MEC202- Engineering Drawing and Computer Aided Design 1

SYLLABUS

Course Description:
This course introduces methods used to communicate design ideas through the technique of 2D & 3D computer-aided design software using current versions of AutoCAD and Autodesk INVENTOR software. The application of some mathematical principles to solving engineering problems is included.

Goals:
1. To provide the engineering student with an understanding of the graphic language used to make engineering drawings.

2. To have each student achieve a measurable level of proficiency in creating and interpreting freehand technical sketches to record design ideas and to develop strategies to convert these sketches into engineering drawings.

3. To have each student achieve a measurable level of proficiency in using current versions of AutoCAD and INVENTOR drafting software to produce industry standard CAD drawings.

Topics:
1. Introduction to the role of the computer in engineering design; hardware and software tools for computer-aided design.

2. Basic computer graphics: constructing 2D shapes, coordinate entry methods, editing tools, dimensioning, object properties.

3. Freehand sketching and visualization techniques.

4. Advanced graphic techniques: Orthographic, auxiliary and section views, plotting.

5. Feature based Parametric Solid modeling


Computer Usage:

Homework Assignments:
Freehand sketching and drawing assignments using the installed software.

Prerequisites:
Mechanical Engineering Student or permission of MEC Department Chairman.
Attendance:
You are expected to attend each session. The beginning part of each class will be used for the introduction of new material. The remainder of the class will be for the completion of assigned work. Additional lab hours with a TA will be posted in the lab.

Grading:
Each homework assignment has a point value associated with it based on the instructor's assessment of the degree of difficulty and time required for its completion. Achieving the maximum point value for each homework requires that the student follows the procedures outlined in the assignment introduction, that the student adheres to all relevant conventions associated with the style of drawing being done and that it be submitted on time.

The homework assignments and mid-term exam are all weighted (the weight value reflects the assignment's importance compared to the other assignments.) The student's final course grade is the percentage of the maximum point total achieved converted to a letter grade using the University's standard formula.

Suggested Textbooks:
"Parametric Modeling with Autodesk INVENTOR" by Randy Shih.

Supplies:
A thumb drive for personal backup of drawing files.

List of Course Specific Outcomes:

O7. The ability to communicate effectively (10)

Engineering graphics is an essential tool for every engineer. Being able to draw gives a person's thoughts visible form. Drawings can communicate these ideas effectively. The specialized nature of this course allows the student to produce these drawings using concepts and standards that permit the drawing to be read accurately.

ALL of the homework assignments are designed to meet this outcome.

O11. The ability to use modern engineering techniques, skills, and computing tools necessary for engineering practice (10)
CAD programs, AutoCAD and Autodesk INVENTOR, are used for homework and projects as well as using the Windows operating system, Network logon procedures, file storage and retrieval, and other common computer user tasks.

Each new homework assignment introduces a new set of drawing skills. These new skills in combination with skills from previous assignments are used to produce more complex drawings. Completion of all of the homework assignments gives students a fundamental understanding of modern Computer Aided Drafting and Design software.

Method of Outcomes Assessment

Outcome 7: graded homework and quiz.

Outcome 11: graded homework and projects.

Note:

Americans with Disabilities Act
If you have a physical, psychological, medical, or learning disability that may impact your coursework, please contact Disability Support Services at (631) 632-6748 or http://studentaffairs.stonybrook.edu/dss/. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: http://www.sunysb.edu/ehs/fire/disabilities.shtml

Statement on Academic Dishonesty
Academic dishonesty is an extremely serious offense and will not be tolerated in any form. Academic dishonesty in general is the presentation of intellectual work that is not originally yours. Examples include, but are not limited to, copying or plagiarizing class assignments including homework, reports, designs, and other submitted materials; copying or otherwise communicating answers on exams with other students; bringing unapproved aids, either in physical (written) or electronic form to an exam; obtaining copies of an exam prior to its administration, etc. Academic dishonesty violates both the ethical and moral standards of the Engineering profession and all infractions related to academic dishonesty will be prosecuted to the fullest via the CEAS CASA committee. For you, the honest student, academic dishonesty results in lower class curves, hence a depression in your GPA and class standing, while cheapening the degree you earn.