

# SolidWorks : Advanced Modeling & CAM

## Course Outline

**Course:** Drafting 251 ~ Advanced Modeling and CAM

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**Textbook:** None

**Prerequisite:** Drafting 194 or 234

**Description:** A study of advanced modeling techniques, computer-aided manufacturing, and product design. SolidWorks modeling topics including sweeps, lofts, surfaces, parting lines, mold cavities and sheet metal. Models will be used to generate rapid prototyping files and to create tool path files for CNC machining. A standard process for product design and problem solving will be used throughout including problem statements, preliminary ideas, refinement, analysis, decision and implementation.

**Attendance Policy:** Regular attendance and participation are necessary for successful completion of the course. The learner is responsible for all material missed due to absence or tardiness. ***After one week of absences each absence in the class will reduce your final grade by 3.33%.***

**Academic Honesty:** 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. Violations of these academic honesty standards will result in appropriate disciplinary action. Such disciplinary action may include: failing grade in the course, dismissal from the curriculum, or other action.

**Derivation of Grade:** Your grade will be comprised of five components:

1. 65% - Lab work
2. 25% - Homework and 'in-class' assignments
3. 10% - Research Paper

With regard to SolidWorks assignments, you will be required to complete each assignment successfully. If a submitted model/drawing is fully defined, dimensionally compliant, and follows proper technique it will receive 4 points. If it is deficient, it will be returned for revision. Return the marked up drawing after it has been revised with the re-submit date written on the drawing. ***Do not hand in a new print.*** A first revision will receive 3 points, second revision 2 . . . . An extra point may be deducted for drawings that are incomplete when submitted. Drawings of greater complexity will have greater value, you will be notified of this when they are assigned.

Your final grade will be computed by converting each category to a percentage, then applying the weights shown above.

**Disclaimer:** Information contained in this syllabus is, to the best knowledge of the instructor, considered correct and complete. However, this syllabus should not be considered a contract between 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 course content or instructional techniques without notice or obligation.

## **Topic Outline**

- ⊕ Solid Works
  - ✦ Advanced sketching and relations
  - ✦ Defining curves
  - ✦ Lofts and guide paths
  - ✦ Working with surfaces
  - ✦ Introduction to sheet metal layouts
  - ✦ Advanced assemblies
  - ✦ Advanced design tables
  - ✦ Advanced drawing topics
  - ✦ PhotoWorks – materials, scenes, backgrounds and lighting
  - ✦ Introduction to Toolbox
  - ✦ Using eDrawings for web publishing and markups
  - ✦ CNC toolpath files using SolidWorks Models
  - ✦ STL file generation for rapid prototyping
- ⊕ Creativity
- ⊕ The Design Process
  - ✦ Problem statement
  - ✦ Preliminary ideas
  - ✦ Refinement
  - ✦ Analysis
  - ✦ Decision
  - ✦ Implementation