Online Design Portfolio
Sponsored by: Penn State College of Engineering and Lockheed Martin
EDSGN 100: Introduction to Engineering Design
Section 009

Submitted by: Nicholas Lewis
Submitted to: Xinli Wu

Submitted on: April 30, 2016
Abstract

This portfolio shows the various projects the author completed while taking the EDSGN 100 course. These include design projects, homework assignments, and models made using the Solidworks program.
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Resume

Nicholas M. Lewis

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(724) 815-9603

Campus Address
519 Curtin Hall
University Park, PA 16802

Permanent Address
30 Cathie Drive
Sandy Lake, PA, 16145

OBJECTIVE
To obtain an internship

EDUCATION
Pennsylvania State University
University Park, PA
Anticipated Graduation: May 2019
Relevant Courses
Calculus I
Chemistry I

WORK EXPERIENCE

SOFTWARE
AutoCAD, Inventor

LEADERSHIP & INVOLVEMENT
Course Syllabus

EDSGN 100 CLASS POLICY

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 teamwork 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:**

- Code of Conduct, [http://www.sa.psu.edu/ja/codeconduct.html](http://www.sa.psu.edu/ja/codeconduct.html)

- Academic integrity, [http://www.psu.edu/ufs/policies/47-00.html - 49-20](http://www.psu.edu/ufs/policies/47-00.html)

Course inquiries: Xinli Wu, Ph.D., P.E.
Design Project One

EDSGN 100 Introduction to Engineering Design
Design Project #1: Dumpling Maker

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Design Task:

Design and build a prototype of a dumpling maker suitable for use in either a household or a restaurant (backgrounds and some other details will be explained in class).

Design Specifications:

☐ The dumpling maker should be automatic or semi-automatic.
☐ The dumpling maker should produce less than 10 dumplings per minute on average.
☐ The cost for the dumpling maker should not exceed $200 unless it can be justified.
☐ The dumpling maker should be safe as a food processor, easy to maintain, safe to use, and dishwasher safe.

Key Deliverables:
A lab report to be published on the web with the following items included (Note: Guidelines for the lab report will be given later):


Evaluation Criteria:

☐ Design meets specifications  ☐ Creativity/Innovation  ☐ Working mechanism and operation instruction are clear  ☐ Ease of operation  ☐ Safe to use
Solid Model:
Assembly Drawing:

<table>
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<td>Leg</td>
<td>contains: 4 screws</td>
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<tr>
<td>3</td>
<td>Cutter</td>
<td>contains: 2 blades, 8 springs</td>
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<tr>
<td>4</td>
<td>Filing tube</td>
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<tr>
<td>5</td>
<td>Dough tube</td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Dough roller</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Crank</td>
<td></td>
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</table>
DOUGH TUBE
Main Design Features:

1. A crank to work the inner mechanisms and turn the conveyor belt.
2. A stand to hold the dumpling maker above the table, allowing dumplings to slide out the bottom when finished.
3. Food safe tubing for dough and filling.
4. A multi-stage manually operated spring system that drops filling and cuts the dumpling at the same time.
Assembly Drawing:
Main Design Features:

- Updated Cable Retention System
- Can fit a 7 port USB hub
- Made of biodegradeable PLA plastic
- Additively manufactured
- Can be vertically mounted
Summary

This design portfolio contains many of the projects completed by the author throughout the year. These projects are two design projects, homework problems, and designs made on Solidworks.
Acknowledgements

I would like to thank the Penn State College of Engineering and Lockheed Martin for providing the materials and facilities to complete the various projects given throughout the year. I would also like to thank my professor, Xinli Wu, for providing the knowledge, skills, and motivation to complete all projects to the best of my ability.