SYLLABUS
MEC202- Engineering Drawing and Computer Aided Design 1

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 Autodesk INVENTOR and AutoCAD software. The application of some mathematical principles to solving engineering problems is included.

Goals:
1. To provide the engineering student with an understanding graphic languages used to create 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 INVENTOR and AutoCAD drafting software to produce industry standard CAD drawings.

LIST OF 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.

6. Final project.

Computer Usage:
Windows XP Pro workstations, AutoCAD and Inventor software and Blackboard Instructional Software.

Homework assignments:
CAD Drawing and Freehand sketching 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 open hours will be posted.

**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 final project 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:**
Shih, Randy H., AutoCAD 2010 Tutorial First Level: 2D Fundamentals. SDC Publications.
Short & Dudek, Learning Autodesk Inventor 2010, Goodheart Wilcox Publishing,
   ISBN: 978-1-60525-267-4

**Supplies:**
A personal USB drive for backup and transporting files to personal machine 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 create a drawing 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 created and 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 another set of drawing skills. These new skills in combination with those 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 final project.
Outcome 11: graded homework and final project.

Note:

Americans with Disabilities Act:

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Academic Integrity:

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/uaa/academicjudiciary/

Critical Incident Management:

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC schools and the School of Medicine are required to follow their school-specific procedures.