MONTGOMERY COLLEGE
Dept. of Engineering, Physical and Computer Science
ENES100 Introduction to Engineering Design

Course Description:

ENES100 Introduction to Engineering Design 3 credits

Overview and application of the basic tools and techniques of engineering design and graphic communications, including CAD, engineering reports, cost analysis and use of software tools. Group projects are required.

PREREQUISITE: MA100. *Two hours lecture, tow hours laboratory each week.*

Instructor:

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Textbook:

Introduction to Engineering Design V1.0, by engineering faculty at Montgomery College, edited by C. Alex Hou

Course Contents:

1. Introduction
2. Engineering Design Tools & Skills
   a) CREO
      2D Sketching
      Construction of Solid Geometry
      Geometric Constraints and Parametric Relations
   b) Engineering Graphics
      Orthographic and Isometric Views
      Dimensioning
   c) Spreadsheet with Programming
      Basic Operations
      Engineering Application using Excel
3. Engineering Design Processes
   a) Engineer as a Profession
   b) Engineering Design and Analysis
4. Final Design Project
   a) Team Management
   b) Technical Report and Oral Presentation

Grading:

Attendance and other assignments	10%
Homework Sets	25%
3 Test	35%
Final Project	30% + bonus

About Lecture:

Students are required to attend all classes. Attendance, attitude, class participation and effort can and will be used to change borderline grades up or down. **Food and drink are not allowed in the computer lab and machine shop.** Cell phone should be turned off or keep in silent mode during the class time. All lecture notes will be posted on J:\chou\ES100\presentation folder that can be accessed from computer lab for a week.

Tools Required:

Course will be conducted in the Engineering Computer laboratory (SC 428). All software systems used in this course, such as CREO, Excel, and other standard MS Office suite are installed in every workstation. Students can practice and work on their homework beyond the class time in the room of SC 429. Open hours and tutor assignments will be posted in the beginning of each semester.

Engineering graphics tools, such as pencils, eraser, scale, compass and triangles are required when the students are learning engineering graphics. These tools will make the drawings looking more professionally. A pocket folder and two flash memory sticks are also required for the homework assignments.

About Homework:

Six homework sets will be assigned. Among them, three assignments are related to CREO, two related to engineering graphics and one related to Excel. All homework assignments need to be put in a folder when submitted. All homework assignments need to be handed in on time, which is **the end of the lab period on the due day**. The instructor will not accept late homework unless special permission is granted due to certain circumstances.

About Final Design Project:

Final design project is an important part of ENES100. The project and will be evaluated as a group except certain special situations. In general, there will be three students in a team and they need to work together to accomplish the design task. Details will be discussed in class.

Project will be evaluated at many different stages. The Project Proposal, the Midterm Presentation/Report will be evaluated by whole class members, and Final Presentation/Final Report will be evaluated by instructor and/or other faculty. The final presentation will open to all interest students and faculty.

About Safety Regulations:

In the process of completing the final design project, students may work in the machine shop

area where safety is the most important issue. **Safety glasses are always required when working in the machine shop.** It is the responsibility of students to follow the required procedure to use tools and/or machines.

About Tests:

Three tests will be given to evaluate students' work in class. The first one will cover topics in the Engineering Graphics. Students should bring engineering drawing tools to the tests. The second test will cover all techniques we learn in the CREO. No personal USB flash drives allowed during the test, and official flash drive will be provided. The last one will be in the area of engineering analysis using Excel spreadsheet.

Student cheating in any way on exams or individual assignments will fail the course.

Make-Up Exam Policy:

Make-up tests are only given to the students who are officially excused. Please contact the instructor at least three days before the exam to re-arrange the make-up test. If emergency occurs that students can't pre-arrange the make-up test, students need to talk to instructor as soon as possible and provide documents to prove the situations. In these cases, doctor's letter, government's paper and other official documents are accepted.

Support Service:

A student who may need an accommodation due to a disability should talk to instructor as early as possible. A letter from Disability Support Service (DSS) authorizing your accommodations will be needed.

Book Reserved in Library:

There are some books reserved in the Library of MC Rockville campus for students to use. If you need to check them out, please talk to the librarian.