OM 337: Product Development (Fall 2019)

#04260 : T/TH 2-3:30 in UTC 1.132

Instructor : Mary Ann Anderson E-Mail: Maryann.Anderson@mccombs.utexas.edu
Office : CBA 6.492 (by the Behavioral Lab)
Mailbox : CBA 5.202
Office Hours : W 12-2 OR by appointment
TA: : Mrudang Mathur  Mrudangm@utexas.edu  Available by Appointment

Please begin subject line with OM 337

COURSE DESCRIPTION:

The focus of this course is the integration of supply chain management into the product design and development process. It is estimated that upwards of 85% of total product life cycle cost is determined during product development. Unfortunately, most companies do not effectively assess supply chain considerations in this process. This course will focus on the skills and knowledge every supply chain manager should know about new product development (NPD) and how they can incorporate supply chain considerations into the NPD process. The primary focus will be on designing and developing products that optimize the supply chain while maintaining the coherence of the product’s initial vision from concept to customer. Course instruction will include lecture, corporate guest speakers, case studies and a group development project.

COURSE OBJECTIVES:

The main objectives of this course are:

• To provide the student with an understanding of the new product development process from the identification of customer needs, through design and sourcing, to the manufacturing and delivery of the product.
• To identify where in the development process that supply chain considerations have the most impact.
• To learn how to manage new product introduction and its effects on supply chain management over the product’s life cycle.

COURSE MATERIALS:

1. Required Readings and Book
Course Packet: Available at https://hbsp.harvard.edu/import/657471 . It contains a set of readings and cases we will discuss in class.
• Value Proposition Design by Alex Osterwalder and others published by Wiley. Available from Amazon and elsewhere on-line.

2. **Course Website:** This course will use Canvas substantially. The login page is located at [http://courses.utexas.edu](http://courses.utexas.edu).

   (a) **Course Notes:** Before each lecture, I will post the slides that will be used in lecture. You may download and print these slides if you would like to take notes. Most of the time, these slides will be incomplete, and you will be expected to fill in the blanks in class.

   (b) **Additional Reading Assignments:** There may be additional readings assigned that are not included in the Course Packet purchased. These will be posted as needed.

   (d) **Grades:** Grades on cases and project assignments will be posted on Canvas. Please check that the grade posted matches the grade on your paper copy, and notify the instructor as soon as possible in case of a discrepancy.

---

**PERFORMANCE EVALUATION:**

Your grade will be assessed through project assignments, case write-ups and class participation. Below is a description of how the various types of assignments contribute to your grade, as well as a description of each type of graded work.

<table>
<thead>
<tr>
<th>Assignment Type</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Project Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Final Group Project Presentation and Paper</td>
<td>30%</td>
</tr>
<tr>
<td>Individual Assignments</td>
<td>30%</td>
</tr>
<tr>
<td>Class Participation</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Group Project**
During the semester you will be working on a product development project. Your group will select either a new product you want to develop or an existing product that you would like to improve. Details of the project will be provided in class.

**Project Assignments**
As part of the group project, you will have assignments periodically throughout the semester. These assignments will require that you apply the tools and techniques learned in class to the development of your selected product. Assignment details will be provided in class.
Final Group Project Presentation and Paper
Your group will be required to give a presentation to the class during the last few class sessions. You will also be required to submit a short written paper explaining the process you used to design/improve your selected product. The presentation date and details will be provided in class.

Case Assignments:
Several case studies will be assigned throughout the semester. You will be required to answer a series of questions for each. Your assignment must be uploaded to Canvas prior to the class period in which it is due.

Cases will be graded on a scale of 0-10 using the following guidelines.

• 0 points for no submittal or no reasonable effort
• 2 point for submittal
• 4 points for submittal and good faith attempt, but missed the mark on the goal of the assignment
• 6 points for essentially correct, good effort
• 8 points for correct answers, very good effort
• 10 points for exceptional work, including correct answers to the challenging questions and insightful analysis of a case with supporting data

A potential deduction of a point from the rubric above will be made for sloppy or unprofessional work.

Any concern regarding the grading of assignments should be addressed no later than one week after the grade is posted.

Class Participation
Regular attendance at all class meetings is expected.

Students are expected to prepare before class the assigned case or readings. Participation in class, in the form of answering questions and/or commenting on the material is strongly encouraged.

In each session, students are asked to pick up their name card and return it at the end of the session. Students who participated in class are asked to put their name card in the designated box.

Students may not disturb classmates, surf the web, read newspapers or use their cell phones in class.

Students may be called on to provide input on the days topic of discussion.
Project Peer Reviews
At the end of the course you will be asked to assess the contributions of your teammates to the group project. Based on this review you may not receive the same score on the project as your teammates. Slackers are not welcome and will graded accordingly. Please notify me ASAP if there are issues with group dynamics.

