Integrated Product Conceptualization

Information

Instructor: Chris McComb
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Course Meetings: Tuesday/Thursday
10:30AM-12:20PM
Hunt Library A5

Office Hours: Wednesday, 1:30PM – 3:30PM

Textbook: *Creating Breakthrough Products (2nd ed): Revealing the Secrets that Drive Global Innovation* (2013), Jonathan Cagan & Craig M. Vogel. Upper Saddle River, NJ: FTPH.

Course Description

The Integrated Product Conceptualization course will introduce you to some of the skills and methods used in industrial design, engineering, and business to generate new consumer product proposals within integrated teams.

The theme of the course this semester is *Innovating for Accessible Fitness*. Being physically active helps us to lead longer and happier lives. However, there are many people for whom traditional routes to fitness are inaccessible or daunting. For instance, individuals who have health problems may not feel comfortable in a traditional gym environment. As another example, traditional playgrounds may be overwhelming for children who have autism. ***How can we provide products and services that make fitness more accessible for these and other such people?***

In answering this question, your team will progress through a semester-long project with three phases 1) identifying an opportunity for a new products or services, 2) understanding this opportunity through stakeholder research, value opportunity analysis, and competitive landscape assessment, 3) conceptualizing the opportunity with the goal of meeting the value proposition. This course will combine lecture and studio activities including the generation of 2D visual representation skills and 3D low-fidelity physical modeling in support of course work. This semester-long project and other design activities, paired with frequent peer and instructor feedback, will prepare you to employ the integrated new product development process in industry.

Learning Objectives

By the end of this course, you should be able to:

1. Describe the integrated new product development process.
2. Apply this process within interdisciplinary teams to design new, user-driven products.
3. Defend the design decisions that you make as well as evaluate the design decisions behind existing products and proposed product concepts.

Assignments and Grading

Your first assignment will be a skills survey that will help the instructor to place you into teams. After that, the course is structured according to three phases. For each phase there will be a reflection memo (completed individually), a phase report and presentation (completed with your team), and an in-class competition (which will be completed with a team, but graded individually).

Assignment	Individual/Team	Due	Weight
Skills and Background Survey	Individual	9/4/16	1%
Phase 1 Mid-Phase Memo	Individual	9/15/16	5%
Phase 1 Competition	Individual	9/15/16	5%
Phase 1 Presentation and Report	Team	9/22/16	10%
Phase 2 Mid-Phase Memo	Individual	10/20/16	5%
Phase 2 Competition	Individual	10/27/16	5%
Phase 2 Presentation and Report	Team	11/3/16	20%
Phase 3 Mid-Phase Memo	Individual	11/22/16	5%
Phase 3 Competition	Individual	11/29/16	5%
Phase 3 Presentation and Report	Team	TBA	30%
Participation	Individual	-	9%

Your final grade will be assigned according to an absolute scale (i.e., A = 90-100%, B = 80-89.9%, C = 70-79.9%, D = 60-69.9%, and F = 0-59.9%). In other words, it's possible for every student to receive an A! Slightly more than half of your grade (60%) will be based on team assignments, which reflects the interdisciplinary nature of this course. I know that this can cause some anxiety! As part of every team report you will also submit a peer and self evaluation that I may use to modify individual grades.

Skill and Background Survey

This survey will ask you about your skills and background so you can be placed in a team with skills that complement yours. **Note that this is the first assignment, and is due on Friday of the first week of** class. This will contribute 1% to your participation grade.

Mid-Phase Memos

These are short progress report on your current phase, and should be completed individually. You should describe your team's activities, discuss your current role in the team and how it relates to the roles of your teammates, and also provide a brief peer assessment. You will also be asked to connect the tools discussed in class to events outside the classroom (current news, your past experiences, technology companies, etc.).

Phase Reports and Presentations

Unlike the mid-phase memos, these reports should be thorough and complete, documenting your cumulative work in a manner that is clear, concise, and compelling. These reports should be prepared as a team. Information on what should be included in each report will be provided during

the corresponding phase. Presentations should focus on your work during the current phase with a brief summary of work from past phases. Presentations should also be prepared and delivered as a team, and should roughly correlate to your phase report.

Phase Competitions

Near the end of each phase there will be an in-class competition. These competitions will give you the chance to apply the methods and tools that you've learned in the phase to a *new* scenario as part of a *new,* randomly-chosen team. Your grade will be based on how you apply the methods from the course and how you work with your team.

Participation

This portion of your grade will be based on your attentiveness during lectures as well as your participation in discussions, team meetings, and activities in class. During team meetings and activities you should be actively engaged with your teammates in the task at hand. You should also contribute to discussions at least once per week.

