Course Title: Solids Modeling, Required Course

Course Meeting Day, Time, and Location: Tuesday 1:00pm – 2:50pm, 015 REDC

Course Description: Designed to bring transfer students up to speed using Solid Modeling software and enable them to transition into METBD 306.

Prerequisite(s): None

Textbook(s) and or other required material (supplemental/web pages):
Toogood, Roger; Pro/ENGINEER Wildfire 4.0
Web pages located at: http://engr.bd.psu.edu/forsman/

Course Objectives:

After completing the course the student should be able to:

1. Develop an overall understanding of how a parametric 3-D solid modeling system functions as opposed to a 2 or 3-D wire frame system.
2. Create parametric sketches that capture design intent.
3. Model extruded and revolved cuts, slots and protrusions.
4. Model sweeps and blends.
5. Create reference geometry such as planes and points.
6. Create patterns and mirror geometry.
7. Create assemblies of parts using bottom-up and top-down techniques.
8. Create detail drawings of parts and assemblies.

**Topics Covered** (outline):

- **Week 1 & 2:** User Interface
- **Week 3:** Simple object creation by extrusion
- **Week 4:** Simple object creation with holes, chamfers and rounds
- **Week 5:** Creating revolved geometry, mirroring geometry
- **Week 6:** Modifying/redefining geometry
- **Week 7:** Creating datum geometry and learning additional sketcher tools
- **Week 8:** Patternning and copying geometry
- **Week 9:** Creating detail drawings
- **Week 10:** Assembly fundamentals
- **Week 11:** Assembly operations
- **Week 12:** Sweep and blend features
- **Week 13:** Top Down Assembly
- **Week 14 & 15:** Semester Project – applications of the above

**Class/Laboratory Schedule:**
1 One hour fifty minute Lecture/Lab per

**Relationship of course to program outcomes:**
Support course designed to bring transfer students up to speed in the use of Solid Modeling Software and enable the student to smoothly transition into MET 306.

**Prepared by and date of preparation:** David R. Forsman, 8/17/2009
Calendar/Dates: Semester Project Due Date – 2:50 pm, 12/15/2009

Grading Criteria:
Homework assignments (including Final Project) 75%
On Line Quizzes (using Angel) 25%

GRADE SCALE:
A 93-100%   A- 90-92%
B+ 87-89%   B 83-86%   B- 80-82%
C+ 77-79%   C 70-76%
D 65-69%
F Below 65%

Attendance Policy: "A student should attend every class for which the student is scheduled and should be held responsible for all work covered in the courses taken.” (See Policies and Rules for Students, Class Attendance (42-27) on the PSU website at http://www.psu.edu/ufs/policies)

Makeup Policy: Students who fail to attend will not generally be allowed to make up laboratories, quizzes, or exams unless a prior arrangement has been made. Note that in case of illness, funerals etc., the student is responsible to notify the instructor before the class begins and then must produce evidence which documents the absence.

Academic Integrity: Penn State Erie puts a very high value on academic integrity, and violations are not tolerated. Academic integrity is one of Penn State’s four principles to which all students must abide. Any violation of academic integrity will receive academic and possible disciplinary sanctions, including the possible awarding of an XF grade which is recorded on the transcript and states that failure of the course was due to an act of academic dishonesty. All acts of academic dishonesty are recorded so repeat offenders can be sanctioned accordingly. Students are encouraged to review more information on academic integrity which can be found at: http://www.pserie.psu.edu/faculty/academics/integrity.htm

Support Services:
Learning Resource Center: http://pennstatebehrend.psu.edu/academic/lrc/index.htm
Library: http://www.behrend.psu.edu/academic/library/index.htm
Computer Center: http://www.behrend.psu.edu/compcntr/compindex.htm

Lab Safety: Not Required (Computer Lab)

Course Policies and Procedures:

- All classes and labs must be met at the specified times. Tardiness or excessive absences will not be tolerated. Likewise, classroom disruptions will not be tolerated (e.g. talking during lecture, using profanities, etc…).
- In the event that a student is absent from class, the student is responsible for all material covered during that class.
• Late homework will be docked 20%. Once grading begins for a particular assignment, late papers will not be accepted. Homework is due 10 minutes from the start of class. LATE ASSIGNMENTS ARE TO BE COMPLETED ON YOUR OWN TIME, NOT DURING CLASS.

