OMIS 390, New Product Development
Spring 2011
Kenna 104

Class	*Date*	*Topic*
1	3/28/11	**Introduction to New Product Development** **Product Development Methodologies and Organization** Read Ulrich and Eppinger, Chapters 1 and 2 Read "Improving Product Development Processes to Manage Development Risk" by Darian Unger and Steven Eppinger *(ANGEL)* **Team assignments** **Logistics**
2	4/4/11	**Product Development Planning and Technology Development** **Understanding Customer and User Needs** Read Ulrich and Eppinger, Chapters 3 and 4 Read "Integrating the Fuzzy Front End of Product Development" by Anil Khurana and Stephen Rosenthal *(study.net)* – read through p. 14 only Read "Hybrids' Rising Sun" by Peter Fairley *(ANGEL)* **Assignment #1 Due**: Bug List
3	4/11/11	**Design Thinking Techniques** **Guest speaker: Gary Waymire, Principal, Point Forward** Read Ulrich and Eppinger, Chapters 7 and 8 Read "The Evolution of the Design-Inspired Enterprise" by Gabriella Lojacono and Gianfranco Zaccai *(study.net)* Read "Finding Your Innovation Sweet Spot" by Jacob Goldenberg, Roni Horowitz, Amnon Levav, and David Mazursky *(study.net)* Read "The IDEO Way" *(ANGEL)*
No Class	4/18/11	**Assignment #2 Due**: Market Opportunity
4	4/25/11	**Developing and Selecting Product Concepts** **Group Presentations: Product Ideas**
5 Lucas 307	4/29/11	**Product Specifications and Product Architecture** **Industrial Design, User Interface Design, Prototyping** Read Ulrich and Eppinger, Chapters 5, 9, 10, and 12 Read "Different: Inside (sort of) Apple's industrial-design machine" by Daniel Turner *(ANGEL)* Read "On Beautiful Machines" by Jason Pontin *(ANGEL)*
6	5/2/11	**Software Development Methodologies** **Guest speaker: Paul Miller, Software Engineering Manager, NetApp** Readings on Agile TBD

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7	5/9/11	**Program Management for Product Development** **Guest speaker: Nousheen Eslambolchi, Senior Program Manager, Guidant** Read Ulrich and Eppinger, Chapter 16 Read "How to Manage Virtual Teams" by Holger Ernst, Martin Hoegl, and Frank Siebdrat *(study.net)* Read "Creativity Versus Structure: A Useful Tension" by John Seely Brown, Paul Duguid *(study.net)* Read "From Experience: Reaping Benefit from Speed to Market" by Preston Smith *(ANGEL)* Read "The Trouble with Teamwork" *(http://www.leadertoleader.org/knowledgecenter/journal.aspx?ArticleID=80)* **Assignment #3 Due**: Customer and User Needs Assessment
8	5/16/11	**Design for Manufacturing and Test; Green Design** **Product Development Economics** Read Ulrich and Eppinger, Chapters 11 and 15 Read "Cradle to Cradle Design and the Principles of Green Design" by William McDonough and Michael Braungart *(http://www.mcdonough.com/writings/c2c_design.htm)*
9	5/23/11	**Portfolio Management and the Program Management Office** **Information Technology and Intellectual Property; Crowdsourcing** Read Ulrich and Eppinger, Chapters 13 and 14 Read "The Rise of Crowdsourcing" by Jeff Howe, Wired Magazine *(http://www.wired.com/wired/archive/14.06/crowds.html)* Read "An Inside View of IBM's Innovation Jam" by Osvald Bjelland and Robert Chapman Wood, MIT Sloan Management Review (http://sloanreview.mit.edu/the-magazine/articles/2008/fall/50101/an-inside-view-of-ibms-innovation-jam/) Read "PLM: Boeing's Dream, Airbus' Nightmare" *(http://www.baselinemag.com/c/a/Projects-Processes/PLM-Boeings-Dream-Airbus-Nightmare/1/)* **Assignment #4 Due:** Concept Selection
10 Lucas 309	5/27/11	**Product Testing and Reliability** **Case Study Discussion: Le Petit Chef** Read Ullrich and Eppinger, pp. 38-45 Read Case Study: Le Petit Chef **Assignment #5 Due**: Le Petit Chef
No Class	5/30/11	
11	6/6/11	**Final Presentations** **Assignment #6 Due**: Product Development Proposal with Financial Analysis Final evaluations

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Faculty

Jonathan Propp, 650-235-5342, jonathan@redhouseinnovation.com

Jonathan Propp is a leading local expert in the field of new product development. As a principal in Red House, he consults to technology firms throughout the Bay Area. Prior to founding Red House, he was a Director at Sun Microsystems, where he implemented new processes for product lifecycle management, technology development, and portfolio management. He is a certified New Product Development Professional (NPDP) and a former board member of the Northern California chapter of the Product Development Management Association (PDMA). He has taught new product development in the MBA and Executive Education programs at Santa Clara, and has been a frequent speaker on the topic at national conferences. His twenty years of experience in Silicon Valley includes companies such as Hewlett-Packard, Acuson, and Mitsubishi Electronics. Mr. Propp is a graduate of Harvard College and the Yale School of Management.

Office Hours

Please contact the instructor to schedule. These will generally be held before class on Monday, but you must make an appointment beforehand.

