Course Syllabus

Engineering Technology 113: Introduction to Computer-Aided Design

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Instructors

Instructor: Jerimiah Welch
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Office Hours: By appointment

Course Description

This is an introductory course in Computer-Aided Design that will develop a student's understanding of the techniques and mechanics of creating 3D parametric CAD models and engineering. The techniques covered will include sketching, dimensioning and constraining of sketches, feature-based modeling, assembly modeling and generative drafting. Students will be required to use these techniques in projects to model machined and plastic molded components and to generate properly dimensioned and annotated engineering drawings.

Prerequisites

ETec 112 (or concurrently)

Course Goals

After taking this course, a student will be able to:

1. Read and understand engineering drawings.
2. Create easily revisable 3D CAD models of parts and assemblies.
3. Create machined and injection-molded part models using design for manufacturability (DFM) guidelines.
4. Create part models and assemblies using design for assembly (DFA) guidelines.
5. Create engineering drawings that communicate part or assembly goals (design intent).
6. Use Geometric Dimensioning and Tolerancing in engineering drawings.
7. Work in a group context to create a multiple-part product assembly and related drawings.

Lecture/Tutorial Logistics

- Format: During class time, we will be focusing on completing and giving feedback on the higher level, more difficult work: homework, the group project, and the individual project. Outside of class time, basic skill developing lectures will be available via video tutorials, along with book-directed exercises.
- Save all of your work on your personal network drive.

Required e-Texts

Students must purchase a subscription from the bookstore to obtain on-line access to these course e-Texts:

- CATIA Introduction to Modeling, V5R20, ASCENT
- CATIA Generative Drafting (ANSI), V5R20, ASCENT

Go to the desk downstairs in the bookstore and ask for the e-book subscription. They will give you a paper receipt that will allow you to activate the e-book on two machines.

Grading

CAD Book Exercises	20%
Homework Assignments	20%
Group Project	25%
Individual Project	25%
Midterm	10%
Course Grade	100% x lab fee score (see below)

Course Topics and Schedule

See Canvas Course

Tutorials

- Video tutorials will be available for viewing outside of class at www.studycad.com. You can download the tutorials to a flash drive for viewing at home, but please don't save them to your wwu desktop (if everyone did this, our network would clog up quickly).
- When finished, save your work on your network folder. The timestamp on the file is proof that you have completed the exercise on time. Do not resave the file after the due date or it will be considered late!
- Completion of the tutorials and exercises set will be checked-off by the instructor or TAs at the beginning of each class.

Homework Exercises

You will also be given weekly homework assignments that are designed to test your ability to work with limited instructions. Homework assignments will be reviewed at the start of class on the day they are due.

Modeling Projects

You will be required to complete two modeling projects over the course of the term. One will be conducted as part of a team and will include some conceptual design and prototyping in addition to extensive assembly modeling, use of advanced parametric modeling features and generation of engineering drawings. The second project will be done individually. It will require each student to reproduce a mechanical component from a set of engineering drawings provided by the instructor. The team project will focus on a plastic product and the individual project on one made from metal.

Mid-Term Exam

This will require you to use the CAD software during the exam to create models that demonstrate your understanding of the techniques covered and your skill level.

Lab Fee

All students pay a lab fee component in their overall course fee that is used to cover computer replacement and software licensing. A variable lab fee will be charged at the end of the term to cover the cost of materials used to complete a prototype for the team project. This includes the cost of creating plastic components on the department's rapid prototyping machines. Students who have paid their lab fee will have a lab fee score of 1, those who do not will have a lab fee score of 0. Failure to pay the lab fee translates into a failing grade in the course.

Late Work

- Late submissions are allowed during the next class meeting with an automatic 50% deduction.
- Extensions for missed tutorials or homework assignments due to illness require a doctor's letter. Extensions for other emergencies will be considered only if the instructor is promptly notified (as the circumstances permit) by phone or e-mail preferably before class time.
- Extended absences must be discussed with the instructor as soon as the absence is known so that alternate scheduling of work can be planned. These will be granted only for valid reasons.

Academic Dishonesty

Students should refer to the academic dishonesty policy in the University Course Catalogue (http://catalog.wwu.edu/content.php?catoid=6&navoid=598). Any student found to have committed an act of academic dishonesty may be subject to failure in the course and other disciplinary action by the school. Some examples of academic dishonesty include (but are not limited to):

1. Copying a completed or partially completed assignment performed by another student and submitting it as your own.
2. Claiming credit for someone else's work.
3. Collaborating with others in a required assignment without the approval of the instructor

Private/Personal Information

During this course you might have the opportunity to use public online services and/or software applications sometimes called third-party software such as a blog or wiki. While some of these are required assignments, you need not make any personally identifying information available on a public site. **Do not post or provide any private information about yourself or your classmates.** Where appropriate you may use a pseudonym or nickname (ensuring the facilitators know how to identify you). Some written assignments posted publicly may require personal reflection/comments, but the assignments will not require you to disclose any personally identifiable/sensitive information. If you have any concerns about this, please contact your instructor.