

ENT 361: Product Innovation Management

Spring 2011

Instructor: Dirk Libaers

Office: 209 Bloch

Phone: 816-235-2625

Email: libaersd@umkc.edu

Office Hours: By appointment (email or call me)

Class Venue & Time: Bloch Room 2, Tuesday & Thursday 11:00 AM – 12:15 PM

Course Description and learning objectives

Research and development (R&D) of products and services has emerged as one of the key themes of competitiveness after the 1990s. And yet, it is still treated in many firms as a "black hole" into which management pours lots of money, hoping that enough useful things come out to sustain the company for a few more years "on the run". Have you worked or done internships in marketing, finance or sales? Then you will likely be familiar with that view.

This course offers a systematic overview of the management issues that arise during the process of new product development (NPD). The development process requires integration across the traditional management functions. The course introduces tools and concepts for both linking development to strategy, and for managing the development process for speed, efficiency, and market impact. Through a combination of cases and reading articles, the course covers a wide range of topics.

The course is divided in two large sections. The first one focuses on the theoretical perspectives and frameworks concerning the management of the development process. This course is rooted in the design and product development process and philosophy of the IDEO design firm. IDEO (www.ideo.com) is a world famous product design firm with numerous Fortune 500 firms as clients and has developed such iconic products as the Apple computer mouse, the AT&T pager, and numerous other products. A thorough understanding of the fundamental principles that govern the NPD process should emerge from this first part. More specifically, the notion that the NPD process entails "information processing and transformation" must be realized. The development of a new product concerns mainly the transformation of an idea (that is information at a raw, primitive stage) into an actual product or service (that is finalized information that fulfills consumers' needs) through a number of intermediate stages (NPD process steps). Participants shall become familiar with the key stages, such as 'Understand and Observe',

‘Visualize and Realize’, ‘Evaluating and Refining’, ‘Implement /Detailed Engineering’ and ‘Implement /Manufacturing Liason’. We will also cover product portfolio selection and technology choice, and specific prototyping technologies and methodologies. The insights that the course offers constitutes the basis for anyone who wishes to get involved with the development of new products, independently of her/his function within the organization.

The second part is the application of the theory in practice. Students are expected to "develop" a new product in parallel to the course following the theoretical developments. The second part of the course aims to convey a basic principle that must not be overlooked in management: theory is always distant from practice. Hence, it helps to recognize the intangible "bits and pieces" of reality in NPD, e.g. team cooperation and management. Students work in teams throughout the semester, and they have to achieve a modus operandi in order to attain the desired outcome. This "tacit" learning aspect offers important on-hand experience. Furthermore, the project offers the opportunity to apply some of the theoretical underpinnings of NPD in a project, finding out the limits of theory application in practice. For more details about the project see the relevant section in the end.

The key deliverable of this course is a venture project in which students in teams develop a physical prototype of a product that meets and exceeds real customer needs.

Course tentative schedule

Week 1

Session 1: (January 11) Introduction and Overview of the Course

In-class Activity: Students introduce themselves. Each student is expected to come up with 10 product ideas by September 2.

Session 2: (January 13) The IDEO Product Development Process

Pre-class Assignment: Read Case on IDEO product design philosophy and process posted on Blackboard

In-class activity: Overview of the different phases in the IDEO product development process. We also discuss some of the products developed by IDEO.

Week 2

Session 3: (January 18) Creativity and Brainstorming

Pre-class Assignment: Read the materials posted on Blackboard.

Session 4: (January 20) Product Idea Selection

In-class activity: Product idea fair. Each student explains his/her 10 product ideas and submits a one-page sheet with the product ideas to the Instructor before class. To make it challenging we will list the top and bottom 5 ideas of all students combined and play devil's advocate with regard to these two groups. That is, students should question why the top 5 ideas are 'good' ideas and why the bottom 5 ideas are 'poor' ideas. Challenging product ideas will be selected from the bottom 5 ideas for further improvement and development throughout the semester. Student teams of maximum 3 students self select the product idea they like to work on.

Week 3

Session 5: (January 25) Product Idea Selection

In-class activity: Students improve the bottom 5 product ideas to turn them into challenging product concepts. Students teams of maximum 3 members self select themselves around a chosen product idea.

Session 5: (January 27) Understanding the Customer

Pre-class Assignment: Read materials posted on Blackboard

In-class activity: In this session we discuss how the product development team can understand the client's business and the needs of the end customers. It essentially covers Phase 0: 'Understand and Observe' of the IDEO product innovation process. In addition, it also provides a foundation to determine the (market and technical) feasibility of the product. Consult the templates on Blackboard for the product feasibility analysis.

Week 4

Session 6: (February 1) Case Study: Sweet Water

Pre-class Assignment: Read the case prior to coming to class and be prepared to answer the question below and engage in the case discussion

- What are the most important user needs in the water purifier market?

