

Teaching

Teaching Philosophy

I approach teaching as I would a valued design project, viewing each course and student activity as a continuum of unreasonable problems presented to a student to achieve specific outcomes in the student's personal journey toward becoming a world class designer. In this system, design pedagogy is based on three basic learning opportunities: knowledge, skill, and authorship. These opportunities are not viewed as independent learning components, but as a process that mimics the design process. Knowledge is gained in the world; skill is applied by synthesizing the knowledge of the world through the lens of product design; and authorship is derived by activating both knowledge and skill in solving unreasonable problems in a collaborative studio environment.

My goal in teaching is to provide an environment that instills confidence in students so they can develop their own unique authorship and volition to create. Philosophically, I conduct myself more as a mentor than a teacher. This comes from the belief that you do not force design into students, you tease it out of them. My teaching style employs the combination of the Socratic method and motivational coaching. I have developed a technique of being intentionally vague, causing students to struggle at first to find their own voice, then ultimately becoming empowered with their own decision making. Over the course of the four year program, students develop a trust of their intuition and their ability to use design thinking techniques to induce the development of creative ideas and to make appropriate solutions to unreasonable problems. When this snap is activated, students then are imbued with their own intrinsic value and are empowered to create in their own voices. The reward of this philosophy is in watching a student's lightbulb come on—it is wonderful moment when the student is changed forever.

Students are held to a professional standard and are reminded each quarter to hold themselves and each other to the same high standards in work, in the community, and outside of the community. Students are supported but not coddled. This also helps students to mature as designers, producing work far past what they ever thought they could achieve.

The Product Design Program, my teaching philosophy and course work are driven and supported by the same foundational process: 1. Understand a reality, 2. Synthesize reality, 3. Create a new reality, 4. Validate the new reality and 5. Making the new reality. It is the program's DNA, and all students learn to use it, trust in it, eventually master and then riff with it, play with it, manipulate it, and make it their own.

“The duty of the educator is to uncover the forces which form society so that the individual, equipped with the knowledge of the processes, may form his own opinion and make decisions about his position in the world”
- Laszlo Moholy-Nagy

Building a Reality:

Building a reality is where a designer begins to build a connection with the user and gain behavioral insight. Its goal is to understand the user so well that you can make appropriate designs decisions in their stead. In essence you are becoming a good lobbyist for your user. A designer, if successful at building a reality, will push out any bias they have about a project or a user and replace it with firsthand knowledge of the actual reality, removing any bias. Building a reality is like filling a large bucket full of information. In that bucket goes everything you find out about your user, using many different forms of data collection including but not limited to observation, interviews, questionnaires, ethnographic research, following online

STAR Scholars
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Drexel University
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Understanding the Breakfast Habits of Drexel Students

Introduction

The breakfast habits of college students often undergo dramatic change due to the transition from home life to dormitory. In order to better understand the change, we studied the student's ability to prepare and consume a balanced breakfast and how the effects their breakfast habits on their energy, mood, and overall health. The goal of this research was to understand the breakfast habits of college students and how these habits affect their energy, mood, and overall health.

Previous Research

The project builds on research and address the research methodology conducted by Professor Gauer, Professor Kovacs, and the Drexel Design, N.Y.C., which examines the breakfast habits of college students in America.

Methods

1. A focus group was utilized to identify the most common breakfast habits of the students across the city.
2. A survey was given to 30 students to collect general opinions on how their breakfast habits affect their energy, mood, and overall health. The survey included questions on how often they eat breakfast, what they eat, and how they feel after eating.
3. The students then did an activity to understand the effects of a balanced breakfast. They were given a list of ingredients and asked to prepare a balanced breakfast. They then ate the breakfast and recorded their energy, mood, and overall health. The results of the activity were compared to the results of the survey.

Data/Results

1. In the final six weeks, traditional western breakfast foods such as pancakes and french toast were popular. The results showed that students who ate a balanced breakfast had higher energy levels, better mood, and improved overall health. The results also showed that students who ate a balanced breakfast were more likely to be on time for class and had better grades.

2. Survey results varied widely, showing that there was no typical breakfast habit among students. However, the majority of students reported eating a balanced breakfast. The results showed that students who ate a balanced breakfast had higher energy levels, better mood, and improved overall health. The results also showed that students who ate a balanced breakfast were more likely to be on time for class and had better grades.

3. 5x5x5 studies

Ordinary Eater: 100% of students who ate a balanced breakfast had higher energy levels, better mood, and improved overall health. The results also showed that students who ate a balanced breakfast were more likely to be on time for class and had better grades.

Cultural Eater: 100% of students who ate a balanced breakfast had higher energy levels, better mood, and improved overall health. The results also showed that students who ate a balanced breakfast were more likely to be on time for class and had better grades.

Picky Eater: 100% of students who ate a balanced breakfast had higher energy levels, better mood, and improved overall health. The results also showed that students who ate a balanced breakfast were more likely to be on time for class and had better grades.

Health Eater: 100% of students who ate a balanced breakfast had higher energy levels, better mood, and improved overall health. The results also showed that students who ate a balanced breakfast were more likely to be on time for class and had better grades.

Vegetarian Eater: 100% of students who ate a balanced breakfast had higher energy levels, better mood, and improved overall health. The results also showed that students who ate a balanced breakfast were more likely to be on time for class and had better grades.

Conclusion

We discovered that students who ate a balanced breakfast had higher energy levels, better mood, and improved overall health. The results also showed that students who ate a balanced breakfast were more likely to be on time for class and had better grades. We recommend that students who do not eat a balanced breakfast should try to eat a balanced breakfast to improve their energy, mood, and overall health.

Proposed Solutions

1. We recommend that students who do not eat a balanced breakfast should try to eat a balanced breakfast to improve their energy, mood, and overall health.

Future Work

1. We recommend that students who do not eat a balanced breakfast should try to eat a balanced breakfast to improve their energy, mood, and overall health.

References

1. Gauer, Michael. "Understanding the Breakfast Habits of Drexel Students." Drexel University, 2019.

Acknowledgements

1. We thank Professor Gauer, Professor Kovacs, and the Drexel Design, N.Y.C., for their support and guidance.

Research Poster Freshman Maisie Lu

communities etc...

At the heart of the Drexel Product Design Program is design research, everything starts and ends with understanding and developing empathy for the intended user. Our research process is influenced and adapted from the design consultancy Smart Design in New York. Their philosophy is based on designing for 6 real people. What this means is that our students learn to design for the needs of people with whom they come in contact and for whom they are creating solutions. We do not put stock in designing for fictitious scenarios and made up people. What we hone is our skill of observing, questioning, uncovering and curiosity-driven research. This instills in each student the understanding that they push out their own bias of user need and replace it with the reality of the user's actual need. When designers do this they then find the intuitive snap that moves them from designing the obvious to designing for the repositioned solution. This starts right from freshman year, through to graduation.

