EDSGN 100 Section 007 & 008 Introduction to Engineering Design

http://www.engr.psu.edu/xinli/edsgn100/EDSGN100_Syllabus_SP18.pdf

SPRING 2018 (January 8 – April 27)
(Want to study in China for 4 weeks in the first summer session in the summer 2018? Log on to http://www.engr.psu.edu/xinli/ENGR118/ or http://sites.psu.edu/china/ for more details.)

Course professor:  Xinli Wu, Ph.D., P.E.
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Course Number, Class Time, and Place:

  EDSGN 100 Section 07: 1:25 – 3:20 PM, MWF
  EDSGN 100 Section 08: 3:35 – 5:30 PM, MWF
Place:  Monday: 316 Hammond; Wednesday: 306 Hammond; Friday: 315 Hammond

Office hours & location:  11:15 AM – 12:05 PM Tuesday, and/or by appointments, 213-S Hammond Building

Teaching Assistants:
  Section 007:  Jerod Barone, Ben Schlegel
  Section 008:  Michael Gillett, Stacy Weikel

Course overview and objectives:

This is a design-driven course with emphasis placed on skills such as: team-working, communication skills (graphical, oral, and written), and computer-aided design and analysis tools. The course will introduce students to the engineering approach to problem solving with strong references to basic science and math skills, as well as testing and evaluating design ideas by building prototypes. The design projects are the total of at least 30 hours of in-class work (one third of the course). Two design projects will be assigned during the semester. The design projects will require the students to work in a team. The course grade for the students will reflect their abilities to function effectively as team players.
**Skills acquired by students during the course:**

**Computing:** Solid Modeling/CAD, EXCEL (spreadsheet), PowerPoint (multimedia presentation)

**Internet Skills:** Designing and publishing a basic webpage

**Graphics:** Sketching, orthographic projections, multiview drawings, scales, dimensioning, isometric pictorial, oblique pictorial, sections, working drawings

**Lab Skills:** experimental methods, data acquisition & analysis, prototype building & testing

**Design Methods:** customer needs assessment, concept generation, design selection matrices, design for assembly- disassembly, safety, cost effectiveness, teamwork, and other constraints as need by the project

**Daily Activities:**

01/08: • Introduction to the Course EDSGN 100  
  • Engineering Licensure, PE Violations, Steps to become a P.E.

01/10: Intro. to orthographic sketching, visualization, and multiview

01/12: • Excel spreadsheet application & PowerPoint Presentation  
  • World Class Engineer, WCE

01/15: Martin Luther King Day – No Classes

01/17: Multiview continued

01/19: • Webpage creating and publishing  
  • Online Design Portfolio

01/22: • Introduction to engineering design process  
  • Intro. to Design Project I  
  • Design Project I – Lab # 1

01/24: • Multiview concluded, scales  
  • Drawing geometry, tangencies

01/26: Introduction to Solid modeling with **Solidworks:** Extrusion, shell and fillet features.

01/29: **Design Project I – Lab # 2**

01/31: Dimensioning principles

02/02: **Solidworks:** Assembly Basics

02/05: **Design Project I – Lab # 3**

02/07: Axonometric Projection: **Isometric pictorials**

02/09: **Solidworks:** Drawings

02/12: **Design Project I – Lab # 4**
02/14: **TEST I**
02/16: **Solidworks**: Design Tables

02/19: **Design Project I – Lab # 5**
02/21: Penn State Library Services and Resources --class meets in Room 329 Hammond--located inside the Engineering Library
02/23: **Solidworks**: Section views

02/26: **Design Project I – Lab # 6**
02/28: **Oblique pictorials**
03/02: **Solidworks**: Revolves and sweeps

03/05: SPRING BREAK – No Classes
03/07: SPRING BREAK – No Classes
03/09: SPRING BREAK – No Classes

03/12: • **Design Project I Demonstration**
  • Intro. to **Design Project II**
03/14: Sectioned Views
03/16: **Solidworks**: Lofting

03/19: • **Design Project II – Lab # 1**
  • **Design Project I - Team Report Due**
  • **LM Video from Kickoff Metting**
  • **LM Corp_RMSOverview**
03/21: **Working drawings**
03/23: **Solidworks**: Working Drawings

03/26: • Design Project II – Lab # 2
  • **Project Timeline**
03/28: **Engineering Ethics**
03/30: • **CAD Quiz**
  • **CAD Project**

04/02: Design Project II – Lab # 3
04/04: **Design Project II**
04/06: **Design Project II**

04/09: Design Project II – Lab # 4
04/11: Design Project II – Lab # 5
04/13: **CAD Project continued**

04/16: Design Project II – Lab # 6
04/18: **Design Project II documentation (Prototype Due)**
04/20: **CAD Project Due**
04/23: Design Project II - Formal Oral Presentation (College of Engineering Design Showcase Fall 2017 to be held on Dec. 07)

04/25: • Design Project II documentation
    • Online Design Portfolio

04/27: Test II

Class Policies:

The following are some ground rules to help us maintain a steady progress through the semester:

1. Assignments are due at the start of the class period before the lecture begins. Assignments submitted after this time will receive a 20% deduction. A further 20% reduction will be applied for every week beyond the first.

