CAD II Course Description

Savannah Christian Prep School

TEXT: Solidworks Essentials

Dassault Systems

COURSE DESCRIPTION: The purpose of the course is to continue 2D and 3D sketching using good design processes. New part design will include all types of gears and springs. To create assemblies, the course will cover advanced and mechanical mates. Students will then be introduced to assembly interference procedures, simulations and motion studies.

Course Objectives:

1. Understand how to create fully defined sketches
2. Understand how to use formulas in sketches
3. Understand how to used all advanced mates
4. Understand how to use mechanical mates including CAM and GEAR
5. Understand how to determine part interferences using Toolbar or Interference Icon
6. Understand the proper procedures for generating multiple teeth gears using good mechanical design processes
7. Understand how to create a simulation using gears
8. Understand how to install springs in assemblies
9. Understand how to perform part stress analysis and make appropriate repairs
10. Understand how to generate a motion analysis

Course Outline:

Week 1-2 - Complete several challenging 2D sketches from Purdue University Mechanical Engineering Course

Week 2-4 – Introduction to Assembly Interferences. Find and fix a machine provided by the instructor with multiple interferences. Generate their own machine with interferences to be fixed by one of the other groups

Week 5-8 – Introduction to gears and springs. Student will create universal gears, screw gear, miter gear and rack gears. Create assemblies using the gears

Week 9-12 – Introduction to stress analysis. Student will set up an analysis and apply appropriate stresses and materials and run the simulation. Where weaknesses are noted, parts will be modified

Week 13-15 Learn how to run proper motion studies and make corrections based on noted faults

Week 16-19 Complete final project using all above skills and present to class