I saw this + I know this = Insight + Design Pattern = Design Idea

Synthesizing Reality:

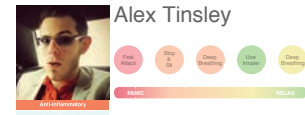
Synthesizing the reality is the process of sensemaking. It is a way of contextualizing what you have learned about your user's reality. Synthesizing is a process of reframing. Students learn very quickly that it is impossible to design to everything they discover during the building phase. They must now simplify and make sense of what they just discovered. We teach several methodologies of synthesizing and insight making, from card sorting to affinity diagraming, and what the students end up with at the end of synthesis is a set of criteria with which to create ideas. These design goals we call the: Musts, Wants and Desires. What **MUST** the solution have to be a viable product? - What does the user **WANT** to make it a better product? - What are unmet **DESIRES** that will make the emotionally connect with the product? During this phase of learning students typically collaborate so they can gain insight together. It also help each student to learn how their classmates find meaning differently from them, making for stronger discussion and stronger insights.

The metaphor I use when teaching is that in synthesis we drill holes in to the reality bucket and let some of the data leak out. What hits the ground is the pool of criteria we design to. The magic of design is that each designer can use their intuition on where to drill the holes, and each designer can create their own stream of data and how they interpret it. We can use a sub-set of data because it is still based on a real human and real data. Students can defend their deceptions even based on a subset of criteria because that can trace it back to the large body of data they collected upfront. How you slice that data will net each designer a unique solution. This is a good thing; this is what we want.

Creating a new Reality:

Creating reality is the process of generating new and novel ideas for the solution you are trying to create. The goal is to go far and wide with your ideas. We borrow the process from the design firm The Way We Se The World using their terminology of

14 User Interviews



Alex Tinsley

Combination Medication
Simplifying Medication

QUOTES

Stigma
I hate how recognizable my inhaler is.
There is still something weird about using an inhaler in public, maybe it's the movies?
Having a cool inhaler would make me feel more comfortable about my asthma.

Mobility
I don't go anywhere without it. If I don't have it with me, I have a constant tick in my mind that today is going to be the day.
It's pretty small but the "L" shape is weird. It can be a pain to have in my pocket. It is the thickest object to carry.
I have three inhalers: backpack, rightstand, medicine cabinet.

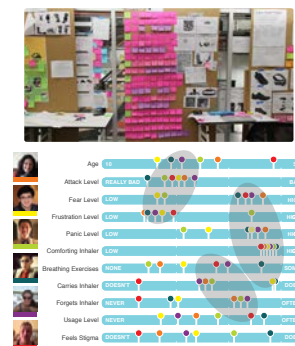
During an Attack
My body starts to feel weak, and my palms start to sweat
I try to prevent attacks by doing deep breathing exercises once I feel it happening.

Other
I like the attached cap, two-toned blue, and dose meter.

20 Interview Summary

Organizing Information

After completing my scheduled interviews I mapped out the information I gained from them. I used different methods of visualizing the information from charts to post-it notes.



27 Ideation

Step, Jump, Leap

Using the insights and opportunity map I began my ideation phase. I sketched countless ideas, most of which got thrown away. I based my Concepts on a STEP, JUMP, LEAP scale. Step meaning its feasible, Jump meaning it can happen in the near future, and Leap meaning it's not feasible anytime soon. By doing this it helped me stretch my concepts and brainstorming out of the box yielding better ideas.



“STEP, JUMP, LEAP” to classify ideas, a process of generating ideas and sorting them based on how far they push the reality of the user. A STEP of course is an incremental change for the user; and would not be seen as that. JUMP is an Idea that might surprise the user but they could still see is as possible. A LEAP is anything that radically changes the user’s perception of what is possible. The key to understanding the importance of having LEAP ideas is not that they will be practical or even realistic solutions, but they perform a critical role of changing perception so that other ideas can now occupy a space of reality, Students learn here that it’s better to go out too far and come back in than never go out far enough.

At this stage students are ready to start creating ideas and expanding the reality of the solution. At first they start creating obvious solutions but eventually they have breakthroughs or happy accidents where they see an alternative and novel way to create a positive and appropriate solution. We expose students to different ways to stimulate ideas such as the use of metaphors or a process of abstraction that mimics the mind’s ability to produce spontaneous creative ideas.

Validating Reality:

Validating the reality in our design process becomes very important in that a student must validate that the decisions they have made on behalf of the user. For the student this is where the rubber meets the road, and they find the harsh reality that their decisions are not always self evident and that their solutions don’t resonate with the user. In this learning opportunity the students find out that it is often better to be completely wrong than almost right. When you’re wrong you get better feedback to the question “WHY?” Here, students hone their communication skills of ideation, drawing, modeling, and inquiry methods, we teach students several forms of contextual inquiry such as semantic differentials.

Validating is the art of circling back to see if you understood the reality but because you have created a new reality for the user, you must see if the user will accept and want this new reality.

Making Reality:

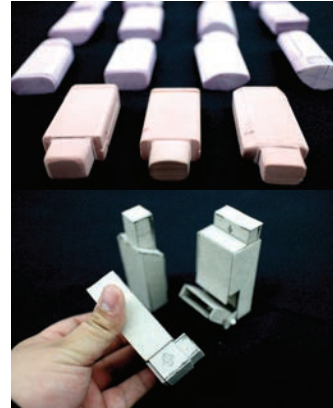
The act of refining and communicating your final design intent, it involves all methods for photo realistic renderings of camera-ready or functional prototypes. It is pulling everything together to share with the audience or the jury of your design path. We often talk about the making phase as drawing a map to a pot of gold. If the student leaves gaps or allows the advance to interpret their decision they lose the pot of gold. The objective is to emote and to defend.

Exposure to the world:

It has been the goal of the program to continually expose the students to what I classify as three types of people: experts, passionates, and those who are trying to figure it all out. We do this with special events, lectures, in class demos, guest critics, field trips and workshops. Students have been exposed to and worked along side great thinkers like Bill Moggridge to great makers like Tejo Remy. My favorite activity is brining in young passionate designers who are professionally struggling to make it all work. We learned sketch aerobics from Jose Gamboa, the designer of the images for Pagani Zonda, and developed product around design semantics with the innovator

31 Designing

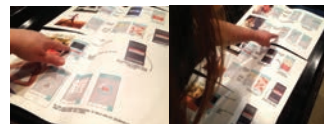
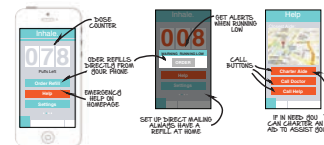
Models



32 APP DESIGN

Mobile APP

While designing the app I had to make sure it worked together with the device. Through the designing process I went through many iteration to make it as user friendly as possible. I had to find the balance between showing too much information and not showing enough.



Through the app designing process I went to get feedback from potential users to make the navigation as fluid as possible. I created various exercises to see how someone might navigate through the app, so I could fix any spots of confusion. My goal was to make the app easy to understand and aesthetically pleasing while still being a information based medical app.