2. The instructor will discuss any exam or assignment grade within 48 hours (excluding weekends and holidays) of its return, after which time the discussion is closed.

3. Excellent teamwork can improve the course grade by as much as 4% (2% per design project). Poor team work will lower your grade by the same amount.

4. Punctual attendance is mandatory for all the class periods. Course grade will be dropped to the next lower grade for every two classes missed. All excused absences must be supported by written documentation, such as doctor's receipt, Penn State athletics travel notice, ROTC notice, etc.

5. No makeup labs will be available for the Design sessions since this is unique to this section.

6. No cell phone including text message is permitted in the classroom.

7. Students are responsible for any missed handout and homework assignment for any unexcused missed class.

8. Students must use Penn State access account email address when he/she emails the instructor.
Academic Integrity:

Senate Policy 49-20 Academic Integrity
Definition and expectations: Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

The Penn State Principles:
1. I will respect the dignity of all individuals within the Penn State community;
2. I will practice academic integrity;
3. I will demonstrate social and personal responsibility;
4. I will be responsible for my own academic progress and agree to comply with all University policies.

Related sites:
- Academic integrity, http://www.psu.edu/ufs/policies/47-00.html - 49-20

Statement of Compliance with the Americans with Disabilities Act:
Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information regarding ODS, please visit the Office for Disability Services website at http://equity.psu.edu/ods/. In order to receive consideration for course accommodations, you must contact ODS and provide documentation (see the documentation guidelines at http://equity.psu.edu/student-disability-resources/guidelines). If the documentation supports the need for academic adjustments, ODS will provide a letter identifying appropriate academic adjustments. Please share this letter and discuss the adjustments with your instructor as early in the course as possible. You must contact ODS and request academic adjustment letters at the beginning of each semester.
Attendance:

Religious observances are not counted as absences, though observing students must inform the instructor in advance that they will not be present. Official universities activities are excused absences if the student informs the instructor in advance and provides appropriate paperwork. Absence due to sickness does not require a doctor’s note, but it is the student’s obligation to inform the instructor promptly and to bring to the instructor’s attention extended medical absences as soon as possible. It is the responsibility of the absent student to catch up on any missed material and do any make-up work required by the instructor.

Information about How to Contact Counseling and Student Health:

Students with academic concerns related to this course should contact the instructor in person or via email. Students also may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the Penn State Counseling and Psychological Services (CAPS) Center at (814) 863-0395. Visit their website for more information [http://studentaffairs.psu.edu/counseling/](http://studentaffairs.psu.edu/counseling/). Also, crisis intervention is always available 24/7 from Centre County CAN HELP (1-800-643-5432), or contact University Police at (814) 863-1111.

Statement Regarding Discrimination:

As an institution of higher education, The Pennsylvania State University is committed to making post-high school education available to all who possess a high school diploma or its equivalent without regard to personal characteristics not related to ability, performance, or qualifications. The Pennsylvania State University does not discriminate against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, or veteran status. Bias can be reported to anonymously to the website “reporting bias on campus” [http://equity.psu.edu/reportbias](http://equity.psu.edu/reportbias).

Text and Materials:

All required books are available at Penn State and local bookstores.


**Engineering Notebook:** A lab note book (7.5 in. x 9.5 in.) bound on the left side with a hard cover (no spiral bounds). Also sold as English Composition book. An example will be shown in class.

**Set of Drawing Instruments:** GEOSET (contains 8 pieces) or equivalent

**Drawing Paper (11" x 17" required):** Available at the Penn State Book Store

**USB drive** to back up all your work. Save often!
**Three-ring binder:** To be used to organize the course materials

**Grading System:**

- **Design Graphics**  
  Graphics Homework Assignments  
  15%

- **Solid Modeling & Conceptual Design Project**  
  - Exercises and Quizzes (15%)  
  - Project (10%)  
  25%

- **Design Modules**  
  - Design Project I (15%)  
  - Design Project II (20%)  
  - Online Design Portfolio (5%)  
  40%

- **Exam No. 1**  
  10%

- **Exam No. 2**  
  10%

**TOTAL**  
100%

*Grades will be determined based your performance on the activities listed above. Final letter grades will be assigned as follows:*  

- > 93 = A  
- 90-93 = A-  
- 87-89 = B+  
- 83-86 = B  
- 80-82 = B-  
- 75-79 = C+  
- 70-74 = C  
- 60-69 = D  
- below 60 = F