• Quizzes are available on-line using Angel. Accessibility to the quiz will terminated 1/2 hour before the start of class. You may take the quiz a maximum of three times. The grade recorded will be the grade of the last quiz. Do not wait until the last minute to start a quiz.

• You are expected to strive to produce neat and accurate work. There is no excuse for sloppy or poorly prepared assignments. A failing grade may be assigned for the course if all assigned work is not satisfactorily completed.

• Academic dishonesty is a violation of the "code of ethics" which guides the engineering profession. This is a serious offense, and will be treated as such. The first offense warrants a written warning, and a "zero" for the assignment. Any subsequent violation may result in a failing grade for the course, and further disciplinary action by University Officials.

• Documentation: Just as industry, where all job related documentation must be accessible by other people related to a project, all computer related course work must be available for instructor review on the P: drive. Create a new subdirectory (NOT under the Private directory) labeled MET_205 and place all your work for this class in this location. The purpose of this is for the following: If you have any questions regarding your assignment, you can stop by the instructors’ office (or e-mail him) and he can quickly map your drive space to bring up your work to be better able to answer your questions. In addition, while grading your assignment (the documentation which is usually turned in on paper), if there are any questions relating to your documentation, the instructor can access your files to resolve any questions. All computer files for the assignment must remain accessible on disk until the assignment is returned to the student. If the instructor needs to check the data files and these files do not exist in the MET_205 subdirectory, then the worst case scenario will be assumed. If you keep files on a pen drive, you must also upload these files to the MET_205 subdirectory on your P drive! Do not create the MET_205 subdirectory under the Private directory and then move it. If you do this, all the read/write permissions still are associated with the directory and the instructor will not have access!

• Working on any computer during instructor lectures is inappropriate. Any student observed violating this policy will not receive any instructor assistance during that period. This includes "trying" the procedures being presented. If the instructor wants the students to test certain operations on their system, they will be so informed.

• Use of Electronic Devices: Cell phone use is not permitted in classrooms, computer laboratories or mechanical laboratories. All phones should be set to silent and must not be viewed during quizzes or exams. Ipods/Zunes/MP3 type devices are not to be used in classrooms or computer labs when an instructor is conducting a class or lab. These devices are not permitted at any time in any mechanical labs. Violations of the above will be considered a violation of the Academic Integrity policy and will be dealt with accordingly.
• Special Fall 2009 Flu Protocols

In compliance with Pennsylvania Department of Health and Centers for Disease Control recommendations, students should NOT attend class or any public gatherings while ill with influenza. Students with flu symptoms will be asked to leave campus if possible and to return home during recovery. The illness and self-isolation period will usually be about a week. It is very important that individuals avoid spreading the flu to others.

Most students should be able to complete a successful semester despite a flu-induced absence. Faculty will provide students who are absent because of illness with a reasonable opportunity to make up missed work. Ordinarily, it is inappropriate to substitute for the missed assignment the weighting of a semester’s work that does not include the missed assignment or exam. Completion of all assignments and exams assures the greatest chance for students to develop heightened understanding and content mastery that is unavailable through the weighting process. The opportunity to complete all assignments and exams supports the university’s desire to enable students to make responsible situational decisions, including the decision to avoid spreading a contagious virus to other students, staff, and faculty, without endangering their academic work.

Students with the flu do not need to provide a physician's certification of illness. However, ill students should inform their teachers (but not through personal contact in which there is a risk of exposing others to the virus) as soon as possible that they are absent because of the flu. Likewise students should contact their instructors as quickly as possible to arrange to make up missed assignments or exams.


Note to students with disabilities: Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for modifications or reasonable accommodations in this course, contact the Disability Specialist in the Office of Student Affairs, Room 115 Reed Union Building, 898-6111.

Evening Exams, if any:  Does not apply.