41 Development

Painting

To turn the 3D prints into photorealistic models I had to give them finishing touch. I painted them to match real world materials that I chose to finish my product in. This process involved a lot of primer and sanding to make the models perfectly smooth and many light coats of paint to give it the proper look I wanted.





himself, Reinhart Butter. The impact is immeasurable, as the sway and inspiration this creates in the community is immense. These sorts of activities are ever-evolving and planned to continue. What is most rewarding is that I can see the meaning and value to the students. They have organized themselves in to groups to seek out their own inspiration, scheduling trips to Smart Design and Material Connection, even arranging their own transportation. These activities have sparked curiosity to absorb all they can about the world of design, and I could not be more pleased.

Teaching Methodology

Teaching methodology plays a critical and inseparable role in activating my teaching philosophy, it emphasizes self-discovery and embracing intuitive snaps in the production of novel solutions in a studio learning environment. As such, I employ and practice studio teaching principles that encourage studio learning. Studio learning emphasizes the use of abductive logic by having students struggle with unreasonable problems and practice the complex cyclical process of observing a problem, synthesizing assumptions, repositioning the problem, developing a hypothesis, creating solutions based on a hypothesis, testing solutions, finding the shortcomings of the hypothesis and or solutions, updating the hypothesis, and finally redesigning and refining the solution. It is a process that forces students to quickly pulse between convergent and divergent thinking, requiring them to use their cerebral cortex in passing ideas between the two hemispheres of their brains. Demonstrations, personal guidance, and critique are indispensable tools of a studio instructor. Good studio educators are an amalgamation of system analyst, coach, chameleon, wilderness guide, psychologist, motivational speaker, blunt critic, and safety net. It requires the instructor to not only know, but be highly skilled in the activities we ask a student to do. In this teaching methodology it is more valuable to see and understand what is not there or hiding within a solution, and then creatively nudge the student find it on their own, rather than see and tell a student when something is just right or wrong.

With this methodology, creating the proper classroom environment is essential, requiring constant observation and continual adaptation to each student's progress to maintain a positive flow to the class. It must be an open environment that is structured, yet encourages experimentation, one that permits students to feel safe enough to try, yet allowing them to fail if they risk to much. In studio classes grades are often necessary evils causing students to view assignments as tasks, not as a continual process where one activity builds on the other to achieve a greater goal. Critical to this studio methodology is moving students away from the typical task-oriented progress, thus breaking students from the bad habit of peak thinking to sustained thinking.

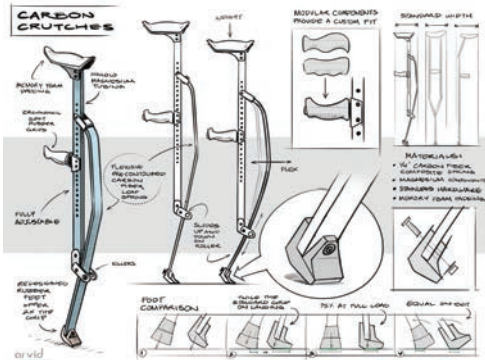
Consistent goals in my methodology include encouraging students to develop a personal design philosophy, journaling, developing an inquisitive mind by continually asking "why", the practice of self-reflection, the art of self-critique to find the weak spots in their solutions and the importance of being great communicators and presenters.

Teaching responsibilities

During my time at Drexel, I have had the opportunity to both create and teach a wide variety of courses both in my own program as well as in the Biomedical Engineering, Graphic Design, Design and Merchandising and Interior Design. The chart below lists courses I taught from 2008 to 2014. The courses that I created have the prefix "PROD". All courses are updated every year in collaboration with other faculty teaching the same material. As a Teaching Professor and Director of the Product Design program, I have been teaching between 18-23 credit hours per year. While I have not taught each class I have created for the program (supplemented with Adjuncts), I have had my hand in each class when it ran for the first time to assess the credibility of the course to the program.

Courses Developed and Taught In The Product Design Program

PROD101 | History and Analysis of Product Design



This class studies the chronological context of the development of the product design profession, relating it to the social, cultural and economic events that helped shape our modern day society. Studies are focused on major industrial designers and innovations. This course has both a project and written analysis paper component.

Course Goals:

The following course goals articulate the general objectives and purpose of this course: By successfully completing this course students will:

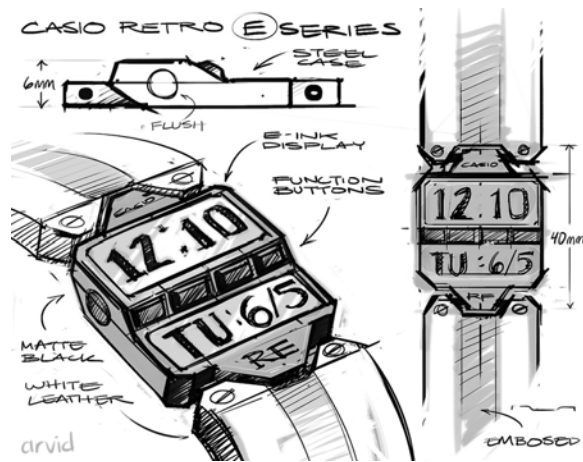
- Learn about the evolution and relationships between craft, culture, and mass-produced objects.
- Experience critical works by well-known designers in the short history of the industrialized world of mass production.
- Determine commonalities between specific designers. Study characteristics of specific Industrial Design periods.

Course Outcomes:

- Upon successful completion of this course, students will:
- Demonstrate the development of a critical vocabulary to evaluate the work of various designers in the context of social and cultural developments relevant to their time period. Demonstrate analytical thinking skills related to assessment and analysis of historical time period as related to the mass production of products.
- Develop an appreciation for the aesthetic aspects of industrial design through time.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2010,2011	PROD	101	History and Analysis of Product Design	3	Various	15

PROD235 | Applied Design Visualization



This course will provide students with schemas and strategies for using visualization as a thinking tool, as well as persuasive techniques for communicating design intent. It will put into practice the essential techniques that product designers use to think and communicate visually.

Course Goals:

- To develop methodologies to use drawing as a thinking tool
- To develop methodologies to use drawing as a communication tool
- To develop strategies for moving from drawing as a thinking tool to a communication tool
- To develop techniques for using visualization as a persuasive communication technique
- To develop critical thinking abilities to conceptualize and communicate
- To employ drawing to support and/or drive various design processes

Course Outcomes:

- Students will use drawing as a thinking, analysis and communication tool Students will integrate drawing into various aspects of their design process
- Students will develop their own personal strategies on how to think and effectively communicate with drawing
- Students will develop an understanding of how visualization will help them as professionals
- Students will develop improved drawing, layout, composition and communication skills
- Students will build confidence to use drawing as a design tool

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2011	PROD	235	Applied Design Visualization	3	F 6:00 - 8:20	15

PROD245 | Seminar Professional Landscape

Portfolio Contents

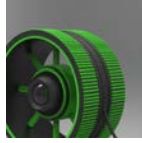
As a designer, I enjoy conceptualizing the stories and emotional experiences that engage the end user. I want to use my creative background and learned skills to create designs that delight, that are satisfying, and that are efficient. What I strive for is not only functionality, but the pleasure of experience – with my design, I want to better the world by improving the everyday of the individuals within it.

