T, with respect to location, positional, runout and profile tolerances.

Linked Core Abilities

- Apply learning
- Communicate effectively
- Use mathematics effectively

Linked Program Outcomes

Interpret industrial/engineering drawings
Apply precision measuring methods to part inspection

Assessment Strategies

- 1.1. Unit Exercise
- 1.2. Written Test

Criteria

Your performance will be successful when:

- 1.1. learner submits the assignment.
- 1.2. learner can answer questions related to GD&T in complex part drawings.
- 1.3. learner completes the unit test.

Learning Objectives

- 1.a. Recognize various dimensioning systems including; datum and point-to-point.
- 1.b. Explain location, positional, runout and profile tolerances.
- 1.c. Recognize part drawings that use geometric dimensioning and tolerancing systems.
- 1.d. Explain geometric dimensioning and tolerancing symbols.

2. Interpret complex part drawings answering questions specifically related to: splines, spur and worm gears.

Linked Core Abilities

Apply learning
Communicate effectively
Use mathematics effectively

Linked Program Outcomes

Interpret industrial/engineering drawings

Assessment Strategies

- 2.1. Unit Exercise
- 2.2. Written Test

Criteria

Your performance will be successful when:

- 2.1. learner submits the assignment.
- 2.2. learner can answer questions related to worm gearing in complex part drawings.
- 2.3. learner completes the unit test.

Learning Objectives

- 2.a. Explain the methods by which certain features of worms and worm gears are represented.
- 2.b. Explain the parts and terminology related to spline, spur and worm gears.
- 2.c. Use mathematical rules for computing the data required in the construction of the worm and worm gear.

3. Interpret complex part drawings answering questions specifically related to: pin fasteners and springs.

Linked Core Abilities

Apply learning
Communicate effectively
Use mathematics effectively

Linked Program Outcomes

Interpret industrial/engineering drawings

Assessment Strategies

- 3.1. Unit Exercise
- 3.2. Written Test

Criteria

Your performance will be successful when:

- 3.1. learner submits the assignment.
- 3.2. learner can answer questions related to springs and pin fasteners in complex part drawings.
- 3.3. learner completes the unit test.

Learning Objectives

- 3.a. Recognize various types of pin fasteners including; taper, dowel, straight grooved, and cotter pin.
- 3.b. Interpret charts to determine size and type, and corresponding hole diameter.
- 3.c. Recognize various spring types and applications.

4. Interpret complex part drawings answering questions specifically related to: welding symbols.

Linked Core Abilities

Apply learning
Communicate effectively
Use mathematics effectively

Linked Program Outcomes

Interpret industrial/engineering drawings

Assessment Strategies

- 4.1. Unit Exercise
- 4.2. Written Test

Criteria

Your performance will be successful when:

- 4.1. learner submits the assignment.
- 4.2. learner can answer questions related to welding symbols in complex part drawings.
- 4.3. learner completes the unit test.

Learning Objectives

- 4.a. Identify common welding joints located on welding drawings.
- 4.b. Identify common types of welds used in the fabrication of parts.
- 4.c. Explain the Weld and Welding symbols as identified by the American Welding Society.