Session 7: (February 3) Visualize and Realize Product Concepts

Pre-class assignment: read the documents posted on Blackboard.

In-class Activities: In this session we discuss Phase 1 of the IDEO product design process.

Week 5

Session 8: (February 8) Visualize and Realize Product Concepts

In-class Activities: In this session, students actually complete Phase 1 of the IDEO product innovation process and apply it to their chosen product idea

Session 9: (February 10) Evaluating and Refining of Product Concepts

Pre-class Assignment: read the documents posted on Blackboard

In-class Activities: In this session we discuss Phase 2 of the IDEO product design process.

Week 6

Session 10: (February 15) Evaluating and Refining of Product Concepts

In-Class Activities: Student teams evaluate and refine different product concepts.

Session 11: (February 17) Student Presentations on User Need Identification and Product Feasibility Analysis

In-class activity: Each student team presents on the needs they identified using ethnographic, focus group or interview techniques. In addition, they present the results of their product feasibility analysis. Fifteen minutes per team. Five minutes Q&A

Week 7

Session 12: (February 22) Student Presentations on User Need Identification and Product Feasibility Analysis

In-class activity: Each student team presents on the needs they identified using ethnographic, focus group or interview techniques. In addition, they present the results of their product feasibility analysis. Fifteen minutes per team. Five minutes Q&A

Deliverable #1 due on February 22 by email to the instructor

Session 13: (February 24) Implementation of Product Concepts

Pre-class Assignment: read materials posted on Blackboard

In this session we discuss Phase 3 of the IDEO Product Design process.

Week 8

Session 14: (March 1) Implementation of Product Concepts

In-Class Activities: Complete Phase 3 of the IDEO Product Design Process

Session 15: (March 3) Implementation of Product Concepts – Manufacturing Issues

Pre-class assignment: Read the materials posted on Blackboard. In this session we discuss Phase 4 of the IDEO Product Design Process. In your projects, apply Design for Manufacturing (DFM) and Concurrent Engineering principles to the fullest extent.

Week 9

Session 16: (March 8) Implementation of Product Concepts – Manufacturing Issues

In-class activities: Students complete Phase 4 of the IDEO Product Design Process in class

Session 17: (March 10) Team presentations on Product Concept Implementation & Manufacturing issues

In-class activity: teams are presenting on how they generated product concepts, selected a few concepts to pursue further, and implemented their product concept. Fifteen minutes per team and five minutes Q&A.

Week 10

Session 18: (March 15) Team presentations on Product Concept Implementation & Manufacturing issues

In-class activity: teams are presenting on how they generated product concepts, selected a few concepts to pursue further, and concept testing. Fifteen minutes per team and five minutes Q&A.

Session 19: (March 17) Case study: Team New Zealand

1. What prototyping techniques are used in this case?
2. What are the advantages and disadvantages of each prototyping technique?
3. What prototyping strategy should Team New Zealand pursue?

Pre-class assignment: Read the case in-depth. Each team should prepare a written report (min. 2 double-spaced pages) that answers the questions above and submit it at the beginning of class.

Week 11

Session 20: (March 22) Guest Speaker: Sue Mosbey TBD

Session 21: (March 24) Prototype Day

Students further refine their prototypes in class

Week 12

Session 22: (March 29) Spring Break

Session 23: (March 31) Spring Break

Week 13

Session 24: (April 5) Launching New Products

Pre-class assignment: Read the article posted on Blackboard

Session 25: (April 7) Project Management

Pre-Class assignment: Read materials posted on Blackboard

Week 14

Session 26: (April 12) Prototype Day

Session 27: (April 14) Prototype Day

Week 15

Session 28: (April 19) Final Class Presentations

In-class activity: student teams present how they completed all phases of the IDEO Product Design process and the prototype and launch plan.

Session 29: (April 21) Final Class Presentations

In-class activity: student teams present how they completed all phases of the IDEO Product Design process and the prototype and launch plan.

Deliverable #2 due at end of the day by e-mail

Week 16

Session 30: (April 26) Pizza & Soda and feedback from students

Session 31: (April 29) Prototype Expo at the Venture Creation Challenge

Deliverables

Deliverable 1 – Feasibility Analysis: Market, regulatory and technical feasibility

Deliverable 2 - Final Report: Documentation of all the steps in the IDEO Product Design Process

Deliverable 3 - Prototype: a rough mock-up of a product.

Grading Policy

Evaluations will be based upon the following components weighted as indicated:

- Class Participation: 20%
- Team Presentations: 30%
- Course Project deliverable #1: 20%
- Course Project deliverable #2 and prototype: 30 %

Academic Honesty

All of us are expected to adhere to ethical standards regarding honesty in classes. These are set out at: <http://www.umkc.edu/umkc/catalog/html/append/policy/0020.html>