In this course students explore current trends in the product design profession today. Students will research and present insights into important design issues, trends, and criticism in contemporary product design. Through extensive readings and discussions, students develop an understanding of the relationship of product design to society and culture.



CAT SOLAR CHARGER
Product Design Project

Skills demonstrated:
Design process
Brand analysis
Qualitative research methods
Ideation
Sketching
3D modeling
3D printing from model
Vector illustration
Infographics
Photo manipulation



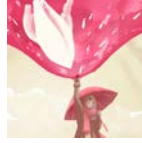
CAMYO CAMERA
Product Design Project

Skills demonstrated:
Graphic design
Vector illustration
Infographics
3D Modeling
Photo manipulation



BREAKFAST HABITS RESEARCH
Design Research Project

Skills demonstrated:
Teamwork, collaboration
Design process
Qualitative research methods
Data gathering
Securing study participants
Synthesizing information
Ideation
Formal presentation skills
Communication



ILLUSTRATIONS

Skills demonstrated:
Sketching, drawing
Creativity
Working in different mediums
Digital artwork software
Versatility in style
Understanding of color, composition

Course Goals: The following course goals articulate the general objectives and purpose of this course:

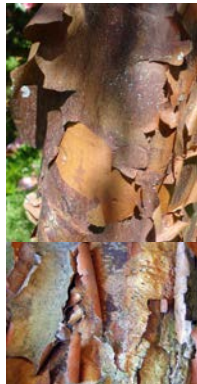
- Expose students to the width and breadth of the design profession
- Help students understand their role and place in the the ever expanding world of design
- Expose students to a range of design practitioners
- Help students understand what design skills they will need in the future

Course Outcomes: The following course outcomes indicate competencies and measurable skills that students develop as a result of completing this course:

- Better see, speak and comprehend the drivers and forces in design
- Develop a personal design philosophy
- Develop a focus and volition for where they may want to apply their design degree after graduation.

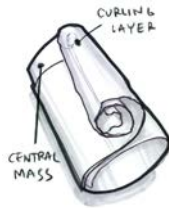
Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2011 2012	PROD	245	Seminar Professional Landscape	3	Various	15

PROD220 | Product Design Form Studio



PAPERBARK MAPLE

The paperbark maple (*Acer Griseum*) is a species of maple native to central China. The bark is smooth and papery and has a tendency to peel over time. Its curling is the bark bending back naturally as it breaks from the tree. The thin bark surrounds the entire tree in layers and though it peels off of the mass of the tree, it curls back, in a slow and even motion.



MACHINERY TREADS

The segmented, continuous tread is a staple in the Cat machinery line for those rigs that need the traction and grounding. The segmentation allows for free movement while being connected as a unit.



This course uses principles of design in the visual organization of physical elements and analysis of form. Building on abstract relationships including additive and subtractive forms as well as gestalt, students develop a sensitivity to form language, semantics and aesthetics of volumes and synthesize this abstract language into functional objects.

Course Goals: The following course goals articulate the general objectives and purpose of this course:

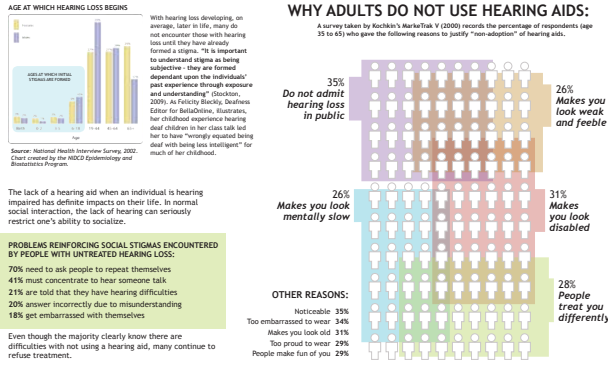
- Illustrate a design methodology and iterative design process
- Read and analyze design discourse, and apply these readings to actual design projects
- Establish a design vocabulary and a personal awareness related to product form
- Understand and practice a human-centered design process
- Develop an attention to beauty, elegance and emotion in both existing as well as conceptual Product Designs
- Move fluidly between 2D and 3D representations of concepts

Course Outcomes: The following course outcomes indicate competencies and measurable skills that students develop as a result of completing this course:

- Develop and internalize a personal design methodology and iterative design process
- Develop an immersive, discovery based research technique
- Cultivate rapid visualization skills, producing a prolific generation of unique concepts
- Create visual prototypes in two and three dimensions, using various materials, techniques, and available resources
- Communicate the design process through visual, written and oral presentations

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2010,2011	PROD	220	Product Design Form Studio	4	Various	15

PROD230 | Product Design Process Studio



In this course students are presented complex design issues in mass-produced objects. Students develop an understanding of the product development process focusing on the designers skills and technical knowledge to formulate appropriate design solutions. Students practice collaboration of ideas with engineers, marketing, users and shareholders.

Course Goals: The following course goals articulate the general objectives and purpose of this course:

- Develop strategies for creative innovative ideas.
- Develop methodologies to visually solve design problems, establish design criteria, and create alternative design solutions.
- Use 3D models to test ideas and refine concepts in the design creation process.
- Develop appropriate collaboration and presentation skills.
- Develop a complete design package, from concept through implementation and documentation.

Course Outcomes: The following course outcomes indicate competencies and measurable skills that students develop as a result of completing this course:

- Understand the product design process
- Apply skills of visually communicating ideas
- Produce articulate oral and written briefs
- Develop and practice comprehensive research processes
- Apply a coherent design methodology (cradle to cradle/closed loop system)
- Produce design solutions that are user oriented, unique, compelling, and feasible

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2010,2011	PROD	230	Product Design Process Studio	4	Various	15

PROD225 | Computer Aided Imaging in Product Design



This course will provide students with schemas and strategies for using visualization as a thinking tool, as well as persuasive techniques for communicating design intent. It will put into practice the essential techniques that product designers use to think and communicate visually.

Course Goals:

- To familiarize the user with the Alias User Interface
- To translate 2-D renderings into 3-D computer models
- develop appropriate and efficient work-flow practices
- To create final realistic computer models of professional quality
- To understand the importance of computer modeling in the manufacturing process

Course Outcomes:

- Understanding of the Studio user interface
- Ability to construct free form curves
- Ability to construct free form surfaces
- Ability to use the StudioPaint component of StudioTools to integrate sketching and rendering with 3D modeling
- Rendering a model for presentation

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2012-2013 -2014	PROD	225	Computer Aided Imaging in Product Design	3	Various	15

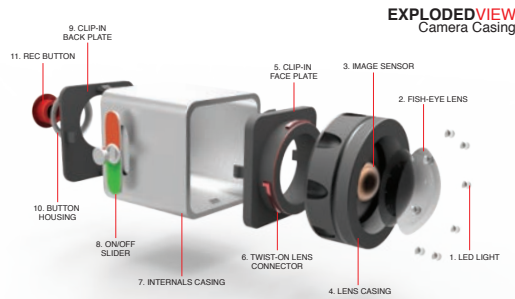
PROD255 | Applied Materials in Product Design

JAM | CAM

Jam Cam is designed to be durable, compact and good looking. It's constructed mainly out of aluminum, which is light and strong. The lens can be changed by twisting it off of the faceplate and replacing it with another compatible lens. The internals and battery can be replaced by popping off the snap-in faceplates and accessing the inside.