Web Sites

We will be using two web sites for the course. The course syllabus, some readings, and all assignments, as well as presentation templates, are posted on ANGEL. You must register for the course on ANGEL to access the materials. I will be using ANGEL for the submission of all completed assignments as well, and for general communication to the class.

We will be using www.study.net for the case studies and for certain readings. These materials can be downloaded or printed and shipped for a fee. You must register at study.net as well.

Course Objectives

This course introduces students to the methods that technology companies use to develop and release new products. New product development is a challenging, rewarding activity that requires multifunctional cooperation and inter-disciplinary skills. For technology companies, successful product development is critical to success.

This is a practical, hands-on course where students will go through several of the activities of product development in small teams. Students who take this course will find immediate applications if they work in product development, program management, product management, or in operations or service related to new products.

Expectations

This is an integrative, elective course. Students are expected to have basic understanding of marketing, finance, manufacturing and IT before taking the course. It is expected that each student will prepare for and attend all of the class sessions and will contribute regularly and substantially to class discussions and to their team assignments.

The out-of-class project work is a considerable part of the overall workload, and should not be

underestimated. Students will need to find the time to interview and observe customers, meet with their project team, develop product concepts, and create presentations.

Academic Integrity
Full group and class collaboration on all aspects of this course is highly encouraged. It is almost impossible to share too much information in product development. I do expect that all team members will contribute substantially to their project efforts.

Reading Materials
The primary reading material for the class is the textbook Product Design and Development (Fourth Edition) by Karl Ulrich and Steven Eppinger. The book is available at the SCU Bookstore. The 2nd or 3rd edition is acceptable and much cheaper; you can find it online.

Case studies and assigned readings are available at www.study.net. You can order printed versions or download electronic versions; it will cost about $30-40. Other course materials are available for download at the ANGEL website.

Grading
This is a learning-by-doing class that simulates a real product development environment. The team project is a key component of the work and hence of the overall grade. There are two team assignments to be handed in and two team presentations. It is expected that all of the team members will have presented by the end of the course. There are two individual assignments as well. There is no final exam.

This is intended to be a participatory class. Students are expected to be prepared for discussions by having completed textbook or case readings. Class participation is a key part of the overall grade. If you cannot attend a class due to business travel, please let me know in advance.

Group presentations and assignments: 50%
Individual assignments: 30%
Class participation: 20%

Grading Philosophy
Product development is an activity filled with uncertainty and tradeoffs, one that rewards intelligent risk-taking. There are rarely right-or-wrong answers in product development, merely tradeoffs.

This is an applied class teaching practical skills and techniques for developing new products.
I am looking for you to apply the skills and techniques covered in the textbook, lectures, and readings to your projects. I am looking for creativity and applied thinking in your work, rather than right or wrong answers. This means there is naturally some subjectivity to my grading. I will do the best I can to support my grading with comments on what I did or did not like about your work.

Team Project
In this course, you will be learning the activities of new product development through a group project. Your team will identify a market opportunity, interview and observe potential users, generate product requirements, develop product concepts, and prepare a detailed business analysis for the product. You will do this in a ten-week quarter. The assignments involved in this project constitute the greatest percentage of

your overall grade. Students will be grouped in teams of five people if possible.

I have learned through experience that your success in this project is closely related to the type of project you choose. Please follow the guidelines below:

1. Simpler is better. Because you will be doing things such as creating a costed bill of materials, drawing product concepts, and possibly building prototypes to show to potential users, you should choose a product that is relatively simple to design and build. Fewer than 10 working parts is a good rule of thumb.

2. Try to stay away from high technology. The product should require no basic technological breakthroughs. We do not have time to deal with large technological uncertainties. In fact, I am more concerned that you have a specific market need in mind for your project than that you attempt to develop new technologies. Combining existing technologies in a different way is perfectly acceptable.

3. There should be a demonstrable market for your product. One good way to verify a market need is to perform a competitive review and identify existing products that try to meet the need. Your product need not be a variant of an existing product, but the market need addressed by your product should be clearly evident (i.e., you shouldn't be inventing a new market). The product does not need to have a tremendous economic potential, but should at least be an attractive opportunity for a small firm.

4. The most successful projects tend to have at least one team member with strong personal interest in and knowledge of the target market.

5. You should have access to at least three potential users of the product; even more would be better. You will need to talk with them or observe them when gathering customer requirements or reviewing product concepts.

6. Save any highly proprietary ideas for another context, as we will be open in discussing the projects in class and do not wish to be constrained by proprietary information.

The project assignments are spaced throughout the course to reflect the sequence of deliverables in a product development project. Since we have only 10 weeks in the quarter, there is generally about 2 weeks between deliverables. If you fall behind, you will find it very hard to catch up. Be aware of your upcoming deliverables and plan accordingly.

It is important to seek help if your team is stuck or has questions. In addition to my limited office hours, I am available anytime via email or phone to answer your questions. There is no penalty for seeking help. It is always better for product development teams to seek help early rather than later.

Remember, the goal of this course is for you to learn about the process of product development. Most product development efforts (70-80% by various estimates) do not succeed. So if your product does not look like a breakaway success, don't worry. I am more interested in the way you got there and how you applied the techniques than the end result.