SYLLABUS
MEC203 Engineering Drawing and Computer Aided Design II
Spring 2010

Overview

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.

This course demonstrates the application of computer graphics via solid modeling methods to design of 3D objects, their assembly and analysis. UGS NX Parametric Feature Based Solid Modeling software is used throughout the course.

Goals:

1. Understand the role of the NX CAD software in engineering design.
2. Effective use of hardware and software tools for computer-aided design.
3. Developing freehand sketching and visualization techniques.
4. Use basic and advanced computer graphics techniques; (BORN, constraints, associative functionality, model history tree, etc.)
5. Using software to create and display part Assemblies.

Recommended Texts
“NX6 For Designers”, Sham Tickoo, CADCIM Technologies. ISBN: 978-1-932709-66-7

List of Topics

1. Introduction to the role of CAD in engineering design.
2. Computer graphic software techniques.
3. Feature basic parametric solid modeling.
4. Freehand sketching and visualization techniques.

List of Course Specific Outcomes:

07. The ability to communicate effectively (10)

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ALL of the homework assignments are designed to meet this outcome.
11. The ability to use modern engineering techniques, skills, and computing tools necessary for engineering practice (10)

Feature Based Parametric Modeling is the key feature in the NX5 software used in this course. The feature based parametric modeling approach has elevated solid modeling technology to the level of a powerful design tool. This technique enables the student to incorporate the original design intent into the construction of the model and if it’s features are modified, the entire part automatically updated after regeneration.

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, in this case 3-dimensional Parametric Feature Based solid modeling software.

Method of Outcomes Assessment

Outcome 7: graded homework and final project.

Outcome 11: graded homework and final project.

Computer Usage:
WINDOWS workstations with XP OS, use of NX software for modeling and Blackboard Instructional Computing software.

Laboratory assignments:
Individual drawing assignments and a team final project are made and are to be completed using the NX software.

Prerequisite:
Mechanical Engineering major and successful completion of MEC202; or Bio-Medical Engineering major or departmental permission.

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 open lab 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.

**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/](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.