The Jam Cam refines video recording down to three physical input controls on the device itself. A power on/off switch on the right side of the device, a record button on the rear and a red light on/off switch on the left side. The device can be controlled wirelessly through Bluetooth and Wi-Fi and it can be charged or offload footage through the Micro USB port on the back under the record button. The small LED lights are excellent for low light conditions and surround the lens for even lighting of the scene being filmed.

Due to its uncomplicated design, Jam Cam is easily manufacturable and requires mostly low cost materials. Jam Cam is an easy to use, simple solution to low cost high definition video recording on the go.



ITEM #	PART	MATERIAL	FINISH	COLOR	QUANTITY
1	LED LIGHT	LED BUBBLE	POLISH	NATURAL	2
2	FISH-EYE LENS	GLASS	POLISH	NATURAL	1
3	IMAGE SENSOR	N/A	NATURAL	NATURAL	1
4	LENS CASING	SOFT TOUCH PLASTIC	SOFT TOUCH	BLACK	1
5	CLIP-IN FACE PLATE	SOFT TOUCH PLASTIC	SOFT TOUCH	BLACK	1
6	LENS CONNECTOR	ALUMINUM	POLISH	RED	1
7	INTERNALS CASING	ALUMINUM	BRUSHED	NATURAL	1
8	ON/OFF SLIDER	ALUMINUM	PAINTED	DRK GRN	2
9	CLIP-IN BACK PLATE	SOFT TOUCH PLASTIC	SOFT TOUCH	BLACK	1
10	BUTTON HOUSING	ALUMINUM	POLISH	NATURAL	1
11	REC BUTTON	PLASTIC	DYE	RED	1

The course emphasizes the practical relationship between product design and the manufacturing industry and the technical considerations that influence the choice of material and process for small batch and mass production.

Course Goals: Designers entering the work force are immediately challenged to apply practical knowledge of how things are made. Early demonstration of the fundamental materials and processes is essential for achieving:

- Integrity of materials and Understanding and application of manufacturing constraints such as; draft, sink marks, gates, nit lines, runners, push pins, snap fits, UV, wear, cleaning materials and others.
- Economy of production
- Rapid design cycle time
- Performance and safety of the product
- Innovation through new materials and finishes
- Appeal and perceived quality of the product
- Credibility with engineering and manufacturing

Course Outcomes:

- Through the analysis of a variety of materials and products / parts, the students will be able to apply lecture and text information.
- Written and drawn detail analysis boards will be presented showing an understanding of materials, design details, and finishing
- Defense of appropriate design decisions related to material use and manufacturing processes
- Collaboration in material and manufacturing decisions
- Visualization of material application, use exploded views, and ways to communicate to stakeholders on material and manufacturing selection.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2013	PROD	255	Applied Materias in Product Design	3	M - W 3:00 - 5:20	15

PROD470 | Create Build Studio

SoundBITE is an all-in-one recording solution for musicians who do not have access to a studio.

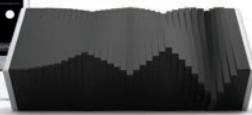
SoundBITE offers a simple and easy solution for musicians who do not have the means or technical knowledge to record in a professional studio. The device and the companion app allow musicians to experiment and play with music creation through new and innovative recording techniques.



In this second of two studios, students apply their skills to develop a solution based on the research conducted in the previous studio. Under supervision, students will demonstrate control of the a product design process in the production of a novel and appropriate user-focused solution.



SoundBITE features a two input digital interface, digital effects processor, multi-track looping, and sample based synthesis; which translates sound recorded on a smart phone into playable filters for instruments.



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Course Goals: The following course goals indicate competencies and measurable skills that students develop as a result of completing this course:

- Conduct a full product development process to an appropriate design outcome
- Create interesting and novel solutions to specific design research
- Demonstrate a rigorous product concept selection and refinement process
- Effectively and convincingly communicate a product design process and appropriate solution

Course Outcomes: The following course outcomes indicate competencies and measurable skills that students develop as a result of completing this course:

- Command of a known product development process
- Creating a well-crafted and appropriate design solution to a given problem
- Effectively present both verbally and non-verbally a design solution
- Demonstration and defense of design decision-making and authorship

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2013	PROD	470	Create Build Studio	4	M - W 1:00-3:50	15

PROD215 | Design Thinking in PROD



This course is a studio-seminar exploring principles and theories of product design, systematic design process, problem solving, decision making and design as authorship. The course uses design research methods, and topical design issues to explore and experience design thinking.

Course Goals: The following course goals articulate the general objectives and purpose of this course:

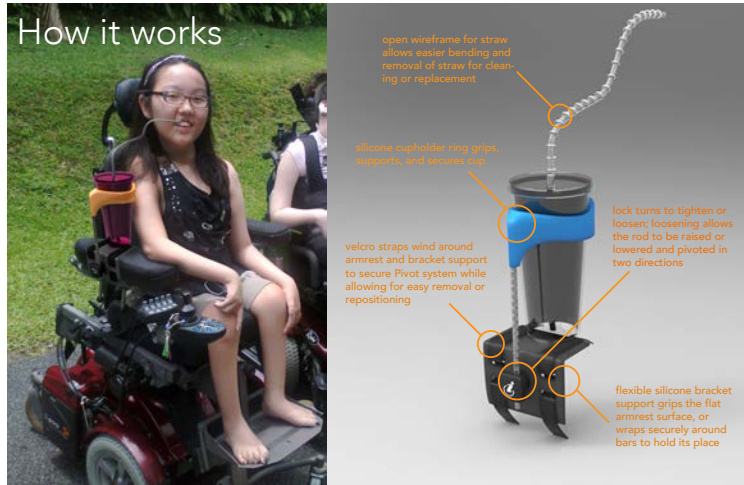
- Design as authorship and decision making
- The designer's role in symbolism, culture, semantics, and semiotics
- How meaning is attached to our objects, communications and environment
- Aesthetics as pleasing proportions that have roots in the structure of our lives and culture
- Style, trends and the drivers of change
- Designers' responsibility to use the persuasive tools and elements of design in a humane way

Course Outcomes: The following course outcomes indicate competencies and measurable skills that students develop as a result of completing this course:

- Command of the elements of style, proportion and value that contribute to a positive experience for people who are affected by the designs we produce
- Ability to create a broad range of design themes that communicate intended values to the user of our products
- Apply the psychology of signs and symbols to critical ergonomic problems that will reduce misunderstanding and improve the safety, efficiency and satisfaction of our products
- Develop a critical and analytical perspective on culture and design

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2012	PROD	215	Design Thinking in PROD	4	M 2:00 -4:50	15

PROD340 | Interdisciplinary PROD Studio



Through a focused design project, students of various backgrounds and departments collaborate on complex design issues as they seek to create an appropriate and novel solution to the assigned design problem. Bringing both the PROD majors and PROD minors together, students work as teams through the product development cycle.