Electronics Policy: No screens allowed during lectures. However, a computer will be useful during in class exercises.

IMPORTANT NOTIFICATIONS:

Students with Disabilities
Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 512-471-6259, http://diversity.utexas.edu/disability/.

Religious Holy Days
By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Policy on Scholastic Dishonesty
The McCombs School of Business has no tolerance for acts of scholastic dishonesty. The responsibilities of both students and faculty with regard to scholastic dishonesty are described in detail in the BBA Program’s Statement on Scholastic Dishonesty at http://my.mccombs.utexas.edu/BBA/Code-of-Ethics. By teaching this course, I have agreed to observe all faculty responsibilities described there. By enrolling in this class, you have agreed to observe all student responsibilities described there. If the application of the Statement on Scholastic Dishonesty to this class or its assignments is unclear in any way, it is your responsibility to ask me for clarification. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since dishonesty harms the individual, all students, the integrity of the University, and the value of our academic brand, policies on scholastic dishonesty will be strictly enforced. You should refer to the Student Judicial Services website at http://deanofstudents.utexas.edu/sjs/ to access the official University policies and procedures on scholastic dishonesty as well as further elaboration on what constitutes scholastic dishonesty.

Campus Safety
Please note the following recommendations regarding emergency evacuation, provided by the Office of Campus Safety and Security, 512-471-5767, http://www.utexas.edu/safety:
- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.
• Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
• Students requiring assistance in evacuation should inform the instructor in writing during the first week of class.
• In the event of an evacuation, follow the instruction of faculty or class instructors.
• Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
• Further information regarding emergency evacuation routes and emergency procedures can be found at: http://www.utexas.edu/emergency.

SCHEDULE

A tentative schedule of meetings, readings, and deliverables for the semester is available on Canvas. This is subject to change. When there are major changes, you will be notified by email; a current schedule will always be available on the Canvas course website.
<table>
<thead>
<tr>
<th>Date</th>
<th>Readings</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 29</td>
<td>Introduction to Product Development</td>
<td></td>
</tr>
<tr>
<td>Sept 3</td>
<td>Product Planning and the Product Development Process</td>
<td>Product Development Fundamentals Value Proposition Design (VPD) Intro</td>
</tr>
<tr>
<td>Sept 5</td>
<td><strong>IDEO Case Study</strong></td>
<td>IDEO Case</td>
</tr>
<tr>
<td>Sept 10</td>
<td>Capturing the Voice of the Customer (Exercise)</td>
<td>The House of Quality</td>
</tr>
<tr>
<td>Sept 12</td>
<td>The House of Quality</td>
<td>VPD Chapter 1</td>
</tr>
<tr>
<td>Sept 17</td>
<td>The House of Quality</td>
<td>Project selection</td>
</tr>
<tr>
<td>Sept 19</td>
<td>The House of Quality</td>
<td></td>
</tr>
<tr>
<td>Sept 24</td>
<td>The House of Quality</td>
<td></td>
</tr>
<tr>
<td>Sept 26</td>
<td>Meet in Room EER 0.602</td>
<td>VPD Chapter 2</td>
</tr>
<tr>
<td>Oct 1</td>
<td>Concept Generation and Selection (Exercise Vending Machines)</td>
<td>Why Most Product Launches Fail VPD Chapter 3</td>
</tr>
<tr>
<td>Oct 3</td>
<td>Concept Testing and Optimization</td>
<td>Early Prototypes Can Hurt a Team’s Creativity Being Early Beats Being Better</td>
</tr>
<tr>
<td>Oct 8</td>
<td>Prototyping Exercise</td>
<td></td>
</tr>
<tr>
<td>Oct 10</td>
<td>Design for the Supply Chain (DFM exercise)</td>
<td>Cisco Systems: Collaborating on NPI Concept Selection Case Questions</td>
</tr>
<tr>
<td>Oct 15</td>
<td>Robust Design (Airplane Exercise)</td>
<td>Robust Design (Airplane Exercise)</td>
</tr>
<tr>
<td>Oct 17</td>
<td>Project Management/Lean Design</td>
<td>Managing the transition to the new agile business and product development model: Lessons from Cisco</td>
</tr>
<tr>
<td>Oct 22</td>
<td>Guest Speaker</td>
<td></td>
</tr>
<tr>
<td>Oct 24</td>
<td>Guest Speaker</td>
<td></td>
</tr>
<tr>
<td>Oct 29</td>
<td>Forecasting for New Products</td>
<td>Forecasting the Adoption of a New Product</td>
</tr>
<tr>
<td>Oct 31</td>
<td>Product Lifecycles</td>
<td>LL Bean, Inc Case</td>
</tr>
<tr>
<td>Nov 5</td>
<td>Guest Speaker</td>
<td></td>
</tr>
<tr>
<td>Nov 7</td>
<td>Product Matrix</td>
<td>Golf Logix Case</td>
</tr>
<tr>
<td>Nov 12</td>
<td>Guest Speaker: P&amp;G</td>
<td></td>
</tr>
<tr>
<td>Nov 14</td>
<td>Commonality, Postponement and Modularity</td>
<td>How Many Versions of a Product Do Consumers Really Want</td>
</tr>
<tr>
<td>Nov 19</td>
<td>Managing Suppliers</td>
<td>Spin Toys Cases (A,B,C)</td>
</tr>
<tr>
<td>Nov 21</td>
<td>Managing Suppliers</td>
<td>Colin CO: New Product Development</td>
</tr>
<tr>
<td>Nov 26</td>
<td>No Class Work on Projects</td>
<td>Project Prototype Due</td>
</tr>
<tr>
<td>Nov 28</td>
<td>Thanksgiving Holiday</td>
<td></td>
</tr>
<tr>
<td>Dec 3</td>
<td>Group Presentations</td>
<td>Final Paper and Presentation</td>
</tr>
<tr>
<td>Dec 5</td>
<td>Group Presentations</td>
<td></td>
</tr>
<tr>
<td>Dec 10</td>
<td>Lessons in Product Development</td>
<td>VPD Chapter 4</td>
</tr>
</tbody>
</table>

