**Department:**

Engineering Graphics & Technologies

**Course Description:**

This course teaches the basic concepts of drafting communication. Subjects include line types, orthographic projections, sectioning, language, auxiliary views, pictorial drawings, and scale.

**Course Competencies:**

Upon completion of the course, the student should be able to:

1. Demonstrate the ability to use fundamental drafting skills:
   - a. Identify and properly use drawing media and related drafting materials
   - b. Use basic measurement systems, such as fractions, decimals, and metric measurements
   - c. Add correct annotation to drawing
   - d. Identify and use line styles and weights
   - e. Prepare title blocks and other drafting formats
   - f. Apply drawing standards, such as ANSI and CAD
   - g. Identify and use appropriate standard symbols
   - h. Create freehand technical sketches
2. Demonstrate the ability to use orthographic projection:
   - a. Identify, create, and place appropriate orthographic views
   - b. Identify, create, and place appropriate auxiliary views
   - c. Identify, create, and place appropriate section views
3. Demonstrate the ability to apply dimensioning principles:
   - a. Apply dimensioning rules correctly
   - b. Use correct dimension line terminators
   - c. Apply dimensioning to objects, such as spheres, cylinders, tapers, pyramids
   - d. Apply dimensioning to complex shapes, such as spheres, cylinders, tapers, pyramids
   - e. Use various dimensioning styles, such as Cartesian, polar, ordinate, datum
   - f. Place tolerance dimensioning and geometric dimensioning and tolerancing (GD&T) on drawings when appropriate
4. Demonstrate the ability to use mathematical concepts associated with technical drawing:
   - a. Add, subtract, multiply, and divide common fractions and mixed numbers
   - b. Perform combined operations of common fractions and mixed numbers
   - c. Add, subtract, multiply, and divide decimal fractions
   - d. Perform operations using powers and exponents
   - e. Use a calculator to determine roots
   - f. Use a mathematical table
   - g. Express word statements as algebraic expressions
   - h. Solve problems with signed numbers
i. Perform algebraic operations of addition, subtraction, and multiplication
j. Perform algebraic operations of division, powers, and roots
k. Express word problems as equations
l. Solve equations
m. Write and solve problems using ratios and proportions

Course Content:

A. Fundamental Drafting Skills
B. Orthographic Projections
C. Dimensioning
D. Math Skills Associated with Technical Drawing

Learning Assessments:

Competencies will be assessed by assignments, case problems, quizzes, chapter tests, hands-on projects, lab assignments, midterm test, and final test. The tests may be in the objective format or in a problem solving format.

Instructional Materials:

ISBN: 0-07-826611-4
ISBN: 1-56637-871-0

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

On-Campus Students: At enrollment, any on campus student may complete a form that will allow them to self-identify any disability.
Off-Campus Regional Students: Self-identify your disability and accommodation needs with the Regional Coordinator and/or instructor, preferably prior to the first class meeting.

Online Students: Self-identify your disability and accommodation needs by contacting the Disabilities Coordinator. Students must provide their own programs to allow accessibility on their home computer.

Any student may also identify their disability by completing an online form located on the HCC homepage under Students Services/Resources/Disabilities. Questions should be directed to the Disabilities Coordinator.