The following course goals articulate the general objectives and purpose of this course: Product creation is no longer the sole responsibility of any one profession, as product design becomes more integrated with business, strategic planning, concurrent engineering, and technology roadmaps, tomorrow’s designers, engineers and marketing professionals will need to be able to collaborate as a multidisciplinary team while balancing multidimensional constraints. The ability to discover unarticulated opportunities and rapidly transform them into breakthrough product concepts is an essential component in today’s marketplace.

This course will provide an experience to partner as a multidisciplinary team and learn to facilitate innovative solutions in a studio experience. The student will create human-centered concepts from applied research that satisfy people’s explicit and implicit needs for useful, usable and exciting new products.

Course Outcomes: The following course outcomes indicate competencies and measurable skills that students develop as a result of completing this course:

- Development of roles and responsibilities in a team setting
- Communication and synthesis of research to ideas
- Collaboration using a product design process
- Experience Rapid visual problem solving
- Collaboration and Sharing of the Creative Process.
- Communications Skills – Visual, written, oral.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2013	PROD	340	Interdisciplinary PROD Studio	4	TU - TH 3:00 - 5:20	15

Courses taught in Other Programs:

Visual Communication I

Provides an overview of graphic design as an applied art. Covers the given, the formal, and the psychological aspects of graphic design.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2009,2010	VSCM	230	Visual Communication I	4	Tu - Th 6:00-8:50	16

Introduction to Honors

Offers intensive discussion of a subject of significant intellectual interest. Subjects vary from section to section and are meant to engage entering Honors students with one another under the guidance of Drexel's best faculty. Different sections may be taken for credit.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2010,2011, 2012	HNRS	200	Introduction to Honors	1	W 2:00-2:50	16

Design Thinking for BMEs

This course is a studio-seminar exploring principles and theories of product design, systematic design process, problem solving, decision making and design as authorship. The course uses design research methods, and topical design issues to explore and experience design thinking.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2011,2013, 2014	BMES	534	Design Thinking for BMEs	3	M -W 10:00-1:50	15

Analysis of Product

This course examines the methods by which non-apparel products are conceived, designed and brought to market. Students learn to recognize the importance of design integrity in the areas of home furnishing, cosmetics, accessories, paper products, footwear, and industrial design.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2009,2010	DSMR	201	Analysis of Product	3	Various	20

Special Topics in Design and Merchandising

Provides study in design and merchandising on a special topic or on an experimental basis. May be repeated for credit if topics vary.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2010	DSMR	201	Special Topics in Design and Merchandising	3	w 11:00-1:00	14

Structure

Investigates structure as an organizing principle in design by man and nature. Explores the basic objective and subjective relationships between form and function. Includes professionally juried presentations.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2009,2010	INTR	231	Structure	4	Various	12

Furniture Investigations

Investigates topical issues reflective of physical, social, cultural, and psychological needs, addressing special user groups or purposes. Studio.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
	INTR	435	Furniture Investigations	4	F 10:00-2:00	12

Furniture Design Documentation

Provides study in interior design on a special topic or on an experimental basis. May be repeated for credit if topics vary.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
	INTR	465	Furniture Design Documentation	3	F 10:00-2:00	12

Investigations in Rhino and 3D

Investigation into the use of Computer Aided Modeling to create design solutions. The CAD package Rhino was employed.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
	INTR	860	Investigations in Rhino and 3D	3	Various	1

Furniture Design II

Provides advanced individual study in interior design in a specialized area.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2010	INTR	860	Furniture Design II	3	F 9:00-11:00	6

Thesis - Development

Provides faculty guidance to enable students to identify and investigate an aspect of interior design. May include establishment of philosophical base, data collection, study of comparable or similar programs and spaces, writing of a design program, building selection and measurement, and preliminary design development. Includes professionally juried presentation.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2011	INTR	897	Thesis - Development	3	Various	1

Thesis - Documentation

Allows development and refinement of design responses to the program of INTR 897 through in-depth analysis of the design problem. Involves evaluation of work on the basis of the understanding of the design process, the execution of the concept and the extent of development, and the emergence of a design character appropriate both to the student as a designer and to the resolution of the specific problem. Includes professionally juried final presentation.

Year	Course Prefix	Course# Section#	Course Title	Credit Hours	Meeting Days & Times	# of Students
2011	INTR	898	Thesis- Documentation	3	Various	1

Academic Workshops - Special Projects & Special Guests



Rankin Scholar Tejo Remy | April 2010

Tejo Remy world renowned Dutch artist-designer (of Droog fame) led a hands-on creating-making workshop in from March 29th through April 1st. He encouraged radical new making techniques using his "impromolding" technique—mixing mold making processes and humble materials—to create original design work. Results from the workshop were collected and shown at a gallery event at Drexel.



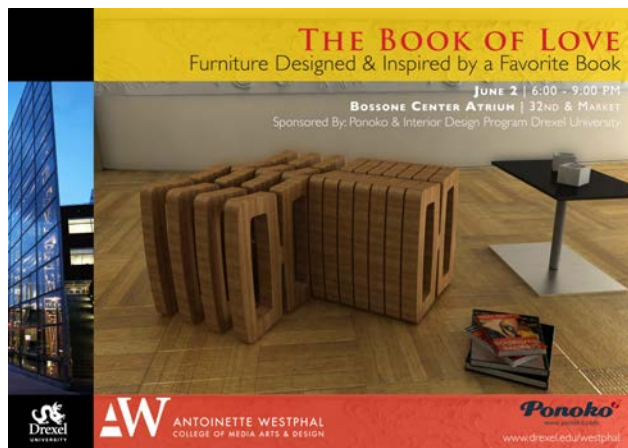
Rankin Scholar Emilio Garcia | April 2012

Internationally recognized toy designer and illustrator, Emilio Garcia traveled from Barcelona, Spain to host a 4-day workshop with students on making vinyl toys, along with a public lecture and demonstration for students of the Product Design program. Garcia is well known for his vinyl jumping brain toys and his design work with international companies Hitachi, Diesel, Inditex, Metro, Vans, and The North Face.

Garcia worked with 23 students to design a character/collectable toy that can be printed on the Objet and MakerBot. Students worked in teams on a theme-based project that will culminate with a small exhibition.

Results from the workshop were collected and shown at a gallery event at Drexel.





