ENME 272 Introduction to Computer Aided Design
Fall 2021

Course Description:
Fundamentals of CAD, using solid modeling packages (Creo Parametric and SolidWorks, and Autodesk inventor). Solid modeling, Engineering drawing, Dimensioning and Specifications. Introduction of CAD based simulation and analysis tools. Students will complete a design project through teamwork.

Prerequisites: ENES100 and MATH 237 or equivalent
Class Credits: 2 Credits, Required

Instructor: Julie Wang, Ph.D., P.E.
            Office: CSC 102
            Online Office Hours: MW 2:00-3:00 PM, TTh 10:00-11:00 PM
Communication; by e-mail, zoom, webex
            Phone: 301-687-3208
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Class Room: CSC 216
Class Hours: 12:00-1:50 PM, Monday

Reference Textbook:
Creo: *Engineering Design and Creo Parametric 4.0,* Guangming Zhang, College House Enterprises, LLC., 2017.
The textbook provides the concepts of engineering design and the concepts of CAD systems related to engineering design:
Lecture Notes and Videos provide instructions related to SolidWorks, Autodesk Inventor.

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 SolidWorks 2020/2021 and Cero Parametric, 2021.

Learning 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)   Ability to communicate effectively
   (4)   Recognition of the need for, and an ability to engage in life-long learning.

Topics Covered:
Introduction to engineering drawing rules and guidelines
Geometric Dimensioning & Tolerancing (GD&T)
Introduction to CAD systems
Engineering Graphics and Spatial Visualization
Dimensioning Engineering Drawings using CAD packages
Feature-Based Component Modeling
Assembly of Components

Detailing the bill of materials (BOM) tables
Applications in finite element analysis (FEA)

Attendance
The students are expected to attend the classes and team activities during the semester
At the beginning of each class time, students will click attendance at Webex to show that you are attending class.

Homework Assignments
Students are required to submit the completed homework assignments on the dates due through CANVAS. Homework assignments must submit in PDF. File. Zero credit will be given for late homework submission unless permission is granted from the instructor.

Course Projects
The students will be organized as teams to do projects. The main objective is to demonstrate the applicability of CAD systems to solve real-life problems in engineering through team efforts.

Grading Policy
Teamwork	5%
Homework Assignments:	35%
Two Individual In-class:	40%
Final team Project	20%

Computer Lab:
The CAD software is installed in CSC 216.
If any computer has problem, please send e-mail to helpdesk@frostburg.edu with the computer tag number and description of the problem immediately.

Collaborative Mechanical Engineering students can access College Park Virtual Computer Lab: http://eit.umd.edu/vcl, after download Citrix file, then click Citrix, logon user ID and password.

Software Download
Creo - https://www.ptc.com/en/products/education/free-software/creo-college-download
Solidworks - https://www.solidworks.com/sw/education/SDL_form.html

2021-2022 Installation. 9020004949744551N28FK26D

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. A **zero grade** will be signed to any **missing work** and any **identical work by cheating.**

Please read the following Universities policies

http://www.frostburg.edu/fsu/assets/File/Administration/policies/policystatements.pdf

http://www.ugst.umd.edu/courserelatedpolicies.html#collapseSeven