Student Expectations

- **Do original work.**
  Any form of plagiarism can earn you a failing grade for the entire course. For more information you can refer to CMU's policies on academic integrity. When in doubt, add a citation.
- **Attend class frequently and participate.**
  Many of the class meetings for this course involve team-based meetings or activities, so missing class can have a direct impact on the quality of your team's project. You can miss up to two class meetings without a decrease in your grade. Every additional absence will lower your final grade by 2%. You can make up an absence in one of two ways. First, you can participate in experiments related to design and innovation – these will be announced throughout the semester. Second, you may attend a design or innovation seminar. Whenever you make up an absence you must obtain instructor approval, and submit a 1-page memo summarizing the experience.
- **Contribute to your team.**
  The majority of the work in this course revolves around a team-based design project. Put in your fair share of work, and try to find a unique perspective that allows you to make valuable contributions to your team.
- **Turn in all assignments on time.**
  Unless otherwise noted, assignments should be submitted via Blackboard by 5:00PM EST on the due date. Assignments submitted within 2 hours after the deadline will receive 90% of the raw score. Assignments submitted within 24 hours will receive 80% of the raw score. Assignments that are more than 24 hours late will not be accepted without prior arrangements.
- **Use technology professionally.**
  Laptops and smartphones play a key role in design practice as tools for accessing information. As such, you may find them helpful during class activities. However, these devices can also be distracting. Please use technology professionally to aid you in learning

and engaging in class. If technology detracts from your engagement in the class (or the engagement of other students) you will receive no participation points for the day.

- **Care for yourself.**
  Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This can help you cope with stress, but all of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus and an important part of the college experience is learning how to ask for help. If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. Counseling and Psychological Services (CaPS) is here to help: call (412) 268-2922 or visit their website. Over 25% of students reach out to CaPS some time during their time at CMU.

Instructor Commitments

- **Be accessible.**
  I will hold regularly scheduled office hours every week. In addition, I will happily schedule one-on-one meetings with students outside of these office hours.
- **Quickly respond to emails.**
  The instructor will respond to all emails within 24 hours.
- **Promptly return grades and feedback.**
  Grades and detailed feedback will be provided for all assignments within 1 week of the final due date.
- **Solicit student feedback.**
  I constantly strive to improve my ability to teach. You should feel free to email me your feedback at any time, but I will explicitly solicit your evaluation of my teaching ability at least twice during the semester. I hope that you will provide your candid and constructive comments.
- **Help to provide necessary accommodations.**
  If you have a disability and require accommodations, please contact Catherine Getchell, Director of the Office of Disability Resources at getchell@cmu.edu or (412) 268-6121. If you have an accommodations letter from the Office of Disability Resources office, I encourage you to discuss your accommodations and needs with me as early in the semester as possible. I will work with you to ensure that accommodations are provided as appropriate.

Tentative Schedule

Week	Date	Topics
1	08/30/16	Introduction to IPC, SET Factors and POGs
	09/01/16	Trends in Fitness and Health
2	09/06/16	Teams Assigned, SET and POG work
	09/08/16	List Reduction and Opportunity Selection
3	09/13/16	Storytelling/scenario lecture
	09/15/16	Competition #1: Ready, SET, POG!
4	09/20/16	Team Meetings (presentation outline and final questions)
	09/22/16	Phase 1 Presentation
5	09/27/16	Overview of Phase 2, Team Meetings (presentation feedback)
	09/29/16	Identifying Stakeholders, User Research Methods (part 1)
6	10/04/16	User Research Methods (part 2)
	10/06/16	Institute Presentation and Activity
7	10/11/16	Competitors, Team meetings for user research progress
	10/13/16	Value Opportunity Analysis Lecture and Activity
8	10/18/16	VOA Recap, guided work in teams, Positioning Lecture
	10/20/16	Team Meetings (check on progress)
9	10/25/16	Defining product requirements
	10/27/16	Competition #2: From Stakeholders to Requirements
10	11/01/16	Team Meetings (presentation outline and final questions)
	11/03/16	Phase 2 Presentations
11	11/08/16	Overview of Phase 3, Team Meetings (presentation feedback)
	11/10/16	Concept Generation
12	11/15/16	Concept Evaluation and Selection
	11/17/16	Prototyping, Intellectual Property
13	11/22/16	Team Meetings (check on progress)
	11/24/16	No Class (Thanksgiving)
14	11/29/16	Competition #3: E Pluribus Unum
	12/01/16	Team working session
15	12/06/16	What's next? Continuing development of your concept
	12/08/16	Team Meetings (presentation outline and final questions)
16	TBA	Phase 3 Presentations during final exam slot