Ponoko Sponsorship | Winter Quarter 2009

Ponoko is an online marketplace for everyone to click to make real things. It's where creators, digital fabricators, materials suppliers and buyers meet to make (almost) anything. For INTR 799 & INTR 435 students collaborated Ponoko on the project, "The Book of Love", I approached Ponoko with the idea of a collaboration. As part of teaching new model for educational sponsorship that rethinks the role of design and collaboration in student education. Myself and Derek Elley, Strategist at New Zealand-based Ponoko, set out to create something new. By initiating a novel project to throw students into an authentic learning experience of being customers producing design art in the form of laser cut furniture, created a rare opportunity for

students.



Drink Aid Sponsorship | Winter Quarter 2013

The Junior Class took on a real world problem to help the Inglis House a specialty nursing care facility providing long-term, residential care for 297 adults with physical disabilities, including multiple sclerosis, cerebral palsy, spinal cord injury and stroke, among others. Residents receive rehabilitative medical and nursing care; physical, occupational and speech therapies; and a selection of more than 20 social enrichment and therapeutic recreation programs every day. Students were charged with the challenge to develop hydration devices that the residence could use to hydrate themselves. This was a ten week project.



TWWSTW Sponsorship | Winter Quarter 2013

THE WAY WE SEE THE WORLD is a husband and wife design team that combines different passions and expertise. Ingrid studied product design at Parsons School of Design; her former career as a professional ballerina instilled a love for experience and ritual. As a graphic designer and illustrator, Brandon brings expertise in form, color, and storytelling. TWWSTW has been featured in The New York Times Magazine, National Geographic, Fast Company, The New Yorker, TIME Magazine, Wired, and The Wall Street Journal. Students took on a Service design project to help reimagine the services and brand strategy moving from its original team of 4 woman to a 2 person company.



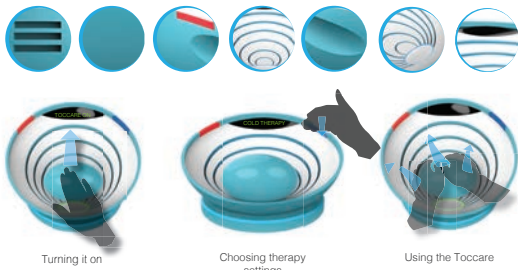
A Visit With Bill Moggridge | Spring 2010

Drexel's Inaugural class of product designers traveled to New York and the Cooper Hewitt Museum to spend a day with famed designer and my friend Bill Moggridge. Students spent the day getting a tour of "Why Design" with Bill and a discussion of design and wisdom from Bill's career and insight.

Academic Awards and Recognition

Toccare provides relief from morning stiffness and joint pain through heat and cold therapy.

Toccare is designed with several stylistic features that are specifically geared towards the needs and limitations of its arthritic users.



The Acute Reader creates an enjoyable reading experience for those with arthritis.



This reading system minimizes the pain and discomfort arthritis sufferers experience while reading. The Acute Reader holds the book and page in place and enables ease of page turning for those that have reduced hand dexterity.



\$1,000 First Place - Drexel Research Day

Product Design student Nnaemeke Offodile, Received top honors in the creative research category for his research and original design of Toccare, an appliance for helping sufferers of Rheumatoid Arthritis relieve pain and stiffness with this device.

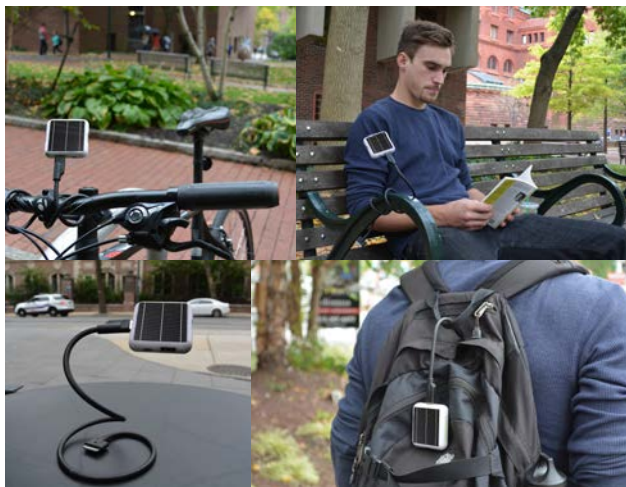
\$500 Third Place - Drexel Research Day

Product Design student Megan Peaslee, received third Place in the creative research category for her research and original design of Acute Reader, a reading blanket to helping sufferers of Rheumatoid Arthritis read and enjoy books and magazines with our the pain stiffness associated to trying to hold the book.



\$250 Honorable Mention - Drexel Research Day

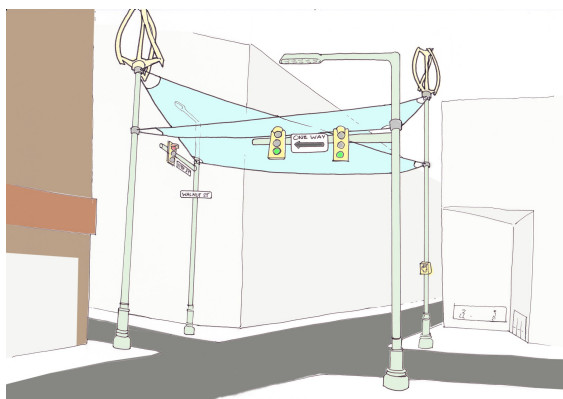
Product Design student Osman Cueto, received Honorable Mention in the creative research category for his research and original design of Breath, a connected inhaler; helping sufferers of Asthma, The connected inhaler goal is to reduce the fear, stress and stigma related to ravening to keep an inhaler with you at a Ill times.



\$10,000 Baiada Business Incubator Competition

Product Design student Troy Hudson was on the winning team for this year's Baiada Business Incubator Competition, receiving a first place prize of \$10,000 and free office space for their innovative portable solar charging device, called "Spore." Hudson's team included Business students Jason Browne and David Hunt and Mechanical Engineering student Luigi Cervantes.

Smart Cities: Wind Power in the Urban Pedestrian Space
 Alexa Forney and Greg Yeutter
 Drexel University, Philadelphia, USA
 Project Advisor: James Nathan



Example Turbine and Sail System Installed at an Intersection

Schneider Electric "Go Green in the City" Challenge 2010

Junior Product Design Major: Alexa Forney and Sophomore Electrical Engineering Major/Product Design Minor Greg Yeutter were selected as one of the top 25 team in the "go green in the city" challenge sponsored by Schneider Electric and will be going to Paris in June to present their final design solution.

The project is called Wind Power in the Urban Pedestrian Space. Greg and Alexa worked together to come up with and refine the idea, which is a novel way of bringing wind turbines into the city center to generate electricity. The clever part of the design is that it will also cut down on strong winds at street level.



First honorable mention - Collab's Student Design Competition - 2010

Candace Foster won honorable mention for her design "Segno". "Segno" is the Italian word for "sign". By slightly altering shapes based on signage, "Segno" symbolizes bringing life's journey to the table through a set of serving plates that store nicely in a clean, minimal manner.



