CAD 3 (824) Syllabus

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A. DESCRIPTION:
The focus of this course will be on the development of 3D parametric CAD (Computer Aided Design) skills required for entry into the work world. Topics covered include both mechanical and architectural drawings and design. The students must have already successfully completed CAD2 class. This course will help prepare students for work in an engineering or architectural field, including drafting and machining, as well as prepare students for a college major in engineering or architecture.

B. COURSE OBJECTIVE
   a. Create parametric mechanical drawings with orthographic and isometric views as well as section views in Autodesk Inventor. Demonstrate knowledge of drawing standards relating to dimensioning and annotation practices.
   b. Create 3D parametric part models and assemblies including motion constraints using industry standard 3D modeling software, Autodesk Inventor.
   c. Create 3D parametric architectural models based on drawings using industry standard Autodesk Revit.
   d. Display and detail projects through the creation of an electronic portfolio.

C. ORGANIZATION
This is a lecture-lab class in which CAD skills and topics are explained and demonstrated by the instructor. Subsequently, students develop these skills by completing exercises in a textbook. Students then must demonstrate mastery of these skills by completing the follow-on skills exercises and quizzes. Students are given sufficient time during class to complete all in-class assignments. Students are expected to maintain an organized folder of their work, both on paper and electronic copies. Neatness and organization will be a factor in their class participation grades since this is a skill necessary to all CAD users.

D. COURSE TOPICS
   a. Mechanical Engineering Skills using Autodesk Inventor
      i. Industry standard practices of mechanical drawings
      ii. Base, projected, isometric, and section drawing creation in Inventor
      iii. Assembly of parts in Inventor including mate & flush, tangent, insert, angle, and motion constraints
      iv. Assembly drawings and associated BOMs (Bills of Material)

   b. Architectural Topics in Autodesk Revit
      i. Floor & Ceiling Creation in architectural model
      ii. Advanced stair modeling
      iii. Elevation and section Views
      iv. Interior Designs (furniture, etc)
      v. Schedules

E. GRADING PLAN
   Coursework will be weighted as follows:
   a. Class Work Assignments: 70%
   b. Quizzes & Questions of the Day: 15%
   c. Participation and behavior: 15% (based partially on ClassDojo points)
   d. Midterm & Final Exam: 20% of semester grade

F. ATTENDANCE

See the Student and Parent Handbook for class attendance and tardiness. Remember that being late 3 times to class equals an unexcused absence and more than 6 unexcused absences mean an automatic course failure. Keep in mind that the majority of the grade is based on in-class work since Autodesk software is required.

G. CLASSROOM RULES OF CONDUCT

a. Electronic devices such as cell phones, iPods, and gaming devices must be put away and not actively on during class time. If any such device is being used when not specifically permitted, this device will be confiscated. If it happens repeatedly a parent will be called to pick up the device from the office.
b. Classroom computers may never be used for entertainment, including gaming and non-class-related web surfing. These computers are for CAD and engineering purposes only.
c. No food or drink permitted in the classroom. Only water is allowed if it is in a sports bottle (no screw-off or open tops).
d. Always act and speak in an appropriate way. No bullying or swearing.
e. Use class time for class work only. Remember: Time in class is invaluable. Don't waste it or we'll both have to stay after school to complete your work.