



Instructor: **Douglas Mann**

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**COURSE TITLE:** Drafting 141, **DESCRIPTIVE GEOMETRY**

**COURSE DESCRIPTION:** Prerequisite: Drafting 101 or departmental approval. This course is designed to develop problem solving skills in the area of spatial relationships. A graphical analysis of points, lines, planes and angles, intersections, revolutions and developments is undertaken. CAD technology is used exclusively to complete all lab assignments.

**LENGTH:** One semester, 96 hours instruction, 3 credit hours

**TEXTBOOK:** Engineering Graphics with AutoCAD by James Bethune

**ATTENDANCE POLICY:** Regular attendance and participation are necessary for successful completion of the course. Students may miss up to one week of class time (2 class periods) without penalty. After one week of absences **each absence in the class will reduce your final grade by 5%**.

**DERIVATION OF GRADE:** The final grade is computed from averages of drawings, tests, quizzes, and/or special assignments, adjusted if appropriate due to excessive absence.

All assigned work is to be considered required. Extra credit assignments may be available during the semester.

Quizzes must be taken when originally administered. A make-up quiz will be offered during the final week of the course and may be used to replace a low or missing quiz score.

**LATE POLICY:** Each individual problem sheet that is assigned in class will be due one week later at the end of your lab session. For example, if an assignment is given on a Wednesday, September 14th, the assignment will be due on Wednesday, September 21st at the end of the class period. A **10% late penalty** will be deducted from the total value of the assignment for **EACH SCHOOL DAY** that the assignment is overdue. After five days, hence 50% reduction in grade, the value for the second five days will be constant at 50% of assignment value. After ten days beyond due date the value of any assignment is zero.

**INSTRUCTOR SYLLABUS RIGHTS STATEMENT:** Information contained in this syllabus was to the best knowledge of the instructor considered correct and complete when distributed for use at the beginning of the semester. However, this syllabus should not be considered a contract with Kellogg Community College and any student, nor between the instructor and any student. The instructor reserves the right, acting within the policies and procedures of Kellogg Community College, to make changes in the course content or instructional techniques without notice or obligation.

**ACADEMIC INTEGRITY:** All courses offered by the Computer-Aided Drafting and Design Department will be conducted with the highest standards of academic honesty. Each student is expected to support these standards by neither giving nor accepting assistance on quizzes, tests or exams, and by submitting only his or her own work for credit. The Kellogg Community College policy on Academic Integrity is spelled out in the student handbook. If it is suspected that you are cheating, fabricating, facilitating academic dishonesty, or plagiarizing, there may be serious consequences. The incident will be documented and may be reported to the academic chair and/or program director for possible disciplinary actions up to and including course, program, or college expulsion.

**ADA AND SECTION 504 STATEMENT:** Kellogg Community College does not discriminate in the admission or treatment of students on the basis of disability. KCC is committed to compliance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act.

## Topic Outline

- I. Spatial Relationships
  - A. Orthographic theory
  - B. Views of points and lines
- II. Primary Auxiliary Views
  - A. Types of primary auxiliary views
  - B. Analysis of lengths, distances, sizes and areas
- III. Lines
  - A. Types of lines
  - B. True length
  - C. Angle between a line and principal plane
  - D. Bearing, slope and grade of a line
- IV. Planes
  - A. Types of planes
  - B. Points and lines on planes
- V. Successive Auxiliary Views
  - A. Point view of a line
  - B. Distance between a point and line
  - C. Distance between two skew lines
  - D. True size of a plane
  - E. Angle between a line and a plane
  - F. Angle between two planes
- VI. Revolution
  - A. True length of a line by revolution
  - B. Angle between a line and principal plane by revolution
  - C. Views of planes by revolution
  - D. Revolution of line about an oblique axis
  - E. Angle between a line and plane using revolution
- VII. Intersections
  - A. Intersection of a line and plane
  - B. Intersection of two planes
  - C. Plane/solid intersections
  - D. Solid/solid intersections
- VIII. Developments
  - A. Types of developments
  - B. Parallel line development
  - C. Radial line development
  - D. Triangulation and transition pieces