Honorable mention - Collab's Student Design Competition - 2012

Osman Cueto received Honorable mention in the 2012 Collab Student Design Competition, "Game On!", which challenged student designers to redesign/repackage an existing, iconic game, or design a new game.

TAKEOUT

Takeout is a high-energy game of speed and accuracy. Players compete to grab as many sushi pieces as possible before time runs out. Watch the sushi fly as the Competition builds into a frenzy of jostling as players fight for points and pieces. The game kit is created with the philosophy of using humble iconic take out dinner components to elevate their value to a cult classic game. The kit is both durable and easily replenishable with components from local restaurants. Have fun play a round or two over takeout tonight.





\$3,000 Corzo Center for the Creative Economy Summer Entrepreneurs Program

Alexa Forney Received a \$3,000 grant to attend the Creative Economy Summer Entrepreneurs Program and develop her Senior Project Spoonful. Alexa's project is about providing simple ways to make healthy food option in cities with food deserts.



\$3,000 & \$5,000 Corzo Center for the Creative Economy Summer Entrepreneurs Program

Megan Peaslee was one of two students to receive a \$5,000 prize. The Acute Reader, a device for propping up printed books and holding open their pages to be used by people with rheumatoid arthritis in their hands. When not in use, the Acute Reader can be folded up to look like a blanket someone might throw over the back of a couch.



Press and News on Product Design Program

Our inaugural graduating class and individual students have received news and accolades from:

- Fast Company - Article on Troy Hudson LumiWare
- Philadelphia Inquirer - Article on Innovative Senior Class
- Design News - Article on Osman Cueto's Inhaler
- Trendhunter - Article on Troy Hudson LumiWare
- CBS Philly - Interview of Osman Cueto's Inhaler
- KYW Newsradio - Interview of Osman Cueto's Inhaler
- MedCity News - Article on Osman Cueto's Inhaler
- Enews Korea - Article on Troy Hudson LumiWare
- Fashionotes - Article on Troy Hudson LumiWare
- Drexel News - Article on Innovative Senior Class

Description of Curricular Revisions

During my first year and a half at Drexel, reflecting on the sum of my experience as a design practitioner and academic, I created and wrote the complete curriculum for the new undergraduate Product Design Program as well as developed and launched an accompanying minor in Product Design. The Product Design program offers a Bachelor of Science Degree that is comprised of 187 credit hours including a 6-month long co-op component. To achieve this accomplishment, I researched both Drexel and competitive design programs, conducting a complete SWOT analysis of the state of Product Design and of design education locally, regionally and globally, to craft a forward-thinking and unique product design program. It was extremely important to stay true to my conviction of the core values of design and to provide value to the students in the program. The new program will graduate its first class spring of 2014 as such it has not yet run a full cycle and had time to mature to a state where revisions are needed. It is expected that by tenure review some curricular revisions will have been warranted and accomplished. To this end, emphasis is being placed on creating assessment tools to monitor the expected outcomes.

I have collaborated with three colleagues to update and add content to existing course work:

PROD101 History & Analysis of PROD - Collaborated with David Raizman to modify my original course content, improving the flow and bringing students richer content and a better connection to product design. Final improvements included modifying classes to focus on case studies and adding two lectures by Dr. Raizman to bring historical context to the work.

DSMR 201 Analysis of Product - I worked with Beth Philips to bring new product design content and projects to Analysis of Product. I added a new book, *The Uncommon Life Of Common Objects* by author Akiko Busch, as well as created lectures and collected new images of the product design industry that were shared with all faculty to use in the classroom.

INTR 231 Structures - I worked with with Karin Kuenstler and Sylvia Clark to shape the final project flow and lock down the syllabus for the INTR 231 Structures course.

INTR 435/INTR 860 Furniture Investigations - Was asked to teach an existing course in furniture studio offered to senior and grad students majoring in Interior Design. Evaluating the results of past course outcomes, I developed a new syllabus to bring out three main outcomes: 1. Develop furniture based on a conceptual theme, 2. Require students to make full scale prototypes so to see scale and refine piece till it is aesthetically-pleasing, 3. Design to strategies that aid in better craft.

Teaching Improvement Activity

Being a new program, the prime focus of improvement is on developing assessment tools and outcome monitoring, which for me occurs on a daily basis.

A full cohort of assessment tools are being developed to assess the program before students graduate in 2014. The Product Design program has started laying the foundation for developing a quality assessment strategy. We will approach the creation of assessment tools with three distinct goals in mind: validation, reliability and fairness. This should provide holistic standards that evaluate the whole of both the student's performance and the effectiveness of the program's curriculum, rather than being seen as isolated parts. It should thus provide a realistic representation of the program's effectiveness through assessment of student ability. It should be noted that the true success of the program cannot be measured until after we have feedback from employers and advisory panel.

In addition to developing an assessment methodology that appropriately quantifies specific learning outcomes, the design of the assessment tools will also seek to fulfill three purposes:

Encouraging learning, self-assessment and reflection in the student.

Seeking to create a baseline of standards for the new program.

Providing timely feedback to students on their progress and learning.

Curricular Revisions

I authored the Product Design Program at Drexel University weaving together course work from the University and developing 20 new courses specific for the Product Design Major (PROD) and Minor programs as discussed at length in a scholarly work session entitled "Development of a New Design Program." The product design program has just completed its first 4 year sequence with good success at or just over expectation. As can be anticipated there will be minor revisions and sequencing that will take place over the coming year when assessment is completed and a review a panel of new faculty and our advisory board meet. As Program Director over the past six years, I have been responsible for overseeing the implementation of the courses and sequence, as well as the changes as made. It was my strategy to run all courses at least once before curricular revisions would be considered.

Teaching Impact Statement

My life is dedicated to teaching both academically and professionally whether in the classroom or boardroom as described in my reflection. Great design relies on great teaching. It is also what drives my passion and my joy, and what fuels my own learning and keeps my challenged. It is my mission to activate knowledge, skill and the will to create and become intellectual makers. I will continue to push myself and hold myself to the highest standard to be a lifelong learner in the classroom as well as through scholarship and creative practice.

Other goals include:

- Continue to refine course material and improve project experiences that challenge and engage students
- Continue to reach out to design professionals both regionally and nationally to engage with program and students in a range of activities from lectures, critiques, workshops, sponsored projects and co-op opportunities
- Continue to create and facilitate interdisciplinary opportunities between product design and others within and external to the University
- Continue to provide students opportunities to excel and find their design voices
- Continue to be active in the design and entrepreneurship communities locally and regionally

Student Course Evaluation Data

The student course evaluations I have received have all been quite favorable. In general, they reflect my success in implementing my teaching philosophy. I believe they provide important feedback in my ongoing effort to improve course design and overall approach to teaching. Over the past six years, even while teaching in different departments, my reviews stay consistently high, speaking to my love of being in the classroom.

Course Evaluation Can be found in the Appendix.