**Value Proposition Design (VPD)**
OM 337 Product Development
Group Development Project

During the course of the semester you will be required to use the tools and techniques learned in class to either develop a new product or improve an existing one. Working in groups you will select your product and follow the development process introduced in class to produce a prototype of your chosen product as well as develop a sourcing, manufacturing and distribution strategy.

Group members as well as the product will be self selected. If you would like me to assign you to a group, please let me know.

You will be required to complete a series of assignments applying your knowledge of course material throughout the semester to your chosen product. The final deliverable will be an in-class presentation as well as a short written report. It is anticipated that these final deliverables will be a compilation of the assignments completed throughout the semester. This compilation can, however, be edited/adjusted as appropriate in response to feedback or if new knowledge has come to light during the remainder of the project.

Selecting a Product
Care should be taken when selecting your product. It is highly recommended that you select a current product that you believe can be improved (e.g. build a better mouse trap).

Since you will be required to produce a prototype of your product (or component of the product) the product should be simple.

Use the following guidelines:
- There should be a demonstrable market for the product.
- The product should be a material good and not a service or app.
- Try to limit the number of parts the product is likely to contain. Fewer than 10 is a good target.
- The product should use simple technology with no basic technological breakthroughs.
- Pick a product whose tolerances do not need to be too tight
- You should have access to potential users of your product as well as to the product you are developing.
- Do not use any proprietary ideas that you may have as confidentiality is not guaranteed.

Examples of good products include but are not limited to
- Toy, Bathroom or kitchen scale, Can opener, Corkscrew, Christmas tree stand, Pepper grinder, Lawn sprinkler, Stapler, Hand Tool, Garlic press, Utility knife

Here is a link to some of the products that have been developed during an MIT master’s course. Note that the MIT teams did have engineering students and they had a design budget. Your group will want to select a simple product.

http://web.mit.edu/15.783j/www/gallery.html

In addition, take a look at http://engineeringathome.org/ on how everyday objects were modified to make Cindy’s life easier.

Prototyping
You will be required to make a prototype of your product or a component of the product. This prototype can be made out of any materials such as cardboard, wood or foam, not necessarily the ones that will be used in the finished product.

You will have access to the 3-D printers. You will be required to attend a tutorial session outside of class to become certified. I encourage you to make use of these resources to get an idea of how they work and their potential in rapid prototyping. No programing skills are necessary. Simple design tools such as Tinkercad and Thingiverse are available online and can assist in developing programs for the printer.
**Deliverables**
Assignments will be due throughout the semester. Please refer to the course schedule for dates. These items include:

- Team selection
- Product idea brainstorming, product selection
- Market analysis
- End user interviews and surveys
- Detailed Voice of the Customer
- Competed House of Quality
- Concept Selection
- Benchmarking results
- Prototype results
- Design for Manufacturing/Assembly/Supply Chain analysis
- Supplier research and selection
- Manufacturing and Logistics Strategy
- Cost Analysis

The final deliverable will be a presentation given to the class during the last class sessions. It is anticipated that the bulk of the presentation will be derived from the assignments completed throughout the semester. A short project paper will also be required.