

## Lakeshore Technical College

31-420-361 Complex Print Drawings - CBE

# Course Outcome Summary

### Course Information

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| --- | --- | --- |
|  | 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

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| --- | --- |
| Corequisite | 31-420-386 GD&T Intro |

Textbooks

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

Learner Supplies

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| LTC Math & Print Course Guidelines  **Source:** Blackboard Course. (required) |
| Scientific Calculator fx-115MS Plus -SR. **Manufacturer:** Casio. **Source:** LTC Bookstore (optional) |

### Core Abilities

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| --- | --- | --- |
| 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. | Interpret industrial/engineering drawings | |
|  | Summative Assessment Strategies | |
|  | 1.1. | in a performance demonstration |
|  | Criteria | |
|  | 1.1. | Interpret orthographic projections |
|  | 1.2. | Interpret lines, symbols, conventions and notations |
|  | 1.3. | Distinguish between structural shapes |
|  | 1.4. | Interpret a Bill of Materials |
|  | 1.5. | Determine location of part features according to established specifications |
|  | 1.6. | Calculate tolerances according to established specifications |
|  | 1.7. | Drawings follow view projection standards Interpret Geometric Dimensioning and Tolerancing |
| 2. | Apply precision measuring methods to part inspection | |
|  | Summative Assessment Strategies | |
|  | 2.1. | in a performance demonstration |
|  | Criteria | |
|  | 2.1. | Select correct measuring tool for job requirements |
|  | 2.2. | Demonstrate care of precision measuring equipment according to established procedures |
|  | 2.3. | Convert English/metric measurements |
|  | 2.4. | Use standard industry measurement terminology |
|  | 2.5. | Perform precision measurement according to established procedures |

### Course Competencies

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| --- | --- | --- |
| 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. |