ENME 272 Introduction to Computer Aided Design  
Spring 2015  
https://myelms.umd.edu

**Course Description:** Fundamentals of CAD, using solid modeling packages (Creo Parametric, SolidWorks, Autodesk Inventor and NX). Solid modeling, engineering drawings, dimensioning and specifications. Introduction to CAD based simulation and analysis tools. Students will complete a design project.

**Prerequisites:** ENES100 and MATH 141 or equivalent

**Class Credits:** 2 Credits, Required,

- Section 0101: Monday: 8:00 am to 9:50 am, Rm. 2111, KEB
- Section 0201: Wednesday: 8:00 am to 9:50 am, Rm. 2111, KEB
- Section 0301: Friday: 8:00 am to 9:50 am, Rm. 2111, KEB

**Course Instructor:** Guangming Zhang, [zhang@umd.edu](mailto:zhang@umd.edu)  
Rm. 2104A, Engr. Classroom Bld (EGR), Phone: 301-405-6617

**Office Hours:** MWF: 10:15 am to 11:30 am, Room 2104A, EGR

**ISBN** 978-1-935673-22-4

**References:** Herbert Yankee, Engineering Graphics, PWS Publishers, 1985

**Specific Goals:** The main objectives are to provide students with a conceptual understanding of the principles of CAD systems, the implementation of these principles, and its connections to CAD based simulation and analysis tools. The main software systems used in teaching/learning are Creo Parametric 3.0, SolidWorks 2014, Autodesk Inventor 2015 and NX9.0. This course addresses the following student outcomes:

1. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
2. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
3. Recognition of the need for, and an ability to engage in life-long learning.

**Topics Covered**
- Introduction to CAD systems
- Engineering Graphics and Spatial Visualization
- Dimensioning Engineering Drawings
- Feature-based Component Modeling
- Assembly of Components
- Detailing with Tolerances
- Applications in FEA
Grading Policy

Attendance: 5%
Homework Assignments: 40%
Three In-class Exams: 45%
Team Project: 10%

Attendance: Attendance and active participation are essential to learning. The students are expected to attend the entirety of classes during the semester. Attendance will be taken for each class, and will be counted as 5% of the semester grade.

Textbook and Lecture Notes
To understand the concepts of engineering design and the concepts of CAD systems, reading the material presented in the textbook is important. The textbook has 600 pages. On the average, the material of 60 pages will be covered on a weekly basis. Regarding the homework assignments, 70% of homework problems are taken from the textbook. The students should bring their textbooks with them when coming to class. For the other 30% of homework problems, which are not included in the textbook, students are required to work on their own, demonstrating their ability to use the CAD systems.

Homework Assignments
There will be twelve (12) homework assignments. They are posted on https://myelms.umd.edu. There will be no hard copies of the homework assignments distributed to the students in class unless special requests from individual students are made. Because of this reason, all students in class should have a full access to CANVAS. The student should let the instructor know if he or she has difficulty to access CANVAS. Students are required to hand in the completed homework assignments on the dates due. When submitting their homework assignments, hard copies of the engineering drawings prepared by the software system are required. No email submission. No digital box drop. There is no late homework submission unless permission is granted from the instructor.

Important Dates

01/26/15 First day of class (Monday)
02/06/15 Last Day of Schedule Adjustments
03/16-20 Spring Break
04/13/15 Last day to Drop with a “W”
05/04/15 Date of Test3 for section 0101 (Monday)

There is no final exam of ENME272.

Course Projects
The students will be organized as teams to do projects. The main objective is to demonstrate the applicability of Creo Parametric, SolidWorks, Autodesk Inventor and NX to solve real-life problems in engineering through team efforts. The design project of this semester is “Creating a Scaled 3D Model of Boeing 747-400”.

Academic Integrity
The University is an academic community. Its fundamental purpose is the pursuit of knowledge. Like all other communities, the University can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the University is the commitment to the principles of truth and academic honesty. Accordingly, the Code of Academic Integrity is designed to ensure that the principle of academic honesty is upheld. While all members of the University share this responsibility, the Code of Academic Integrity is designed so that special responsibility for upholding the principle of academic honesty lies with the students. Read the detailed information on Academic Integrity on the University Home Page.