

MGB 241, New Product Development Winter 2013 Course Syllabus

Date	Topic	Read/Prepare
Session 1: 1/11/12 6 - 9 pm	Introduction to New Product Development Product Development Methodologies and Organization Team assignments Logistics	Ulrich and Eppinger, Chapters 1 & 2 “The New Product Development Imperative” (<i>study.net</i>)
Session 2: 1/12/12 1- 4 pm	Identifying Market Opportunities Product Planning	U&E, Chapters 3 & 4 “In A Graying Population, Business Opportunity” (<i>SmartSite</i>) “Mobile Services in Poor Countries” (<i>SmartSite</i>) Assignment #1 Due: Bug List
Session 3: 1/25/12 6 - 9 pm	Understanding Customer and User Needs	Read Ulrich and Eppinger, Chapter 5 “Understanding User Needs” (<i>study.net</i>) Assignment #2 Due: Market Opportunity
Session 4: 1/26/12 1- 4 pm	Design Thinking Techniques Guest speaker: Gary Waymire, Principal, Point Forward Developing and Selecting Product Concepts	U&E, Chapters 7 & 8 “Spark Innovation Through Empathic Design” (<i>study.net</i>) “Finding Your Innovation Sweet Spot” (<i>study.net</i>) “Building an Innovation Factory” (<i>study.net</i>)
Session 5: 2/8/12 6 - 9 pm	Product Specifications Product Architecture Industrial Design User Interface Design	U&E, Chapters 6, 10, 11 “Different: Inside Apple’s Design Machine” (<i>SmartSite</i>)
Session 6: 2/9/12 1- 4 pm	Prototyping Design for Manufacturing/Test Product Testing and Reliability Simulation and Design Tools Guest speaker: Allen Adolph, Adolph Consulting	U&E, Chapters 13, 14, 15 “Enlightened Experimentation: The New Imperative for Product Development” (<i>study.net</i>)
Session 7: 2/22/12 6 - 9 pm	Program Management for Product Development Product Development Economics	U&E, Chapters 17 & 18 “How to Manage Virtual Teams” (<i>study.net</i>) “Leading Dispersed Teams” (<i>study.net</i>) “The Trouble with Teamwork” (<i>SmartSite</i>) Assignment #3 Due: Customer and User Needs Assessment

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Session 8: 2/23/12 1 - 4 pm	Software Development Methodologies Guest speaker: Paul Miller, Software Engineering Manager, NetApp Case Study Discussion: Medisys Corp.	“Medisys Corp.: The IntensCare Product Development Team” (<i>study.net</i>) Readings on Agile Software Development TBD Assignment #4 Due: Medisys Corp.
Session 9: 3/8/12 6 - 9 pm	Design for the Environment Product Lifecycle Management Portfolio Management and the Program Management Office	U&E, Chapter 12 “Cradle to Cradle Design and the Principles of Green Design” (<i>SmartSite</i>) “How Sustainability Fuels Design Innovation” (<i>study.net</i>) “Designs Change” (<i>SmartSite</i>) “Learning from Projects: Note on Conducting a Postmortem Analysis” (<i>study.net</i>) Assignment #5 Due: Concept Selection
Session 10: 3/9/12 1 - 4 pm	Information Technology Intellectual Property Crowdsourcing and Open Innovation Case Study Discussion: Le Petit Chef	U&E, Chapter 16 “PLM: Boeing’s Dream, Airbus’ Nightmare” (<i>SmartSite</i>) “The Rise of Crowdsourcing” (<i>SmartSite</i>) “Le Petit Chef” (<i>study.net</i>) Assignment #6 Due: Le Petit Chef
Session 11: 3/23/12 1 - 4 pm	Final Presentations Final evaluations	Assignment #7 Due: Product Development Proposal with Financial Analysis

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Course Objectives

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

The topics covered in this class span a range of disciplines, from marketing and finance to engineering and operations. You will be introduced to “design thinking” techniques and learn new creativity skills that can be applied in all aspects of work and life. We will also cover the link between company strategy and product development.

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.

Reading Materials

The primary reading material for the class is the textbook Product Design and Development (Fifth Edition) by Karl Ulrich and Steven Eppinger. Case studies and assigned readings are available at www.study.net. Other course materials are available for download from SmartSite.

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 four team assignments to be handed in, two of which are presented to the class. It is expected that all of the team members will have presented by the end of the course. There are three individual assignments as well, two of. 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%

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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 four or five people.

Team assignments will vary from Word documents to financial analyses to copies of a presentation delivered in class. You will hand in one assignment per team, and all team members will receive the same grade. The final presentation simulates a company “investment approval” review in front of outside experts.

In grading your projects, I am looking for how well you apply the techniques taught in the course:

- How well have you identified the market opportunity, developed an understanding of customer and user needs, and assessed the competitive landscape?
- Have you demonstrated creativity in developing product concepts and applied rigor in choosing a final concept that meets customer and user needs?
- How comprehensive and realistic are your financial and “go-to-market” plans, including identification of the initial target market, production, pricing and communication strategies?
- How effectively do you “pitch” the concept to your classmates and reviewers during the live presentation?

I will meet periodically with each team during the quarter to provide guidance and ensure that you are on the right track. There is no penalty for getting off track - teams do it all the time. It is much better to catch it early and redirect than to let it go on for too long.

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:

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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 for physical products.

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 five 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 with your team.

It is important to seek help if your team is stuck or has questions. 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.

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Individual Assignments

There will be one initial assignment - creating a “bug list” - and two case studies to prepare. The case studies should be an executive level assessment (i.e., no more than 2 pages of text, plus data) of the situation, including your recommendation and supported by a qualitative and quantitative analysis. Again, these problems do not have right or wrong answers, so I will be looking for the application of technique and the quality of your reasoning.

Class Participation

Active participation in our class discussions is a critical component of this course. I expect you to come fully prepared to engage in the key issues of the case material and associated readings, and to share your own work experience where relevant. I tend to use an interactive teaching style, especially for the case studies, and will expect you to volunteer your thoughts. I will also expect you to be respectful and receptive of others’ comments. Our goal throughout is to engage each other and learn, not necessarily to come up with the “right” answer.

Faculty

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.

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